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Articles

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PROFITABILITY DURING THE FINANCIAL CRISIS EVIDENCE FROM THE REGULATED CAPITAL MARKET IN SERBIA

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Abstract

This paper investigates how large and medium-sized companies listed on the regulated market segments of the Belgrade Stock Exchange manage their profitability during periods of recession, over the four-year period (2008-2011). The study shows that bigger and more liquid companies demonstrate higher profitability. As to growth opportunities, asset efficiency and institutional ownership, these profitability determinants are statistically significant only in the case of return on asset as a profitability measure. The analysis reveals evidence of the transitional character of the Serbian corporate environment and indicates the need for additional ways to gain profitability and improve companies' performance during crisis periods.

JEL Classification: L21, G10, G32
Key words: profitability, financial crisis, firm-level determinants, Belgrade Stock Exchange.

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1. Introduction

The crisis of the Serbian economy has a long term character and, with certain variations, has lasted over two decades. Its causes are both internal and external in nature. The important feature of the Serbian economic environment is that the current crisis in the Serbian economy would exist despite the impact of the global crisis. At the beginning of the global crisis in 2008, the characteristics of the Serbian economy were: uncompleted privatization process, unfavorable economic structure, high unemployment rate, market distortions in the form of monopoly and oligopoly, large and growing trade deficit, large (relative to GDP) and growing external debt. Unfortunately, not much has changed for the better since then.

The negative effects of the global economic crisis that influenced the Serbian economy have been observed in many fields, such as: the decline in GDP and foreign demand and exports (hence in domestic production, especially industrial), the growth in the trade deficit and balance of payments deficit, the decline in foreign direct investments and the inflow of foreign capital investments in general. The level of unemployment has remained high and competitiveness has declined.

Negative trends on the Belgrade Stock Exchange in 2008 (when the effects of the crisis were the strongest) continued in 2009 and 2010 as well (see Spasic and Denčić-Mihajlov, 2013).

Unfavorable macroeconomic trends, caused by slower transition and the global economic crisis are, as expected, reflected in the real sector performances. The companies from the real sector are faced with insolvency problems, pressure of high indebtedness (which is predominately of a short-term nature) and negative financial leverage, inefficient asset and equity management, difficulties caused by financial imbalance and lack of net working capital (Malinić and Milićević, 2011). Negative values of return on equity and very low return on asset have been reported over the whole crisis period. According to the recent study done by Malinić and Milicević (2012), the problem of low profit margins, being a characteristic of the Serbian economy in times of crisis, is not only the consequence of low profit achievements and small range of activities, but also a result of inappropriate indebtedness and negative effects of exchange rates.

The processes of liberalization and privatization initiated in 2000 in Serbia provided substantial opportunities to Serbian companies to grow, develop and improve their profitability. In this context, understanding the effects of financial crisis on a company's profitability is especially important to Serbia as a country in transition.

This study has been undertaken in order to specify the characteristic features of Serbian listed companies which determine their profitability during a period of reduced economic activity. It focuses on the relationship between profitability on one side and company's size, liquidity, assets efficiency, leverage, sales growth and institutional ownership on the other.

The contribution of this paper is twofold. Firstly, it extends the existing empirical literature on the relationship between companies' profitability and analyzed determinants in developing and transitional economies in a crisis period. This is done by focusing the analysis on the Serbian listed companies where, up to now, few researches have been conducted. Secondly, this study contradicts some of the previous findings on the profitability determinants at a company level, and thus broadens the possibilities for cross-country comparisons in this field of profitability research.

The structure of this paper is as follows. Having addressed the theoretical background on profitability determinants, in Section 2 we present the framework of the research problem and develop a research hypothesis. In Section 3, we describe the research method and the sample, and define the measures of profitability and explanatory variables. Finally, we test the potential determinants of profitability and offer discussion on the research results. In the last section, we provide conclusions, emphasize some limitations of the study and propose the objectives of future research.

2. Profitability determinants − theoretical background and hypothesis development

Profitability is the unique measure of corporate success and essential indicator of economic performance. Profits are generators of retained earnings within a firm. Moreover, they are often used as components of the national overall income and competitiveness. Companies' profitability affects the progress of the whole economy, its ability to invest and provide sustainable growth rates as well as its capability to raise employment. Insufficient profitability results in many problems, such as insolvency, companies' deterioration, decrease of employment. Even though profitability is a sufficient indicator of the current competitiveness of a company, it is better if it is measured over an extended period of time.

Economic literature has recognized several important competitive theoretical models that aim to explain a firm's profitability factors (see Slade, 2004). Each theory favors different factors as the key determinants of a firm's profitability.

The structure-conduct-performance (SCP) model, which is incorporated in neoclassical theory, dominated industrial economics until the early 1980s (Chamberlin, 1933; Robinson, 1933, 1953; Bain, 1951, 1956). According to this model, market structure determines the way in which companies in one industry interact, which in turn determines their profitability. The proponents of this model argued that market structure was basically affected by technological factors (e.g. economies of scale and scope), and that the existence of high profit levels in one industry was evidence of the monopoly that a company in a given industry possessed.

During the 1970s, a number of "Chicago–school" economists criticized the SCP paradigm emphasizing that its proponents had the causality backwards (see Demsetz,1973; Peltzman, 1977). The hypothesis of efficiency (Demsetz, 1973) assumes that concentration of the market is the result of a greater efficiency of some companies which, therefore, increase their market share and are more profitable. The industries in which efficiency differences are the most prominent have the most asymmetric market structures and the most intensive horizontal concentration. Since large firms in these industries are usually more profitable and dominate the market, the correlation between concentration and profitability is positive.

According to Porter (1980), who laid down the cornerstones of the market-based concept, firms can realize profitability above average if they manage to position themselves in an attractive industry. However, even though the attractiveness of industry is regarded as an important determinant of a firm's performance, the market-based view also identifies the value of strategic positioning within the market as the cause of persistent firm-specific deviations from the average industry profitability.

The fundamental assumption of the firm effect models (or resource-based models) is that heterogeneity in profitability results from the persistent differences in characteristics across companies (Rumelt, 1991; Hawawini *et al*., 2003; Grossmann, 2007). On the basis of heterogeneity in resource endowment, as the main assumption of the model, above-average profits are considered to be the result of the usage of tangible and intangible resources that are rare and costly to copy or imitate (Barney 1991). The firm effect models generally anticipate persistent firm-specific variations speaking from the view of general level of industry economic return. Within this school, Demsetz (1973) assumes that firms differ in their level of prod-

uctivity and that these inter firm differences are the major causes of profit hetero-geneity.

Another theoretical model was developed by financial economists. In their model, the return on investments in firm assets fluctuates significantly depending on the firms' characteristics, such as systematic risk. An asset with higher system-atic risk should demand a higher return. According to the capital asset pricing model (see Sharpe (1964) and Lintner (1965)), it is a firm's risk class that deter-mines profitability level, not the structure of the market within which it operates.

A firm's profitability is, therefore, affected by numerous factors which can be firm-specific, industry-specific (business cycle, entry and exit barriers, intensity of competition, the threat of substitute products and services, concentration level, etc.), and country-specific (law system, accounting practice and disclosure, investor protection, development of capital market etc.). From the empirical point of view, the above mentioned schools of thought are not mutually exclusive. More specific-ally, empirical findings rather indicate the dominance of firm effects compared to relatively small contributions of year, country, and industry effects (e.g., Schmalen-see, 1985, Rumelt, 1991, McGahan and Porter, 1997, Mauri and Michaels, 1998, Hawawini *et al.* 2004, Brito and Vasconcelos 2006). Moreover, a number of studies found that less than 5% in profitability variations can be explained by the industry-level factors (Rumelt, 1991, Claver *et al*., 2002, Hawawini *et al.* 2004, Brito and Vasconcelos 2006, Szymański *et al*. 2007, Schiefer and Hartmann, 2009). Having in mind this argument, this study examines the impact of the major firm level factors on firm profitability during a crisis.

The review of recent studies on the firm profitability determinants, undertaken by different authors in different periods and countries is presented in Table 1. The dependent variables most used by the researchers are return on equity, return on assets and return on sales. Among independent variables at the firm level, the most used are: firm's size, leverage, age, capital intensity, skill, capacity utilization, mar-ket share, advertising intensity, R&D intensity, liquidity, turnover ratios, ownership characteristics, working capital management, etc. (see Chander and Priyanka, 2008). The studies on firm's profitability determinants mainly adopt multiple re-gression analysis and are usually undertaken in developed countries during the periods of normal economic activity, i.e. during non-crisis periods.

Table 1. Determinants of corporate profitability – review of recent empirical studies

Authors	Time period/Sample/Country	Dependent variable
Geroski *et al.* (1997)	1976-1982, 271 large quoted British firms	Return on Sales
Fenny and Rogers (1999)	1993-1999, 653 Australian firms	Return on Assets and Return on Equity
Kaen and Baumann (2003)	1990-2001, 64 industries in the USA	EBITDA margin and EBIT margin
Hawawini *et al.* (2003)	1987-1996, 562 firms drawn from top 1000 listed firms across 55 3-digit industries in the USA	Economic Value Added Total market value ROA
Claver *et al.* (2006)	2001-2003, 444 Spanish firms	Average annual Return on Assets and Return on Sales
Ito and Fukao (2006)	1989/2002, 2000+parent Japanese firms and their affiliates	Return on Sales
Chander and Priyanka (2008)	1995-1996 to 2004-2005, 50 Indian drugs and pharmaceutical companies	Average return on capital employed
Asimakopoulos *et al.* (2009)	Greek non-financial firms listed on the Athens Stock Exchange for the period 1995-2003	Return on Assets
Goddrad *et al.* (2009)	1996-2000, 11 European countries	Return on Assets
Raza *et al.* (2012)	2004-2009, 151 firms from Karachi stock exchange	Return on Assets and Return on Equity
Pervan *et al.* (2012)	2003-2010, listed Croatian firms	Return on Assets

This study examines the impact of major factors of a firm's structure − firm size, liquidity, debt ratio, asset efficiency, ownership structure and sales growth − on its profitability during the crisis period. In order to test for the sector impact on profitability variations, we include sector dummy variables in the separate regression models. In the following section we discuss possible relations between each mentioned factor and profitability and develop the hypotheses accordingly.

2.1 Firm size and profitability

The type of correlation between firm size and profitability is unclear. Some empirical studies point to a negative relationship (Shepherd, 1972; Goddard *et al*., 2005; Banchuenvijit, 2012), some researchers provide evidence of positive correlation (Hall and Weiss, 1967; Fiegenbaum and Karnani, 1991; Jonsson, 2007; Lee, 2009; Dogan, 2013), while some studies suggest that the relationship between firm size and profitability can become negative beyond the firm size threshold.

There are many theoretical arguments which are in favor of positive correlation between firm size and profitability. Higher profitability is inherent to large companies primarily owing to economies of scale, and secondly owing to the fact that total assets size may act as an entry barrier to smaller firms. Baumol (1959) hypothesizes that the rate of return rises with the size of the firm. According to Fama and French (1993), with rational pricing, the bigger a firm is in size, the more able it is to capture the common risk factors in returns. Smaller firms are challenged with higher capital costs and financial barriers in comparison to larger firms. Berk (1997) theorizes that investor returns are in positive correlation with size when measured with non-market indicators (i.e. number of employees, asset value, etc.).

However, the opinion of Rajan and Zingales (1998) is that smaller companies are not necessarily predisposed to be less profitable than larger firms in a given institutional environment. In the model developed by Rajan and Zingales, the crucial factor that makes a firm profitable is adequate control over intangible assets. According to these authors, higher importance of intangible factors in a firm's operation implies slower growth of the firm.

Prior empirical studies on the relationship between firm profitability and size use different measurements of size such as value of assets, sales, numbers of employees and value added. Having in mind earlier statements, it is predicted that the influence of this variable on the company's profitability is as follows:
Hypothesis 1: Firm size positively affects profitability.

2.2 Liquidity as profitability determinant

Liquidity ratios measure the ability of a company to meet its short-term debt obligations. High liquidity reflects a firm's ability to pay off its short-term liabilities when they fall due and it is valuable for additional borrowing. Liquidity level reflects a management team's propensity for using its cash and other short-term assets in an efficient way.

Working capital management can affect a firm's profitability and one of the major goals of a firm is to maintain an optimal level of liquidity. Regarding the relationship between liquidity and profitability, theories generally state that profitability rises with decreased liquidity. If a firm maintains high levels of current assets, as a result of this strategy a lower profitability is expected due to its holding costs. Ross (2000) as well as Gitman (2003), indicate negative relationship between profitability and liquidity. They point to the fact that high investments in current assets tend to induce costs for maintenance, and thus do not contribute to generating profitability and financial health of the company.

However, keeping current liquidity at a too low level may result in difficulty in maintaining the continuity of the production process. Low liquidity companies are sensitive to sudden changes in cash flows, for example in cases of increased working capital requirements. Lack of liquidity is often a determining generator of business failure. According to Hirigoyen (1985), the relationship between liquidity and profitability could become positive in the medium and long-term period. Low liquidity would generate a lower profitability due to greater need for loans, while low profitability would not result in sufficient cash flow.

The positive relation between profitability and liquidity is proven in the study done by Benito and Vilanghe (2000) on a sample of 1000 UK firms as well as in the research done by Rajčaniova and Bielik (2008) on a sample of enterprises in Slovakia. The results of the studies conducted in India by Chander and Priyanka (2008) and in Croatia by Pervan *et al.* (2012), also support the above mentioned positive correlation between liquidity and profitability. Taking into account the transitional feature of the Serbian economic environment as well as the importance of liquidity for profitable operating of firms in times of crisis, we expect that:
Hypothesis 2: Liquidity positively affects profitability.

2.3 Asset efficiency and profitability

Asset turnover ratio describes a firm's efficiency at using its assets to generate sales / revenue. Higher values of this ratio imply better managing of overall firm assets. Asset turnover ratio also signals which pricing strategy the company uses: firms that operate with low profit margins usually have high asset turnover, while those with high profit margins tend to show low asset turnover. According to Ezeamama (2010) total assets turnover ratio expresses the number of times the value of assets was utilized by the firm and generated into sales.

Changes in the firm's productivity may lead to changes in asset turnover, which consequently reflect changes in the firm's current profitability. As a result, asset turnover and its variations will predict possible future fluctuations in the firm's profitability. The empirical study by Salman and Yazdanfar (2012) indicates a significantly positive relationship between assets turnover and profitability, implying that a higher level of asset turnover is connected with more profitable firms. Okwo *et al*. (2012) also document positive relationship of total assets turnover ratio with net profit margin as a profitability measure. Based on the theoretical framework and the review of literature, we propose the following hypothesis:

Hypothesis 3: The efficiency of a company measured by asset turnover ratios positively influences its profitability.

2.4 Leverage as profitability determinant

The issue of impact of financial leverage on firms' profitability attracts substantial attention in financial literature, mainly because of controversy surrounding the relationship between these variables. The level of financial leverage influences the average cost of capital, and thus firms' profitability and stock prices (Miller, 1977; Myers, 1984). It is documented that a firm's decision on capital structure is determined by the trade-off between interest tax shields and costs of financial distress (Kim, 1997; Sheel, 1994; Titman and Wessles, 1988).

In line with the trade-off theory, there is an optimal capital structure which is the result of trade-offs between tax advantages from interest and costs of financial distress. The more intensively a company exploits its debt capacity, the less income tax it pays and the more net profit it earns, but it is exposed to greater financial risk. The findings of Brealey and Myers (1992) show that as long as the cost of the debt is lower than the cost of equity, the high leverage firms tend to exhibit higher profitability indices.

Empirical evidence on the relationship between leverage and profitability generally indicates that profitability is negatively related to total gearing. Graham (2000) as well as Titman and Wessels (1988), show that big and profitable companies usually do not have high debt levels. Fama and French (1998) point out that significant leverage level produces agency problems between shareholders and creditors, and therefore they anticipate negative relationship between debt level and profitability. Myers (1984) shows that profitable firms borrow less because they finance their growth and development with retained earnings. Cassar and Holmes (2003)

support Myers' opinion. Lincoln *et al.* (1996) are also of the opinion that firms with higher gearing level earn less. On the other hand, the study done by Hall *et al.* (2000) indicates that profitability is not statistically significantly connected to long-term debt. Jordan *et al.* (1998) also do not support the idea of the negative impact of debt on profitability.

From the above, it can be concluded that the results of the most empirical studies support the general idea that lower debt level decreases the insolvency risk and increases a firm's profitability. In order to test the relationship between leverage and profitability and having in mind the characteristics of capital markets during the crisis period, we postulate the following hypothesis:

Hypothesis 4: Leverage negatively affects firm's profitability.

2.5 Institutional ownership and firm profitability

The ownership structure has been regarded as an important factor in a firm's performance in the economic literature. Institutional ownership is related to the ownership stake in a company held by large financial organizations, such as mutual funds, pension funds, hedge funds, private equity funds, etc. Institutions generally hold large blocks of a company's outstanding shares, act as active investors and can have favorable influence upon its management and financial performances. The importance of studying relationship between profitability and institutional ownership arises from an increasing volume of equity which is nowadays controlled by institutions.

According to the „efficient monitoring hypothesis" (Shleifer and Vishny, 1997), the investors improve a firm's financial performance since the primary objective of institutional owners is profit maximization. The hypothesis of "the active investors" by Agrawal and Mandelker (1992) also favors positive impact of institutional ownership on the firm's profitability. On the other hand, Pound (1988), Brickley *et al.* (1988) and Woidtke (2002) provide evidence that instead of monitoring, institutional investors may have an incentive to cooperate with firm's entrenched managers against their own fiduciary. Consequently, the firm value would decrease with increased institutional ownership. Aguilera and Jackson (2003) assume positive correlation between the state ownership and agency cost, and consequently a negative relationship between state ownership and firm performance.

The mixed effect of state and institutional ownership structure is studied[1] in this paper. Therefore, the fifth hypothesis regarding ownership type and profitability ratios in Serbian listed firms is:

Hypothesis 5: Institutional ownership is negatively associated with a firm's profitability.

2.6 Firm growth and profitability

According to Goddard *et al*. (2009), the topics of inter-relation and dynamics of firm growth and profitability are important for both industry practitioners and academic researchers. Yet, the conclusion about precise influence of growth rates on profitability in theories and empirical studies is not unique. Some theories argue that growth rates impact profitability positively (for review see: Jang and Park, 2011). According to the Kaldor–Verdoorn Law (Kaldor, 1966; Verdoorn, 1949), faster growth in output increases productivity owing to increase in profit rates. Furthermore, the concept of economies of scale tells us that firm growth results in firm size enlargement and more intensive activation of the economy of scale, which has, as an outcome, enhanced profits. On the other hand, in line with the neoclassical view, firms initially undertake their most profitable growth opportunities projects, then they take into account less profitable projects until the marginal profit on the last growth opportunity equals zero. In this way, profitable firms maximize their total level of profitability by realizing profitable growth opportunities, and by doing so, they suffer from the decrease in profit rates. The managerial growth maximization hypothesis also supports inverse relation between profitability and growth. Namely, it claims that in the condition of market competition, growth and profitability are in a competing relationship with each other, which could have as an effect that growth sacrifices profit.

Newly empirical studies on the relationship between firm growth and profitability (Cowling, 2004; Coad, 2007, 2009; Davidsson *et al*., 2009; Jang and Park, 2011) are inconclusive. Cowling' study (2004) indicates a significant positive correlation between sales growth and profit rates. On the other hand, Jang and Park (2011) claim that growth has negative effect on profitability, while Davidsson *et al*. (2009) indicate that profitable low growth firms are more likely to reach the desir-

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1. Such a solution is determined by the content of the data disclosed by the Serbian Central Securities Depositary and Clearing House (http://www.crhov.rs), which was used as a source of statistics concerning ownership structure in this research.

able state of high growth and high profitability. Based on the theoretical frame-
work and the review of empirical literature, we propose the following hypothesis:
Hypothesis 6: The firm's growth positively influences its profitability.

3. Empirical Analysis

3.1 Sample and Data Description

We tested the regression model of profitability on the sample consisting of real-
sector publicly traded companies whose shares are quoted on the regulated market
(which consists of the Prime and the Standard Listing as well as the Open Market
Segment) of the Belgrade Stock Exchange. We compiled the basis of financial
statements (source: Serbian Business Registers Agency) for those publicly-listed
companies that were quoted in all segments of the regulated stock exchange market,
which met the size criterion in all analyzed years (big or medium-sized enterprises[2])
and operated in real sector (financial firms were excluded from the sample). We
excluded companies with consolidated financial statements in all analyzed years, as
well as those whose loss exceeded the amount of capital.

The sample contains financial data for 4 years in sequence, for the period from
2008 till 2011. The final sample, representing the basis for the empirical study, con-
sists of a total of 108 large and medium publicly-listed non-financial companies,
whose shares are quoted on the regulated segment of the Belgrade Stock Exchange.
The most significant share in the sample structure with regard to the business sector
belongs to companies from the processing industry (52%), agriculture, forestry and
fishing (14.9%), transportation and storage (10.2%) and construction (8.4%)[3]. Fin-

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2. According to the law on accounting and auditing, legal entities in Serbia are classified as
    small, medium and large, depending on the average number of employees, annual turnover
    and assets value. The law classifies all legal entities as medium, which meet at least two of
    three following criteria: 1) the average number of employees in the year of annual statement
    stands from 50 to 250, 2) the annual turnover is from 2,500,000 EUR to 10,000,000 EUR in
    dinars equivalent, and 3) the average value of assets (at the beginning and at the end of the
    financial year) is from 1,000,000 EUR to 5,000,000 EUR in dinars equivalent. Legal entities
    with lower than the lowest index for at least two of the specified criteria are classified as
    small, while legal entities with higher than the highest index for at least two of the criteria are
    classified as big legal entities.
3. According to the *Regulation on sector classification* (*Uredba o klasifikaciji delatnosti*,
    Službeni glasnik Republike Srbije, 54/2010), all companies from the sample are classified in
    one of the following sectors: A–Agriculture, forestry and fishing, B–Mining, C–Processing
    industry, E–Water supply and sewerage, F–Construction, G–Wholesale and retail trade, H–
    Transportation and storage, I–Accommodation and food service activities, M–Professional,
    scientific and technical activities, N–Administrative and support service activities.

ancial statements of these companies were prepared in accordance with the International Accounting Standards (IAS) or International Financial Reporting Standards (IFRS).

3.2. Descriptive statistics

The ratio analysis mainly uses two types of profitability measures – margins and returns. Margins ratios (Gross profit margin, Operating profit margin, Net profit margin, Cash-flow margin) describe the firm's ability to translate sales into profits at various stages of measurement. Ratios that calculate returns represent the firm's ability to measure its overall efficiency in generating returns for shareholders (Return on asset, Return on equity, Return on capital, Cash return on assets and so on). Many different measurements of firm profitability have been used in the studies of determinants of firm profitability. The simplest and the most used ratio, which links the profitability of a company with its assets, is Return on Assets.

Two profitability measures are used in this study: *Operating Profit Margin* (OPM), calculated as operating profit divided by total assets and *Return on Total Assets* (ROTA), calculated as earnings before interest and tax divided by total assets. ROTA measures the ability of general management to utilize the total assets of the company in order to generate profits, while Operating Profit Margin shows the profitability of sales resulting from regular business. Operating income results from ordinary business operations and excludes other revenues or losses, extraordinary items, interest on long term liabilities and income taxes.

The descriptive statistics of both profitability measures and explanatory variables are shown in Table 2, while the correlation matrix is presented in Table 3. The profitability measures as well as the explanatory variables (size, liquidity, asset turnover, leverage, and growth), are averaged for the observed period (2008-2011), while ownership structure is calculated as institutional shareholdings at the end of the year 2011. Size (SIZE) is the natural logarithm of net sales. Liquidity (LIQ) is measured by current liquidity ratio (current assets/current liabilities). Asset turnover ratio (ATR) is calculated as net sales divided by total assets. Total liabilities ratio (TFL) is defined as total liabilities divided by total book value of assets. Growth (GROW) is calculated as 1 year growth rate of net sales. Institutional ownership (INST) is the percentage of shares owned by financial institutions, including shares of governmental institutions (state legal-person), such as Shareholder's Fund, Pension and Disability Insurance Fund or other state owned companies/institutions.

The results of dependent variables, Return on Total Assets (ROTA) and Operating Profit Margin (OPM), demonstrate that the mean value of ROTA (OPM) of all analyzed firms is 5% (3.2%). The distribution of ROTA is positively skewed, with kurtosis of 0.553, which indicates that the scores of ROTAs are clustered around the mean value in the right-hand tail. On the other hand, the distribution of OPM is negatively skewed, with kurtosis of 17.716, which indicates that the more peaked distribution is skewed to the left. From the above, it can be observed that the profitability of Serbian companies whose shares are traded on the regulated market is not at a significant level. But, having in mind that the analyzed framework coincides with the crisis period, and that the average ROTA for the whole Serbian economy equals 0.2% in 2010 and 2.1% in 2011 (Serbian Business Registers Agency, 2012), the fact that they still outperform the whole economy is indicative.

Table 2. Summary statistics

	Minimum	*Maximum*	*Mean*	*Std. Deviation*	*Skewness*	*Kurtosis*
ROTA	-0.116	0.285	0.050	0.076	0.559	0.553
OPM	-0.846	0.377	0.032	0.138	-2.883	17.716
SIZE	4.696	7.255	5.864	0.492	0.408	0.016
LIQ	0.234	15.844	2.401	2.479	2.850	9.891
TFL	0.051	0.968	0.423	0.210	0.303	-0.289
GROW	-0.766	1.075	0.108	0.220	0.863	6.393
ATR	0.090	4.810	0.953	0.750	2.700	9.882
INST	0.000	100.000	56.908	36.693	-0.453	-1.435

The average value of current ratio for the whole sample is 2.4 indicating that Serbian listed firms were, on average, liquid during the four-year crisis period. They can pay their current liabilities from current assets 2.4 times over. The examination of financial leverage of companies whose shares are traded on the Belgrade stock exchange shows that the average relation between debt and equity was 42 to 58% in the analyzed period. The dominant share of equity compared to debt indicates that the financial structure of these firms is quite strong, which speaks in favor of their long-term stability. However, the maturity structure of total liabilities is not favorable. The share of long-term debt in total assets is about twice as low as the share of short-term liabilities, which is described by short-term debt ratio.

The average annual sales growth rate in the analyzed period is 10.77%. At the beginning of the crisis period in 2008, the average growth rate for the whole sample was negative (-4.72%). As the crisis progressed from 2008 to 2011, the growth rate started to recover, reaching 0.50% in the last year. The average percentage of shares owned by institutional investors – state's Shareholders Fund, Pension and Disability insurance fund, private pension funds, banks and other financial institutions, was 56.90% at the end of 2011 for all 108 analyzed companies. This percentage ratio is below the value of the same ratio for all registered companies at the Central Securities Depositary and Clearing House, which overreaches 70%.

Table 3 presents correlation coefficients of all variables. The results of the correlation analysis show that firm size, its liquidity, assets turnover ratio and growth positively and significantly relate to return on total assets. This indicates that in the period of crisis a higher level of liquidity and higher efficiency of asset employment could induce higher profitability in Serbian case. Opposite evidence is found in the case of relationship between profitability and firm leverage, and profitability and institutional ownership. The results of correlation analysis show statistically insignificant negative relations between leverage measures, return on total assets and gross operating profit.

Table 3. The correlation matrix of profitability and independent variables

	ROTA	OPM	SIZE	LIQ	TFL	GROW	ATR	INST
ROTA	1.0							
OPM	0.676(**)	1.0						
SIZE	0.392(**)	0.436(**)	1.0					
LIQ	0.314(**)	0.405(**)	0.086	1.0				
TFL	-0.094	-0.090	0.088	-0.634(**)	1.0			
GROW	0.218(*)	0.114	-0.005	-0.024	0.226(*)	1.0		
ATR	0.257(**)	0.077	0.150	-0.223(*)	0.267(**)	0.176	1.0	
INST	-0.132	0.066	0.340(**)	0.134	-0.102	-0.032	-0.251(**)	1.0

*   Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Thus, the correlation results show the anticipated direction of relation between profitability and selected factors as given in the research hypotheses. A shortcoming of Pearson correlations, stating that they are not able to differentiate the causes from

consequences, will be overcome by the regression analysis presented in the following section.

3.3 Regression model and analysis

The regression analysis used in this study is based on the following equations:

(1) $OPM_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \varepsilon_{it}$

(2) $ROTA_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \varepsilon_{it}$

(3) $OPM_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \beta_7 D_i + \varepsilon_{it}$

(4) $ROTA_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \beta_7 D_i + \varepsilon_{it}$

where D_i denotes sector dummy variables and assume value of 1 for the i-*th* sector firm, and zero otherwise. The analysis utilizes a fixed effect regression model for the whole sample. Table 4 presents the results of the regression models 1 and 2 (without sector dummy variables), while Table 5 offers regression models' results for two dependent variables including sector dummy variables (models 3 and 4).

The results of regression analysis indicate positive relations between size and operating profit margin, and liquidity and OPM, which are statistically significant at 5% significance level. In addition, there are stronger positive relations between these two independent variables and OPM compared to the relationships between the same variables and return on total assets. In other words, during times of crisis, firm size and liquidity determine more intensively profit resulting from the core business in the Serbian case.

Table 4. Regression model results for two dependant variables:
Return on Total Asset and Operating Profit Margin

Independent variable	Dependent variable: ROTA				Dependent variable: OPM			
	Coeff.	Std. Error	t-statistic	Sig.	Coeff.	Std. Error	t-statistic	Sig.
(Constant)	-0.356	0.073	(-4.903)**	0.000	-0.743	0.135	(-5,489)**	0.000
SIZE	0.068	0.013	(5.059)**	0.000	0.117	0.025	(4,666)**	0.000
LIQ	0.010	0.003	(3.186)**	0.002	0.027	0.006	(4,539)**	0.000
TFL	-0.015	0.038	-0.401	0.689	0.090	0.072	1.255	0.212
GROW	0.069	0.028	(2.460)**	0.016	0.054	0.052	1.026	0.307
ATR	0.017	0.009	(1.981)*	0.050	0.008	0.016	0.475	0.636
INST	-0.001	0.000	(-3.241)**	0.002	0.000	0.000	-1.269	0.207
Weighted statistics								
R square	0.403				0.370			
Adjusted R square	0.368				0.332			
SE of regression	0.060				0.113			
F-statistic	11.376				10.035			

* Significant at 5% level, ** significant at 1% level

Table 4 shows that R-squared value is 0.403 (0.370) indicating that 40.3% (37.0%) variance in Return on Total Assets (Operating Profit Margin) as dependent variable can be explained through six independent variables which were used. The Durbin-Watson value (d = 1.998) is close to the critical value of 2 and therefore we can assume that there is no first order linear auto-correlation in the data.

The positive and significant relationship between size and profitability of Serbian listed companies could be attributed to the economies of scale and scope and consequently cost advantage. Larger companies can employ more experienced managers, new technologies and production procedures, and can also access more (cheaper) capital from external sources, produce better quality products, etc. Therefore, the findings of this study are in line with the previous researches (Hall and Weiss, 1967; Fiegenbaum and Karnani, 1991; Jonsson, 2007; Lee, 2009; Dogan, 2013) stating that a firm's size positively affects its profitability. Thus, hypothesis 1 has been accepted.

Liquidity measured by current liquidity ratio is statistically significant and has positive influence on a firm's profitability. If we compare liquidity of the sample group of companies with the liquidity of the whole Serbian economy, which was measured by current ratio at an average level of 0.95 in 2010 and 0.93 in 2011 (Serbian Business Registers Agency, 2012), we can conclude that large and medium sized Serbian firms greatly outperform the whole economy according to this performance indicator. Since efficient liquidity management supposes planning and controlling current assets and liabilities in a way that both reduce/eliminate the risk of insolvency and avoid excessive investment in current assets, it seems that in the analyzed crisis period managers of Serbian listed firms find the appropriate "model" to achieve optimal liquidity, i.e. to manage current assets and liabilities in a way which positively influences firms' performance. Serbian large and medium listed companies are pressured to keep their funds in liquid form in order to respond to a rapidly changing environment. Thus, our findings are in line with the previous research (Benito and Vilanghe, 2000; Rajčaniova and Bielik, 2008; Chander and Priyanka, 2008; Pervan *et al*., 2012) and support hypothesis 2 that profitability is positively influenced by liquidity.

Even though positive sign of regression coefficients propose a positive impact of asset turnover on profitability, the influence of this variable is statistically significant only in the case of return on total assets as dependent variable. This finding is not surprising taking into account that operating profit margin describes the profitability of sales resulting from the core business, which is highly influenced by factors such as inventory, accounts receivables and accounts payable management. The efficiency of a firm, measured in terms of assets turnover ratio, has a significant positive correlation with the return of total asset at 5% level. This shows that firms with higher asset turnover ratio tend to record higher profitability, which is consistent with the findings of Salman and Yazdanfar (2012) and Okwo *et al*. (2012).

The relationship between total debt ratio and return on total asset is negative but not statistically significant in the case of Serbian large and medium listed companies. Companies whose shares are traded on a regulated market refrain from higher debt share during the crisis period and their intentions to operate profitably mainly rely on their own internal sources of financing (retained profits). Apart from the impact of the unstable business environment, the absence of strong correlation between financial leverage and profitability in a crisis period could be explained by

other factors, such as underdeveloped capital market (particularly debt market), high costs of debt financing and consequently high exposure to financial risk.

The growth variable is significantly and positively related to return on total assets of Serbian large and medium firms quoted on the regulated market. The profitability level of the analyzed Serbian companies is relatively low in comparison to firms from developed countries (see Goddrad *et al*., 2009) and other European transitional economies in the period before the crisis. The analyzed time framework, which coincides with the crisis period, explains to a great extent a very low level of growth rates of sales. Other possible reasons for low growth opportunities could be found in the lack of long term strategic orientation, outdated production capacities, uncompetitive products on the international market, etc. Under such circumstances, a higher rate of sales growth of Serbian companies, which predicts stronger revenue generation in future period, is associated with more profitable operations.

This study presents evidence on statistically significant negative relationship between profitability (measured by return on total assets) and institutional ownership. In other words, during the crisis period, institutional shareholdings have not provided firms with competitive advantages by improving their profitability. This type of relationship is expected taking into account that institutional ownership is measured by the percentage of shares owned by financial institutions, including shares of state institutions such as Shareholders Fund, Pension and Disability Insurance Fund. The transition process in Serbia has still not ended. Serbian experience shows that managerial and supervisory boards in the majority of state controlled companies are restricted by political ties and negotiations and are not appointed on the basis of managerial ability. Such a corporate governance environment, characterized by corruption, negatively affects profitability. Therefore, our findings are in line with other researches in transition economies (e.g. Damijan *et al*., 2004; Pervan *et al*., 2012) and support hypothesis 6 that profitability, measured by ROTA, is negatively influenced by institutional ownership.

Table 5. Regression model results for two dependant variables:
Return on Total Asset and Operating Profit Margin (with sector dummy variables)

Independent variable	Dependent variable: ROTA				Dependent variable: OPM			
	Coeff.	Std. Error	t-statistic	Sig.	Coeff.	Std. Error	t-statistic	Sig.
(Constant)	-0.317	0.079	-4.005	0.000	-0.743	0.135	-5.489	0.000
SIZE	0.064	0.014	(4.509)**	0.000	0.110	0.025	4.400	0.000
LIQ	0.009	0.003	(2.669)*	0.009	0.023	0.006	3.894	0.000
TFL	-0.027	0.042	-0.634	0.528	0.067	0.074	0.904	0.369
GROW	0.061	0.029	(2.135)*	0.035	0.046	0.050	0.903	0.369
ATR	0.023	0.011	(1.981)*	0.050	0.013	0.019	0.706	0.482
INST	-0.001	0.000	(-3.504)**	0.001	0.000	0.000	-1.486	0.141
Da	-0.006	0.019	-0.337	0.737	-0.012	0.033	-0.361	0.719
Db	0.067	0.062	1.091	0.278	0.089	0.109	0.815	0.417
De	0.050	0.062	0.809	0.421	0.007	0.109	0.065	0.948
Df	-0.029	0.023	-1.275	0.206	-0.048	0.040	-1.184	0.239
Dg	-0.056	0.027	(-2.063)*	0.042	-0.167	0.048	(-3.472)**	0.001
Dh	-0.010	0.021	-0.504	0.615	0.041	0.036	1.122	0.265
Di	-0.057	0.039	-1.456	0.149	-0.155	0.069	(-2.263)*	0.026
Dm	0.008	0.036	0.218	0.828	-0.030	0.063	-0.467	0.642
Dn	-0.058	0.051	-1.145	0.255	-0.034	0.090	-0.376	0.707
Weighted statistics								
R square	0.465				0.495			
Adjusted R square	0.378				0.412			
SE of regression	0.060				0.106			
F-statistic	5.340				6.006			

* Significant at 5% level, ** significant at 1% level

As indicated by regression models 3 and 4 in Table 5, sector effects encompassed by sector dummy variables are present in the Serbian case, but play a minor role. Sector type plays a significant role in explaining firm profitability only in the case of two sectors − *Transportation and storage* and *Accommodation and food service*. Common characteristics of these two sectors' performances are negative

values of the average profitability during the whole four-year analyzed period of crisis. However, the evaluation of real influence of the sector effects on the basis of dummy variables can only be speculative, since employed dummy variables explain a set of industry-level factors, without distinguishing between them. Therefore, it is impossible to say whether the industry effects are related to market concentration, barriers to entry, economies of scale, industry growth or other sector characteristics. In this regard, further analysis suggesting variation in profitability of companies across sectors is required.

Conclusion

This study explores the determinants of profitability of companies listed on the regulated market of the Republic of Serbia in the crisis period from 2008-2011. The aim of the study was to test the postulated hypotheses and to offer evidence with respect to the impact of firm structure on firm profitability during the crisis period by examining the impact of factors such as firm size, liquidity, leverage, asset turn-over, institutional ownership, growth opportunities and industry sector. The results of this empirical study suggest that the firm-specific factors affecting firms' profitability during a non-crisis period work in Serbia in a similar way as in a crisis period. More precisely, profitability measured by return on total assets increases with company size, liquidity, sales growth and asset management efficiency and decreases with institutional ownership.

Descriptive statistics show that there is a large amount of profit heterogeneity among Serbian listed large and medium-sized companies. The fact that profitability is mainly determined by firm-level factors could be interpreted as evidence that competitive advantages are caused by unique characteristics of the firm. Consequently, this would give support to the predictions of firm effect models. However, industry effects are also present and the creation of any corporate strategy during a crisis period has to be based on a thorough internal analysis complemented by appropriate external strategic analysis of the industry.

The problem of profitability has been neglected in the Serbian economy for years. The results of the applied policies, often short term and inefficient, send disturbing signals in the crisis period. Serbia faced the economic crisis completely unprepared. The profitability of Serbian firms suffered because they cannot adapt to the new market conditions. Even though the selected sample involves a large measure of profit heterogeneity and significant differences in average profitability across the analyzed sectors and firms, a general conclusion is that declining activ-

ities, limited in range, led to unsatisfactory sales revenues and profitability during the crisis period. In addition, low profitability could be attributed to high costs of financing, low level of competitiveness, outdated production capacities, etc. Strategies which could be adopted within the firms to improve profitability should relate to the management of working capital and cash, areas which are usually neglected in times of favorable business conditions.

The findings of this empirical study should serve as the initial point for further research into firms' performance. The fact that the profitability of Serbian firms had been deteriorating over time, even before the crisis occurred, must not be overlooked. It would be interesting to examine the overall profitability of the corporate sector in the previous, non-crisis period. In this way, a comparative approach could be applied and the differences between the non-crisis and crisis periods could be compared and highlighted. Furthermore, this study is based on the data of the Serbian non-financial firms listed on the regulated market, meaning that the results could not be generalized for the whole Serbian economy. In this respect, future research should use a more comprehensive set of explanatory variables (industry and country-level factors, year-to-year fluctuations) and should be based on a larger and comprehensive database (financial sector, private and public companies etc.).

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THE GREEK ECONOMIC STRUCTURE IN THE 2000's: A ROAD TO CRISIS?

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Abstract

The Greek economy has undergone a deep economic crisis, following the international financial disarray of 2008. It has been widely agreed that a number of signals conveyed the need to reconsider the long-run development strategy, but the Greek economy had been growing quicker than most of Europe at least since the 1960's. Short-term difficulties need not have triggered a major crisis. The question is whether the economic structure by the early 2010's explains such development. This paper searches for connections between that structure and the macroeconomic problems that the economy has encountered, regarding external deficits, employment, productivity and growth. Results suggest that structural change is a condition if Greece is to regain self-sustained growth in the long run.

JEL Classification: O52, C67, O11
Key words: Greek economy, economic structure, sectoral performance

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Introduction

Greece has been singled out as an ill conducted economy since the international financial crisis in 2008, due to large public debt, major fiscal deficit and harrowing banking emergency, among other calamities. International experiences under similar circumstances such as Argentina and Peru in the 1980's, Indonesia, Malaysia and South Korea in the 1990's and more recently Italy, Spain and Portugal have shown that financial concerns gain primacy over economic questions (e.g., Devlin and Ffrench Davis, 2005; Griffith-Jones, and Sunkel, 1988; Jomo, 2003; Ugarteche, 2013), so that the solutions to urgent problems often disregard their impacts on long term developmental matters, to the point that they even damage the productive capacity of the economies concerned, hindering their ability to overcome the slump. After countries have adopted austerity policies recommended by the International Financial Institutions (IFI), deficits did not shrink, but their GDP and employment did, and welfare deteriorated, when sudden reforms amid general economic contraction drove many firms to closure. That is indeed the path that Greece has followed under political pressure and financial urgency, at least since 2011 when the crisis broke, and has continued for the next few years: economic policies have contracted disposable incomes as well as demand, and thus output and employment, while leading to an increased debt/GDP ratio. The alleged aim of such conditioned policies has been to allow restructuring foreign debts and allow the country to meet its financial obligations.

The question however is whether structural weaknesses have encumbered the Greek economy when facing short-term difficulties, originating in and transmitted from the external and financial sectors. Indeed, it is likely that unsustainable financial imbalances collapsed in the first place and then contractive policies transmitted the problem to the whole economic system. In any case, the structural issues could not have triggered the crisis, as they were present before its onset, but certainly it will be necessary to solve them before the economy returns to a growth path.

The analytical perspective adopted in this paper derives from structural analysis and the Input-Output (IO) model, which have been used previously in earlier papers examining the Greek economy in various respects and circumstances (e.g. Mattas and Shrestha, 1991; Korres, 1996; Mattas, Ciobanu and Psaltopoulos, 2010; Tzimos, Papadimitriou and Adamou, 2007). Nevertheless, it is interesting to re-examine the economy from a structural point of view, away from perspectives in vogue that stress the financial and short term issues.

Research on IO techniques in recent years has yielded large numbers of useful methods to study empirical topics, some of which continue to be debated in the literature; nevertheless this paper uses rather basic analytical tools that allow us to reach useful results to understand basic features of economic structures. Moreover, since the purpose here is solely empirical, it is arguable that methodological considerations necessary to explain not so well known techniques may divert the attention from issues that need to be discussed straightforwardly. That does not mean we intend to downplay the importance of developing novel research methods in order to analyse specific economic problems in need of subtler techniques.

The purpose of this paper is to examine a few aspects of the structure of the Greek economy on the brink of the economic crisis of the 2010's, investigating possible weaknesses that explain the road to the crisis. To this end, after this introduction the rest of the document is organised as follows: the first section discusses some facts and data aggregated at industry level characterising the economy and its long-term evolution. The second section explains the indicators to be used in the analysis of the mechanisms of transmission of the slump within the productive apparatus. Results are presented in the third section and finally a few conclusions are offered in the fourth. Unless otherwise stated, most of the data used in this paper was taken from the *Structural Analysis Database* (STAN), published by the OECD[1]. The latter includes IO tables and data on international trade, employment and the overall performance of the economies, both at aggregated levels and at compatible sectoral disaggregation.

1.   Greece: economic facts and figures

Greece has experienced a rapid development process in the last few decades, so that the country evolved from mainly rural in the 1950's to urban and wealthy a few decades later (Drakoupoulos and Theodossiou, 1991), with *per capita* Gross Domestic Product (GDP) reaching 20,582 Euros (current prices) in 2010, equivalent to 75% of the European Union average, which makes of it a higher income country. In 2011 the United Nations Development Programme included it amongst the highly developed, ranking it 29 in the World Human Development Index[2].

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1.   http://www.oecd.org/document/62/0,3746,en_2649_34445_40696318_1_1_1_1,00.html (November 10, 2011).
2.   http://hdrstats.undp.org/en/countries/profiles/GRC.html (November 10, 2011).

Greece has ranked amongst the fastest growing OECD and European Union economies since the early 1960's (Drakoupoulos and Theodossiou, 1991), up to 2007 – even though the 1980's were years of slower growth (Christodoulakis and Kalyvitis, 1998) Apparently, however, it is a matter of controversy whether the country has converged with the richest economies; for example, Vamvakidis (2003) presents evidence for such an argument, as the former would have grown fast and steadily − as a result of reform and sound economic policies. On the contrary, My-lonidis and Vassilatos (2011) argue that the real GDP *per capita*, relative to that of the United States has been almost stable in the period 1960-2004, while more suc-cessful countries managed to diminish the gap with the country of reference. Those authors explain it as a result of the relative closure of the economy to the world markets, for which producers need not be as competitive.

Persistent deficits both in the trade and current account balances have tainted growth for long periods (Athanassiou, 2009), as imports have grown faster than exports and GDP. Certainly, the economy seems to have been unable to take ad-vantage of its membership of the European single market to build productive ca-pacities in accordance to its level of income, as medium and lower technology ac-tivities continue to lead the system. It is well known that trade between most Euro-pean Union (EU) member states is of intra-industry nature, because their exports are highly differentiated and wealthier consumers value diversity; in contrast, exchange between Greece and its major partners can be described as inter-industrial, due to the lack of supply of manufactures of more advanced technology, similar to the kind of goods Greece imports (Papazoglu, 2009), so the average share of intra-industrial trade was under 35% between 1991 and 2007.

Besides, the European cohesion policies have not been instrumental in trans-forming the economic structure to warrant sustainable growth. On the contrary, easy access to manufactured imports has impeded Greece from developing a competitive manufacturing industry, able to supply domestic needs or to penetrate foreign mar-kets. On the other hand, the economy lacks a specialization profile, away from lower productivity services, insufficient to keep dynamism and maintain fiscal and current account balances (Brenke, 2012). The growth model before 2010 relied basically upon indebted final demand to keep the economic pace. New higher pro-ductivity industries in demand of labour and export oriented are needed to sustain growth in the future.

Sectoral growth and tendencies

The annual average rate of Greek GDP (at factor cost)[3] reached around 3% between 1995 and 2009 (at constant 2000 prices). Looking at Table 1, it is evident that the 42 branches of the economy grow unevenly (measured by sectoral Value Added, VA). Services grew at about 4% per year between 1995 and 2009, industry did so at 2%, but agriculture, hunting, forestry and fishing decreased at -0.3% per annum. The fastest growing industries were computer and related activities (37%), water transport (35%), medical, precision and optical instruments (19%), research and development (16%), while office, accounting and computing machinery and electrical machinery and apparatus decreased by 6%. Most of the faster growing industries are technologically intense manufactures and services; nevertheless those activities are among the smaller in the economy. In contrast, the larger sectors, which include lower and medium technology industries, stagnated and even decreased. In a word, the composition of the economy seems to change slowly in a desirable direction, but higher technology industries are rather small if they are to lead the dynamics of the system.

Like most developed economies, Greece is also based on services which produce 75% of the GDP, while industrial production represents 13%, construction 7% and rural activities 6% on average between 1995 and 2009. The largest branch is that of wholesale and retail trade; repairs (17%), followed by real estate activities (11%) and hotels and restaurants, (8%) and public administration (8%). The added weight in GDP of the public sector reaches 21% (including public administration, education and health and social work and other community, social and personal activities). None of the latter could be called a high technology intensive industry.

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3. The database does not include GDP per branch. It is well known that adding sectoral VA results in total GDP at factor cost (Lequier and Blades, 2009).

Table 1. GDP at factor costs[*]: Annual Average Growth Rate and Composition
and GDP per Employee 1995-2009 (Constant 2000 Euros)

	Branches	GDP		GDP per Employee
		Rate of Growth	Composition	Rate of Growth
	Total	2.9	100.0	2.2
1	Agriculture, hunting, forestry and fishing	-0.8	5.2	2.5
2	Mining and quarrying of energy producing materials	2.9	0.2	3.1
3	Mining and quarrying except energy producing materials	0.0	0.2	1.4
4	Food products, beverages and tobacco	1.5	5.9	-1.4
5	Textiles, textile products, leather and footwear	-1.9	1.8	2.8
6	Wood and products of wood and cork	-3.7	0.4	0.5
7	Pulp, paper, paper products, printing and publishing	1.0	1.2	1.7
8	Coke, refined petroleum products and nuclear fuel	2.7	2.6	11.7
9	Chemicals (including pharmaceuticals)	1.9	1.3	6.6
10	Rubber and plastics products	0.6	0.6	0.6
11	Other non-metallic mineral products	0.0	1.2	1.6
12	Basic metals: iron and steel and non-ferrous metals	3.0	1.4	5.8
13	Fabricated metal products, except machinery and equipment	7.3	1.0	5.8
14	Machinery and equipment	2.6	0.6	7.5
15	Office, accounting and computing machinery	-5.1	0.0	-12.7
16	Electrical machinery and apparatus	0.3	0.4	-7.3
17	Radio, television and communication equipment	3.4	0.2	3.8
18	Medical, precision and optical instruments	12.9	0.1	-0.4
19	Motor vehicles, trailers and semi-trailers	2.3	0.1	6.7
20	Other transport equipment	5.4	0.4	5.4
21	Other manufacturing and recycling	3.5	0.6	2.0
22	Electricity, gas, steam and hot water supply	4.9	1.8	2.5
23	Collection, purification and distribution of water	4.6	0.3	7.3
24	Construction	1.1	9.0	0.8
25	Wholesale and retail trade; repairs	4.8	13.7	3.0
26	Hotels and restaurants	2.2	7.2	1.9

27	Land transport; transport via pipelines	0.6	1.7	2.3
28	Water transport	21.7	2.9	34.2
29	Air transport	1.4	0.6	13.6
30	Supporting and auxiliary transport activities	6.8	0.8	12.2
31	Post and telecommunications	8.5	2.3	8.2
32	Financial intermediation	5.8	3.7	4.4
33	Real estate activities	0.9	7.0	-5.2
34	Renting of machinery and equipment	1.7	0.2	4.4
35	Computer and related activities	12.6	0.4	18.2
36	Research and development	13.0	0.1	9.2
37	Other business activities	1.9	3.4	-4.5
38	Public administration and defence, social security	3.9	7.2	-0.5
39	Education	3.8	3.5	1.5
40	Health and social work	4.5	3.4	-0.2
41	Other community social and personal service activities	4.3	3.7	2.0
42	Private households with employed persons	9.3	0.4	3.0

Summary

	GDP		GDP per Employee
Sectors	**Rate of Growth**	**Weight**	**Rate of Growth**
Industry	1.7	12.7	1.9
Services	3.9	74.6	2.7
Low technology manufactures	-0.1	5.0	2.3
High and medium-high technology manufactures	4.4	2.1	6.3

[*] GDP at factor costs results from adding value added per branch

Source: Author's computations from OECD STAN database

According to Table 2, Greece exports mainly manufactures (84%), where textiles (16%), food, beverages and tobacco (15%), coke, refined petroleum products and nuclear fuel (11%) and basic metals (10%) make the largest contribution; also agricultural products represent over 12% of total exports. Exports from some higher technology sectors were growing fast, however, given their weight, they were unable to change significantly the total composition. Between 1995 and 2009 export

expansion is unstable as higher and lower rates alternate yearly; the average rate of growth is 2% per annum, lower than both GDP and internal demand rates.

Imports on the other hand (see Table 2) are mainly manufactures as well (84%), but their profile is different from that of exports. As mentioned before, high and medium high technology manufacturing sectors are the biggest sources of imports, but some lower technology products also contribute in not so low proportions. At the industry level, chemicals (15%), mining and quarrying of energy-producing materials (13%), food products, beverages and tobacco (9%) and motor vehicles (9%) are the largest supplying sectors. Imports grew at a 5% annual average, faster than exports and GDP. Domestic production has not expanded as fast as internal demand, having been replaced by imports, which are more suitable both to consumers' tastes and producer's needs for intermediate and investment goods.

Table 2. Exports and Imports: Average Annual Growth Rate and Average Composition 1995-2009 at constant 2000 prices (Excludes Services)

		Exports		Imports	
		Growth	Weight	Growth	Weight
	Total	2.2	100.0	5.1	100.0
1	Agriculture, hunting, forestry and fishing	1.2	12.1	4.7	3.6
2	Mining and quarrying of energy producing materials	3.9	0.5	19.8	10.2
3	Mining and quarrying except energy producing materials	1.2	1.2	2.9	0.2
4	Food products, beverages and tobacco	-3.0	14.9	3.6	9.5
5	Textiles, textile products, leather and footwear	0.4	16.6	3.9	7.6
6	Wood and products of wood and cork	1.9	0.4	1.8	1.0
7	Pulp, paper, paper products, printing and publishing	1.4	1.6	0.3	3.2
8	Coke, refined petroleum products and nuclear fuel	11.7	10.9	9.0	3.0
9	Chemicals (including pharmaceuticals)	5.0	9.7	6.5	13.6
10	Rubber and plastics products	-0.8	2.7	2.1	2.3
11	Other non-metallic mineral products	3.5	3.0	1.1	1.5
12	Basic metals: iron and steel and non-ferrous metals	4.9	10.4	3.0	5.3
13	Fabricated metal products, except machinery and equipment	7.0	2.3	2.6	2.2
14	Machinery and equipment	16.1	4.0	4.7	8.3

15	Office, accounting and computing machinery	1.7	0.6	7.8	2.1
16	Electrical machinery and apparatus	15.9	2.1	2.7	2.0
17	Radio, television and communication equipment	7.8	2.0	10.2	3.9
18	Medical, precision and optical instruments	9.4	0.8	6.3	2.5
19	Motor vehicles, trailers and semi-trailers	22.4	1.4	4.9	8.8
20	Other transport equipment	4.5	2.0	19.2	6.8
21	Other manufacturing and recycling	34.4	1.0	5.3	2.2
22	Electricity, gas, steam and hot water supply	1.2	0.1	67.4	0.2

Summary
Exports: Average Annual Growth Rate and Average Composition 1995-2009
at constant 2000 prices

Sectors	Exports		Imports	
	Growth	Weight	Growth	Weight
Industry	2.1	100.0	4.6	100.0
Services	--	--	--	--
Low technology manufactures	-0.9	34.4	3.3	23.5
High and medium-high technology manufactures	8.3	22.1	6.1	47.3

Source: Author's computations from OECD STAN database

Employment grew at a slower pace than GDP and it followed a different pattern too between 1995 and 2009 (see Table 3); as a result, output per employee has expanded overall. The annual employment average growth rate reached 1% between 1995 and 2009, but its sectoral behaviour is unstable and contradictory, e.g., employment in mining and quarrying decreased from low amounts, the industrial variable showed a marginal decline while employment in services expanded at 2% per year. The industries that show higher average growth include motor vehicles, trailers and semi-trailers, research and development, renting of machinery and equipment and electrical machinery and apparatus.

Services generate 62% of total employment (20% of the total population engaged in production work in wholesale, retail trade and repairs, 9% in public administration, 6% in education and a similar proportion in hotels and restaurants), agriculture employs 15% of the total, industry 13% and construction 7%. Not surprisingly the manufacturing industry, construction and hotels and restaurants are amongst the activities whose shares in total employment are lower if compared to GDP, which means that productivity in those sectors is above average, whereas

agriculture and wholesale, retail trade and repairs are in the group of sectors show-ing a higher share in employment than in GDP, indicating that they are also lower productivity activities. In many countries family business, micro-firms and numer-ous forms of self-employment thrive in lower technology services sectors and rural activities; it is not uncommon that smaller firms in such sectors are staffed regard-less of efficiency concerns. Apparently that is the case for Greece, where small-scale enterprises are more generalised than in other EU member countries (Brenke, 2012). Besides, Damaniakos (1997) argues that rural activities still await moderni-zation; farms tend to be run by self-employed owners employing outdated produc-tion methods. The Common Agricultural Policy of the EU may also play a role, fostering traditional farming (not only in Greece), and helping to explain how Euro-pean agriculture outperforms productions from other regions in the World, while preserving lifestyles highly valued from cultural perspectives, among other issues.

Table 3. Employment: Average Annual Growth Rate and
Average Composition 1995-2009, Number Engaged in Production

		Growth	**Weight**
	Total	1.0	100.0
1	Agriculture, hunting, forestry and fishing	1.3	14.8
2	Mining and quarrying of energy producing materials	-2.6	0.1
3	Mining and quarrying except energy producing materials	-0.1	0.2
4	Food products, beverages and tobacco	-1.8	2.6
5	Textiles, textile products, leather and footwear	1.1	2.1
6	Wood and products of wood and cork	-3.5	0.5
7	Pulp, paper, paper products, printing and publishing	-1.0	0.9
8	Coke, refined petroleum products and nuclear fuel	1.2	0.1
9	Chemicals (including pharmaceuticals)	1.7	0.6
10	Rubber and plastics products	1.9	0.4
11	Other non-metallic mineral products	0.8	0.7
12	Basic metals: iron and steel and non-ferrous metals	-0.2	0.3
13	Fabricated metal products, except machinery and equipment	2.3	0.8
14	Machinery and equipment	2.5	0.6
15	Office, accounting and computing machinery	0.6	0.0
16	Electrical machinery and apparatus	13.7	0.2
17	Radio, television and communication equipment	2.1	0.1
18	Medical, precision and optical instruments	3.9	0.1

19	Motor vehicles, trailers and semi-trailers	18.6	0.1
20	Other transport equipment	0.3	0.4
21	Other manufacturing and recycling	-1.5	0.9
22	Electricity, gas, steam and hot water supply	0.0	0.5
23	Collection, purification and distribution of water	-2.1	0.2
24	Construction	2.3	7.3
25	Wholesale and retail trade; repairs	2.2	19.6
26	Hotels and restaurants	1.9	6.3
27	Land transport; transport via pipelines	1.9	3.4
28	Water transport	-1.9	0.5
29	Air transport	1.5	0.2
30	Supporting and auxiliary transport activities	-8.6	0.9
31	Post and telecommunications	0.2	0.9
32	Financial intermediation	1.0	2.4
33	Real estate activities	1.3	0.1
34	Renting of machinery and equipment	14.3	0.1
35	Computer and related activities	6.5	0.3
36	Research and development	14.5	0.1
37	Other business activities	11.9	4.9
38	Public administration and defence, social security	5.6	8.7
39	Education	1.3	6.2
40	Health and social work	2.4	4.4
41	Other community social and personal service activities	2.7	0.0
42	Private households with employed persons	1.7	1.9

Summary
Employment: Average Annual Growth Rate and Average Composition 1995-2009,
Number Engaged in Production

Sectors	Growth	Weight
Industry	-0.2	13.4
Services	2.0	61.5
Low technology manufactures	-0.7	7.9
High and medium-high technology manufactures	0.9	2.0

Source: Author's computations from OECD STAN database

Output per employee in the whole economy has grown at around 2% per annum and shows a correlation coefficient of 0.8 with the GDP rate[4]; i.e., both variables follow near to parallel paths. It is widely accepted that factor productivity is an element that explains the expansion of the economy; therefore, it is reasonable to say that the evolution of GDP per employee has contributed significantly to economic growth, alongside labour expansion, as Gogos *et al*. (2012) suggest.

Capital stock has grown at an average annual rate of 3% between 2000 and 2009, slightly higher than GDP and faster than employment (1%); as a result, output per unit of capital has grown at a slightly negative average annual rate in that period (-0.2%)[5]. Moreover, the correlation coefficient between the rate of growth of GDP and that of gross capital formation is higher than the coefficient between GDP and employment growth (see Table 4). These results would imply that capital formation and GDP evolve on closer patterns, while capital formation growth and employment expansion maintain more distant trajectories, showing a correlation coefficient of just 0.457.

Table 4. Correlation coefficients between GDP rate of growth and other variables

Employment	0.604
Exports	0.452
Imports	0.775
Gross Capital Formation	0.740
Final Consumption	0.660
Internal Demand	0.819

Apparently capital has outgrown employment, compromising the productivity of the former, as compared to that of labour. The findings by Gogos *et al*. (2012) would support such a hypothesis: indeed they suggest that capital −as a factor− contributed negatively to growth in the 2000's (-0.8%), Total Factor Productivity (TFP) on the other hand rose at 3.2% per annum between 2000 and 2007. As a result Gogos *et al*. (2012) suggest that TFP accounts for most of the economic growth in that period. Unfortunately there seems to be no accessible data to analyse these tendencies for individual sectors which would allow a more detailed analysis.

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4. Needless to say, correlation coefficients do not imply causality between variables, but indicate that their evolution maintains relationships of some sort, explained by the economic theory.
5. The data on capital stock has been provided at request by Mr. Stylanos Gogos of the Athens University of Business and Economics. The methodology employed to calculate capital stock is explained at length in Gogos *et al*. (2012).

In simpler models growth can be related to the behaviour of a few variables that characterise the strategy followed by an economy. For example, some IFIs have claimed for a long period now that exports should lead growth in smaller open economies and, by the same token they would warrant the efficient allocation of resources; however sometimes growth is linked to the behaviour of imports rather than exports, e.g. if imports capacity is a requisite for growth, when production and consumption depend on imports (as happens in Greece). On the other hand, domestic final demand can lead growth, when internal markets expand fast enough and new or rising activities are able to satisfy an expanding demand. Capital formation can also be part of a leading final demand but, as has been discussed extensively in the literature (e.g., Popov, 2010), its expansion is not free from problems in regards to the factor productivity and general profitability in the economy, as discussed above, particularly if its increase is not accompanied by more employment and fast innovation that make room for higher capital productivity.

The economy is clearly not oriented towards foreign demand, thus the correlation coefficient between exports and GDP for the period 1995-2009 is under 0.5 (see Table 4), suggesting that exports and GDP follow rather independent trajectories. Such a coefficient is lower than that between internal demand and GDP (0.8), it is also lower than the coefficient between final consumption expenditure and GDP (0.7) and, finally, it is lower than the coefficient between imports and GDP (0.8). Therefore, it is reasonable to say that the economy is driven by internal demand -where final consumption is a major component- and also that the system is highly dependent upon imports.

However, a larger structural problem is that capital stock has outgrown the economy, which means also that imports of capital goods could have been reduced and thus the foreign deficit would have probably been lower; nevertheless, it is not easy to advance an explanation for the sudden reversal of growth tendencies in Greece after 2008 from the structural viewpoint, when the economy was expanding steadily. Athanassiou (2009) suggests that public deficit and foreign debt (public and private) financed an expanding domestic demand, which in turn sustained output growth at least during the 1990's and onwards. Besides, an ever-increasing competitiveness problem was not expected; eventually, when foreign credit shrank, the economy came to a halt. In the remainder of the paper an insight into the transmission mechanism of growth will be explored.

2. Structural multipliers

It has been stated that the largest or the faster growing industries in the economy are not the same; concurrently the economy disregards the opportunities that the single European market offers. Another issue is the sustainability of growth; in that respect, one important element is whether the fastest expanding industries are able to transmit growth impulses to the rest of the system and if so, on the methodological front, how to measure that transmission capability. The question can be addressed by analysing the economic structure – in the sense of studying the role that individual sectors play in the economic dynamics as transmitters or receivers of growth impulses. Sectors' demand and supply input one another and as a result influence one another; e.g., output in one industry would expand if sectors consuming its products enlarge their demand. The Input-Output (IO) model provides a framework to analyse how sectors influence one another by means of their connectivity patterns. The multiplier analysis in particular is a relatively simple technique that measures the ability that each sector has to propagate growth impulses.

The IO model regards the economy as a system of industries interrelated through the demand and supply of produced goods that –in turn– the consuming sector uses as inputs, together with non-produced inputs (labour and capital, for example) to produce some homogeneous good in the amounts necessary to satisfy final demand. The proportions of inputs that each industry uses are determined by the technology that they employ (Leontief, 1944). Those proportions determine the intensity of the connections between the industries and, at the same time, define the shape of the structure of the economic system (for example, industries i and j can be connected in one economy if sector j demands goods from i and disconnected in another if a similar demand is absent). As the economy evolves, each industry narrows its line of production and demands inputs from an increasing number of producers; conversely, each branch will also supply goods to more sectors. Then the economic structure gains complexity as the division of labour advances (Carter, 1970, Leontief, 1963, Smith, 1776).

Numbering the industries and sorting out the set of bills of goods demanded as inputs results in a square matrix (**X**) that shows in its columns the purchases of goods of each industry (to be used as inputs) and in its rows the sales of goods by each sector to the rest (Leontief, 1944; Miller and Blair, 2009). Similarly, the use of factors in each production can be conveniently arranged too, resulting in a rectangular array that shows, in its columns, the demands for each factor by each sector

and, in its rows, the supply of each factor to each producing sector. The payments to these factors are equal to the value added they generate. Likewise, a rectangular final demand matrix results by arranging the sales of final goods from each sector to each type of final demand (e.g. final private consumption, private investment, government demand and so on); this matrix can also be added up in a column vector of final demand **f**. The IO model can be written as:

$$(1) \qquad \mathbf{x} = \mathbf{\iota'\,X} + \mathbf{f}$$

where **x** is a column vector of the revenues of all the sectors in the economy, **X** is the exchange matrix between these sectors, $\mathbf{\iota'}$ is a unit row vector; it allows us to add up the rows of **X**- and **f** is a vector of final demand. Its well-known solution is:

$$(2) \qquad \mathbf{x} = (\mathbf{I} - \mathbf{A})^{-1}\,\mathbf{f}$$

Matrix $(\mathbf{I} - \mathbf{A})^{-1} = \mathbf{L}$ is called the inverse Leontief matrix or the multiplier matrix; its components α_{ij} show the amount of good j needed to produce one unit of good i, consumed by both sector i and by every industry that produces inputs necessary in the production of good j[6]. In equation (2) it is assumed that output changes in response to final demand variations, which is the only exogenous variable. From (2) another equation can be derived, in order to cater for changes in **f**:

$$(3) \qquad \Delta\mathbf{x} = (\mathbf{I} - \mathbf{A})^{-1}\,\Delta\mathbf{f}$$

The latter implies that variations in **f** cause linearly proportional adjustments in **x** and:

$$(4) \qquad \mathbf{m'}\Delta\mathbf{f} = \mathbf{\iota'}\,(\mathbf{I} - \mathbf{A})^{-1}\,\Delta\mathbf{f}$$

Thus **m'** is a row vector of multipliers; the size of its components is related to the amount and intensity of the connections that each sector maintains with the rest of the industries - through the technical coefficients a_{ij}.

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6. The inverse Leontief matrix L is approximately equal to the sum of an exponential series of matrix A (Miller and Blair, 2009):
$$L \cong A^0 + A^1 + A^2 + ... + A^1 + ...$$
    where $\mathbf{A}^0 = \mathbf{I}$ (the identity matrix) and indicates that each sector produces one unit of output; then, in order to produce that output each of those sectors requires some inputs directly, in proportions shown by $\mathbf{A}^1 = \mathbf{A}$. In turn the production of one unit of input j -demanded directly by sector i- requires some amounts of inputs k, l, m, … those are said to be demanded indirectly by sector i, according to $\mathbf{A}^2$, then the production of k, l, m, demand in turn further inputs, required indirectly by sector i, and so on,. Production in sector i impacts the activity in sectors j, k, …, l, which explains that matrix **L** is a multiplier matrix. It is a nonnegative matrix whose existence is warranted because matrix A is also strictly nonnegative.

In fact when output adjusts in response to changes in the final demand of some sector the new output includes the amount in which final demand varied in the first place, which should be deducted in order to avoid double counting. The resulting net multipliers provide a more accurate measure or the contribution of the initial variation of demand to the resulting output change. Following similar logic de Mesnard (2002) shows that net multipliers are:

$$(5) \qquad \mu_j = \upsilon' \, (I - A)^{-1} - \upsilon'$$

Likewise, it is possible to estimate the number of employees needed to produce a unit of each good i in the economy, taking into account the direct and indirect demand for labour. That is, the employment multipliers (ε). Labour coefficients (n_i) are defined as the requirements of labour per unit of output in sector each i (Miller and Blair, 2009) and employment coefficients are:

$$(6) \qquad \varepsilon' = n' \, (I - A)^{-1}$$

n' is the row vector of employment coefficients. Similar equations can be defined to estimate the needed amounts of any non-produced input to obtain any commodity[7]. Then, if $\tilde{N}$ is the diagonal matrix of employment coefficients

$$(7) \qquad e = \tilde{N} \, (I - A)^{-1} \, f$$

yields the vector of employment in the economy (e). If the observed vector **f** is substituted by some other hypothetical ϕ, the equation yields the hypothetical employment level, associated with ϕ. Otherwise, **f** can also be substituted by one of the components of final demand, resulting in the employment associated with that variable in particular.

3. Results

Output and employment equations have been calculated for Greece using the most recent IO Table included in the OECD STAN database (2005), which consists of three matrices, one of domestic exchange of inputs, one of intermediate imports and one of the total transactions (domestic plus imported inputs). The set is calculated in current Euros and it is disaggregated into forty-eight sectors, plus value added and final demand. There are however six sectors showing nil rows and columns, so it is

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7. The imports multipliers would be $\mu = mL$, where m are the imports coefficients and L stands for the inverse Leontief matrix; any other interesting multiplier would thus be calculated similarly, with the appropriate coefficients (Aroche, 2000).

possible to build at least one block of zeroes permuting rows and columns in the matrices, having undesired consequences on the properties of the model, as well as on its results[8]. As a solution, the null vectors have been added up with other accounts, thus the matrices employed include forty-two sectors, compatible to those used in section 1.

In regards to the Greek economy, the first feature to note (Table 5) is that 58% out of the total output corresponds to VA and imported inputs represent about 10%. The services sectors, as well as agriculture, present a similar profile; in contrast, as it happens in many economies the manufacturing industrial branches are more input intensive, thus being a more solid basis for the interdependence between sectors. The more import intensive industries are: coke, refined oil products and nuclear fuel, amounting up to 63% of total output (Greece produces no crude oil), iron and steel (29%), motor vehicles, trailers and semitrailers (27%) and chemicals (26%). Lastly, as happens in many economies, the industries that demand domestic inputs more intensively are manufactures as well, notably food products, beverages and tobacco and wood and products of wood and cork (58%), iron and steel (53%), other non-metallic mineral products (47%). Some of those are also large, but not fast growing industries and are therefore unable to transmit growth impulses to input suppliers.

Table 5. Gross Output by Component 2005

		Intermediate Consumption*	Intermediate Imports	Value Added
	Total	41,94	10,20	58,06
1	Agriculture, hunting, forestry and fishing	37,05	6,08	62,95
2	Mining and quarrying of energy producing materials	39,74	7,55	60,26
3	Mining and quarrying except energy producing materials	45,65	8,12	54,35
4	Food products, beverages and tobacco	65,43	8,38	34,57
5	Textiles, textile products, leather and footwear	54,22	15,27	45,78
6	Wood and products of wood and cork	77,87	16,47	22,13
7	Pulp, paper, paper products, printing and publishing	59,05	16,96	40,95
8	Coke, refined petroleum products and nuclear fuel	86,46	62,65	13,54

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8. The mathematical properties of linear models are discussed in many books, for example, Takayama A. (1997) *Mathematical Economics*. Cambridge: Cambridge University Press.

9	Chemicals (including pharmaceuticals)	68,90	25,88	31,10
10	Rubber and plastics products	59,92	20,90	40,08
11	Other non-metallic mineral products	60,69	9,54	39,31
12	Basic metals: iron and steel plus non-ferrous metals	84,62	29,08	15,38
13	Fabricated metal products, except machinery and equipment	67,05	21,57	32,95
14	Machinery and equipment	56,93	22,54	43,07
15	Office, accounting and computing machinery	53,61	12,42	46,39
16	Electrical machinery and apparatus	65,33	22,67	34,67
17	Radio, television and communication equipment	47,03	13,52	52,97
18	Medical, precision and optical instruments	57,76	22,66	42,24
19	Motor vehicles, trailers and semi-trailers	64,21	27,37	35,79
20	Other transport equipment	59,13	22,26	40,87
21	Manufacturing, recycling	51,63	13,67	48,37
22	Electricity, gas, steam and hot water supply	38,54	4,62	61,46
23	Collection, purification and distribution of water	26,15	6,97	73,85
24	Construction	58,49	10,91	41,51
25	Wholesale and retail trade; repairs	32,44	5,42	67,56
26	Hotels and restaurants	43,46	7,59	56,54
27	Land transport; transport via pipelines	51,58	11,95	48,42
28	Water transport	58,73	26,08	41,27
29	Air transport	42,98	9,87	57,02
30	Supporting and auxiliary transport activities	41,29	9,67	58,71
31	Post and telecommunications	18,42	3,70	81,58
32	Financial intermediation	29,16	1,84	70,84
33	Real estate activities	9,53	0,90	90,47
34	Renting of machinery and equipment	41,91	4,92	58,09
35	Computer and related activities	49,25	5,80	50,75
36	Research and development	43,33	4,82	56,67
37	Other business activities	50,52	4,66	49,48
38	Public administration and defence compulsory social security	32,16	8,74	67,84
39	Education	10,19	0,75	89,81
40	Health and social work	35,54	12,87	64,46
41	Other community social and personal service activities	35,60	3,97	64,40
42	Private households with employed persons	0,00	10,20	100,00

* Includes intermediate imports

Source: Author's computations from OECD STAN database

Intermediate consumption represents above 39% of the total output and final demand represents over 60%; as can be seen in Table 6, producers of generalised inputs that sell higher proportions to intermediate uses are: agriculture, hunting, forestry and fishing, mining and quarry, wood and products of wood and cork, other non-metallic mineral products, iron and steel, electricity and some business services. Sectors showing higher final demand components as a percentage of the total output are food products, beverages and tobacco, manufacturing and recycling, construction, hotels and restaurants and water transport.

Table 6. Gross Output by Demand Component 2005

		Domestic Intermediate Consumption	Total Intermediate Consumption*	Final Demand**
	Total	29,14	39,37	60,62
1	Agriculture, hunting, forestry and fishing	47,20	52,83	47,17
2	Mining and quarrying of energy producing materials	96,48	797,57	-697,57
3	Mining and quarrying except energy producing materials	140,13	163,86	-63,86
4	Food products, beverages and tobacco	22,75	27,92	72,08
5	Textiles, textile products, leather and footwear	16,27	40,59	59,41
6	Wood and products of wood and cork	78,01	130,18	-30,18
7	Pulp, paper, paper products, printing and publishing	43,33	82,37	17,63
8	Coke, refined petroleum products and nuclear fuel	52,11	68,72	31,28
9	Chemicals (including pharmaceuticals)	38,09	154,17	-54,17
10	Rubber and plastics products	52,68	86,98	13,02
11	Other non-metallic mineral products	82,37	97,79	2,21
12	Basic metals: iron and steel and non-ferrous metals	62,77	119,86	-19,86
13	Fabricated metal products, except machinery and equipment	63,89	77,16	22,84
14	Machinery and equipment	19,93	110,49	-10,49
15	Office, accounting and computing machinery	26,96	762,39	-662,39
16	Electrical machinery and apparatus	62,76	131,42	-31,42
17	Radio, television and communication equipment	22,13	77,93	22,07
18	Medical, precision and optical instruments	57,05	314,89	-214,89
19	Motor vehicles, trailers and semi-trailers	10,67	156,41	-56,41
20	Other transport equipment	17,98	47,57	52,43
21	Manufacturing; recycling	10,96	19,78	80,22

22	Electricity, gas, steam and hot water supply	72,59	74,10	25,90
23	Collection, purification and distribution of water	66,14	66,14	33,86
24	Construction	11,98	12,15	87,85
25	Wholesale and retail trade; repairs	37,70	37,70	62,30
26	Hotels and restaurants	4,12	4,12	95,88
27	Land transport; transport via pipelines	43,69	44,82	55,18
28	Water transport	3,99	4,74	95,26
29	Air transport	51,54	75,73	24,27
30	Supporting and auxiliary transport activities	45,43	206,98	-106,98
31	Post and telecommunications	56,79	59,78	40,22
32	Financial intermediation	58,48	63,03	36,97
33	Real estate activities	22,17	22,17	77,83
34	Renting of machinery and equipment	70,68	82,01	17,99
35	Computer and related activities	40,48	45,25	54,75
36	Research and development	37,65	46,22	53,78
37	Other business activities	81,25	86,66	13,34
38	Public administration and defence compulsory social security	1,59	1,59	98,41
39	Education	1,18	1,18	98,82
40	Health and social work	2,42	2,46	97,54
41	Other community social and personal service activities	14,53	15,95	84,05
42	Private households with employed persons	0,00	0,00	100,00

* Includes domestic intermediate consumption plus intermediate imports by demanding sector
** Final demand plus total intermediate consumption equals gross output (100,00)

Source: Author's computations from OECD STAN database

As it is seen in Table 7 many sectors show larger final demand components than their total output. Apart from accounting aspects that explain those imbalances, it would be interesting to address the development process of those activities. For instance, office, accounting and computing machinery, as well as radio, television and communication equipment, and medical, precision and optical instruments import huge amounts of goods destined to support investment that has been characterised above as not so efficient for the economy as a whole. Those three are the most import-oriented sectors, as revealed by their imports coefficient. The first sector is shrinking, but the other two show positive rates of growth.

At the same time machinery and equipment, office, accounting and computing machinery, electrical machinery and apparatus, medical, precision and optical instruments, motor vehicles, trailers and semi-trailers and building and repairing of ships and boats, mining and quarry and textiles are the largest sources of Greek im-

ports. Such imports are often used as inputs in many productive processes; in turn, those may hamper domestic production, which might not be produced in adequate amounts, quality levels or technical specifications. The competitiveness of the incumbent sectors may not be as high. Finally, the most export-oriented sectors are mining and quarrying, chemicals, office, accounting and computing machinery, medical, precision and optical instruments, motor vehicles, trailers and semi-trailers and other transport equipment, since they show the largest export coefficients.

Table 7. Final demand components (% of total industry output) 2005

		Private Consumption	Government Consumption	Capital Formation	Exports	Imports
	Total	42,78	11,01	12,73	14,43	20,29
1	Agriculture, hunting, forestry and fishing	49,30	-0,18	9,12	11,08	49,30
2	Mining and quarrying of energy producing materials	0,19	184,11	1,00	882,54	0,19
3	Mining and quarrying except energy producing materials	2,15	-69,00	16,81	13,82	2,15
4	Food products, beverages and tobacco	82,78	2,77	10,06	23,53	82,78
5	Textiles, textile products, leather and footwear	168,42	-52,11	41,56	98,45	168,42
6	Wood and products of wood and cork	13,25	7,29	5,18	55,54	13,25
7	Pulp, paper, paper products, printing and publishing	70,73	-14,30	5,66	44,46	70,73
8	Coke, refined petroleum products and nuclear fuel	26,17	3,71	26,51	25,11	26,17
9	Chemicals (including pharmaceuticals)	94,55	2,24	40,91	191,88	94,55
10	Rubber and plastics products	50,10	2,08	23,95	0,00	50,10
11	Other non-metallic mineral products	12,76	2,16	9,33	0,00	12,76
12	Basic metals: iron and steel and non-ferrous metals	1,35	3,18	34,59	0,00	1,35
13	Fabricated metal products, except machinery and equipment	25,25	9,37	11,58	23,35	25,25
14	Machinery and equipment	42,27	162,20	23,07	238,03	42,27
15	Office, accounting and computing machinery	981,99	7940,43	35,75	9622,13	981,99
16	Electrical machinery and apparatus	8,82	22,68	27,85	90,78	8,82

17	Radio, television and communication equipment	37,17	268,10	31,72	314,91	37,17
18	Medical, precision and optical instruments	83,86	80,29	34,77	413,83	83,86
19	Motor vehicles, trailers and semi-trailers	648,80	241,60	26,70	973,53	648,80
20	Other transport equipment	66,69	156,10	21,48	191,81	66,69
21	Manufacturing; recycling	100,81	58,92	5,81	85,33	100,81
22	Electricity, gas, steam and hot water supply	28,03	0,01	0,27	2,41	28,03
23	Collection, purification and distribution of water	33,73	0,11	0,02	0,00	33,73
24	Construction	3,01	85,36	0,93	1,45	3,01
25	Wholesale and retail trade; repairs	45,28	8,75	8,28	0,00	45,28
26	Hotels and restaurants	94,52	0,02	1,32	0,00	94,52
27	Land transport; transport via pipelines	52,20	1,24	3,55	1,80	52,20
28	Water transport	3,84	0,29	91,62	0,12	3,84
29	Air transport	42,30	0,11	17,78	35,63	42,30
30	Supporting and auxiliary transport activities	41,03	0,12	20,37	169,47	41,03
31	Post and telecommunications	29,82	8,85	5,58	4,03	29,82
32	Financial intermediation	42,88	0,02	2,64	8,50	42,88
33	Real estate activities	77,26	0,57	0,00	0,00	77,26
34	Renting of machinery and equipment	24,10	0,00	4,07	10,16	24,10
35	Computer and related activities	1,05	56,10	8,14	10,54	1,05
36	Research and development	0,71	0,28	16,40	16,16	0,71
37	Other business activities	8,72	4,26	6,98	6,57	8,72
38	Public administration and defence compulsory social security	4,66	0,17	0,54	0,41	4,66
39	Education	35,90	0,01	0,28	-0,01	35,90
40	Health and social work	53,38	0,01	0,42	0,46	53,38
41	Other community social and personal service activities	84,36	1,44	1,40	4,26	84,36
42	Private households with employed persons	100,00	0,00	0,00	0,00	100,00

Source: Author's computations from OECD STAN database

Greek output and employment multipliers

First of all it is interesting to note the big difference between domestic and total multipliers (Table 8), resulting from the weight of imports in total supply, which has been discussed already. The total multiplier for the economy as a whole is 0.86, the domestic multiplier reaches 0.45: If final demand grew by one unit, domestic supply would grow by just 0.45 and intermediate imports would do so by 0.41. This is one undesired characteristic of the Greek economy, its high dependency on imports and thus, the proclivity to transfer abroad growth impulses derived from demand expansion.

Table 8. Net Output and Employment Multipliers 2005

		Output		Employment	
		Internal	Total	Internal	Total
	Total	0,455	0,859	0,221	0,272
1	Agriculture, hunting, forestry and fishing	0,433	0,654	0,468	0,542
2	Mining and quarrying of energy producing materials	0,488	0,696	0,143	0,157
3	Mining and quarrying except energy producing materials	0,836	0,770	0,266	0,180
4	Food products, beverages and tobacco	0,526	1,169	0,153	0,331
5	Textiles, textile products, leather and footwear	0,845	0,938	0,349	0,344
6	Wood and products of wood and cork	0,539	1,499	0,341	0,545
7	Pulp, paper, paper products, printing and publishing	0,284	1,015	0,162	0,270
8	Coke, refined petroleum products and nuclear fuel	0,566	1,446	0,079	0,150
9	Chemicals (including pharmaceuticals)	0,522	1,289	0,155	0,256
10	Rubber and plastics products	0,746	1,136	0,197	0,242
11	Other non-metallic mineral products	0,815	1,036	0,163	0,201
12	Basic metals: iron and steel and non-ferrous metals	0,633	2,100	0,094	0,186
13	Fabricated metal products, except machinery and equipment	0,456	1,541	0,154	0,238
14	Machinery and equipment	0,539	1,125	0,190	0,247
15	Office, accounting and computing machinery	0,583	0,917	0,961	1,034
16	Electrical machinery and apparatus	0,437	1,454	0,147	0,225
17	Radio, television and communication equipment	0,409	0,802	0,181	0,241
18	Medical, precision and optical instruments	0,462	1,041	0,173	0,247
19	Motor vehicles, trailers and semi-trailers	0,491	1,210	0,108	0,199
20	Other transport equipment	0,515	1,149	0,209	0,259
21	Manufacturing; recycling	0,455	1,000	0,245	0,358
22	Electricity, gas, steam and hot water supply	0,245	0,637	0,059	0,088
23	Collection, purification and distribution of water	0,650	0,455	0,127	0,103
24	Construction	0,344	1,078	0,185	0,266

25	Wholesale and retail trade; repairs	0,483	0,510	0,280	0,278
26	Hotels and restaurants	0,469	0,767	0,188	0,258
27	Land transport; transport via pipelines	0,399	0,825	0,307	0,364
28	Water transport	0,403	0,965	0,055	0,141
29	Air transport	0,401	0,696	0,080	0,115
30	Supporting and auxiliary transport activities	0,176	0,658	0,205	0,261
31	Post and telecommunications	0,345	0,269	0,108	0,094
32	Financial intermediation	0,130	0,419	0,108	0,156
33	Real estate activities	0,461	0,178	0,060	0,024
34	Renting of machinery and equipment	0,543	0,630	0,161	0,173
35	Computer and related activities	0,504	0,735	0,172	0,217
36	Research and development	0,579	0,675	0,221	0,250
37	Other business activities	0,292	0,749	0,296	0,370
38	Public administration and defence compulsory social security	0,125	0,529	0,204	0,247
39	Education	0,269	0,174	0,300	0,296
40	Health and social work	0,403	0,627	0,229	0,257
41	Other community social and personal service activities	0,000	0,546	0,161	0,232
42	Private households with employed persons	0,270	1,000	0,853	0,797

Source: Author's computations from OECD STAN database

Industry by industry multipliers vary significantly, but sectors showing the highest total multipliers are also amongst the most dependent on imports: other non-metallic mineral products, wood and products of wood and cork, coke, refined petroleum products and nuclear fuel, iron and steel or machinery and equipment. According to García and Carvajal (2012), the first three are also "key sectors"[9], which means that they are important in weaving the whole economy together, given their above average ability to influence other sectors, through their demand and supply of goods used as inputs. Sectors with higher domestic multipliers are textiles, textile products, leather and footwear, rubber and plastic products and chemicals (including pharmaceuticals), which are also large export sectors. Many service industries (most notably wholesale, retail trade, repairs, hotels and restaurants and financial intermediation) show rather low output multipliers, while being also large industries in terms of their product and employment. It would imply that these sectors are unable to generate or transmit growth to the economy, despite the fact that they are

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9. Key sectors show above-average ability to spread growth impulses in the economic system through their above average demand for inputs (per unit of output) and their above average capacity to offer goods demanded as inputs by other producers (per unit of output).

important for the specialization profile of the economy. Such structural characteristics do not contribute to the sustainable character of growth.

García and Carvajal (2012) complete the list of key sectors with the following low and medium technology sectors[10]: agriculture, hunting, forestry and fishing, mining and quarrying, pulp, paper, paper products, printing and publishing, basic metals; fabricated metal products, except machinery and equipment, electrical machinery and apparatus, renting of machinery and equipment. Only two high technological intensity activities are key sectors: computer and related activities and other business activities. In general high technology sectors do not play a major role in weaving the productive sector together, because of their size and their imports dependency.

The average employment coefficient in Greece is 0.15; i.e. in order to produce one Euro of total output there is that number of people employed directly. Sectors with lower coefficients are coke, refined petroleum products and nuclear fuel, water transport, production, collection and distribution of electricity and air transport. On the other side of the scale, sectors that offer more jobs per unit of output are fabricated metal products, except machinery and equipment, private households with employed persons and extra-territorial organisations and bodies, agriculture, hunting, forestry and fishing.

Employment multipliers (Table 8) are obviously higher than the corresponding labour coefficients, as they refer to the direct plus indirect employment required per unit of output; the complexity of the economic structure explains that difference – in other words, in more complex economies differences between direct labour coefficients and labour multipliers are more significant. In Greece, total employment multipliers are over 1.7 times labour coefficients and domestic employment multipliers are 1.4 times bigger than the labour coefficients. These latter differences are due to the distance between the employment requirements of the domestically produced inputs and the imported ones. That means that domestic sectors and the sources of imports use similar technologies; nevertheless by importing inputs, jobs are not created in the country. Those could be compensated by exports, but it has been already shown that it is not the case.

Another interesting feature is that sectoral hierarchies of the total and domestic employment multipliers are not so different, because they are calculated with the

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10. García and Carvajal (2012) use a slightly different industry classification based on EUROSTAT database, but their results are comparable to those presented here.

same labour coefficients, on the one hand and, on the other because domestic and foreign producers use similar technologies. There are a few sectors that present higher domestic multipliers, i.e., domestic production would create more jobs with the present technology if compared to the total supply of similar goods, which includes imports. Those are office, accounting and computing machinery, education and other business activities. Such results are due to statistical imbalances in the IO tables.

The fastest growing and exporting activities show employment multipliers slightly below the national average. Yet, as discussed already, those are rather small to absorb a significant part of the labour supply. Such industries also present lower domestic employment multipliers, but higher total ones since imports replace domestic production; developing those industries under the present technological conditions would export their ability to create jobs. On the other hand, the largest employing industries, mostly services, together with agriculture and construction use also less intense technologies; increasing employment there would not raise productivity.

A further exercise has been performed in order to estimate the employment associated with foreign trade of goods. According to equation (7), about 16% of total employment is generated by exports; using the same equation, over 34% of the total employment of the economy would be associated with the value of imports (see Table 9). This means that lowering the dependence on imports, the economy could increase the number of employees up to 34%, with the present technology used in the productive sector. Autarky is not desirable, nor would it be possible in the European institutional setting. Besides the country does not produce many natural resources, nor could it instantly produce many of the manufactures currently imported, but there is certainly significant room to increase output and employment.

Table 9. Estimated employment associated to exports and imports 2005

		To exports	To imports
	Total	15,88	34,27
1	Agriculture, hunting, forestry and fishing	16,65	25,72
2	Mining and quarrying of energy producing materials	383,59	1445,27
3	Mining and quarrying except energy producing materials	47,66	91,33
4	Food products, beverages and tobacco	13,26	27,70
5	Textiles, textile products, leather and footwear	53,56	124,78
6	Wood and products of wood and cork	24,68	152,05
7	Pulp, paper, paper products, printing and publishing	23,14	84,99

8	Coke, refined petroleum products and nuclear fuel	51,10	54,85
9	Chemicals (including pharmaceuticals)	92,22	386,55
10	Rubber and plastics products	39,57	105,03
11	Other non-metallic mineral products	16,21	40,90
12	Basic metals: iron and steel and non-ferrous metals	101,71	241,20
13	Fabricated metal products, except machinery and equipment	22,37	50,51
14	Machinery and equipment	43,81	319,03
15	Office, accounting and computing machinery	211,10	10039,42
16	Electrical machinery and apparatus	46,36	140,48
17	Radio, television and communication equipment	48,33	388,95
18	Medical, precision and optical instruments	51,17	499,97
19	Motor vehicles, trailers and semi-trailers	44,14	1061,94
20	Other transport equipment	60,98	212,01
21	Manufacturing; recycling	9,48	94,19
22	Electricity, gas, steam and hot water supply	26,50	69,76
23	Collection, purification and distribution of water	18,52	24,60
24	Construction	3,15	6,87
25	Wholesale and retail trade; repairs	16,13	19,98
26	Hotels and restaurants	3,19	1,64
27	Land transport; transport via pipelines	15,48	19,30
28	Water transport	94,84	0,86
29	Air transport	40,34	60,46
30	Supporting and auxiliary transport activities	175,49	197,63
31	Post and telecommunications	18,33	23,96
32	Financial intermediation	16,90	33,66
33	Real estate activities	4,18	7,99
34	Renting of machinery and equipment	42,69	41,22
35	Computer and related activities	19,01	22,46
36	Research and development	22,52	27,32
37	Other business activities	26,94	54,14
38	Public administration and defence compulsory social security	0,90	1,20
39	Education	0,43	0,25
40	Health and social work	0,59	0,74
41	Other community social and personal service activities	4,09	8,44
42	Private households with employed persons	0,00	0,00

Source: Author's computations from OECD STAN database

There is even more to gain if the country manages to modernise its manufacturing and services sectors and make them competitive enough and export oriented. As stated above, trade between developed countries relies more on product differentiation and adopts an intra-industry character. Modernizing the present productive

apparatus would provide the economy with the necessary tools to compete in the foreign markets and increase the employment opportunities for the population.

4. Final Remarks

The Greek economy has grown fast in the last few decades, while transforming from rural into an urban high incomes country. Apparently however it has not been able to close the gap with the wealthiest countries in the world. Despite its performance and even before the onset of the 2010's economic crisis, there were signs of structural difficulties that would eventually weigh on the economy, even if they would not trigger the crisis.

One of these weaknesses is the dependency of the economy on imports. Such goods replace domestic produce, so far absent in the volume or desired characteristics to satisfy domestic demand; for example, domestically higher technology industries are small and concurrently they are amongst the largest sources of imports. Exports on the other hand, lag behind and few industries are oriented towards external demand. The competitiveness of the economy has not been a priority in the long-term economic strategy. In a word, the external deficit has structural origins and will not be easily solved.

Labour productivity and total factor productivity are the main forces leading economic growth. On the other hand, investment seems to enlarge capital stocks and introduce newer technologies into the economy. Apparently however, capital stock has outgrown the economy in the last few years, so capital productivity has also grown sluggishly if compared to other grow determinants.

In terms of the Greek economic structure, value added represents a high proportion of output, which would indicate that overall intermediate inputs are used efficiently, but on closer inspection of the figures, industries, such as agriculture or some low technology services are large contributors to output and employment by European standards. These industries demand smaller proportions of inputs, for which they show large VA employing primary inputs in larger amounts with lower productivity; hence their multipliers are smaller. Economic policy could contribute to raise sectoral productivity and locate factors more efficiently elsewhere, probably allowing at the same time a lowering of the economy's dependency on imports.

It is reasonable to conclude that Greek growth is not a self-sustained process, because there is no correspondence between the faster growing sectors and the largest, nor between the former and those that weave the economic structure together. Therefore, expansion depends upon final demand, and that demand on its financing

supports. It is clear that the economy needs restructuring towards a more industrial character before it can resume fast growth and perhaps manage to converge with the richest economies.

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CONSPICUOUS CONSUMPTION AND ALBANIANS: DETERMINANT FACTORS

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Abstract

Developing post-communist countries may have relatively higher levels of conspicuous consumption, because of extreme inequalities in income, relatively stronger social relationships and traditions and the urge to show off of the nouveaux riches, previously condemned. In spite of this, there is a lack of research concerning this behaviour in Albania. This paper briefly discusses one aspect of the phenomenon, the influencing factors, drawing upon relevant analyses from different viewpoints. The impact that these "global" or "local" factors (gender, age, education, social environment, etc.) have on the level of conspicuous consumption of an Albanian household is analyzed, using data from the 2008 Albanian Living Standards Measurement Survey (LSMS 2008). Among the considered factors, gender and education seem to have the greater impact.

1. Introduction

To be, or to be seen, that is the question…

The term *conspicuous consumption* is familiar to most economists, marketers, sociologists, psychologists and biologists and it has also become part of everyday language. This term is often used in a vague descriptive sense to refer to any non-utilitarian forms of consumption, or simply to that which is judged extravagant, luxurious, or wasteful. (Campbell, 1995) Nevertheless the number of empirical economic studies conducted in this field is still relatively low, maybe owing to the interdisciplinary character of the topic. Furthermore, individuals tend not to explic-

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itly admit their intention to engage in such "lavish" spending behaviour. (Mason, 1981)

The study of such a phenomenon may be a subject of common interest, especially in a developing post-communist country like Albania. Developing countries may have relatively higher levels of conspicuous consumption, because of extreme inequalities in income, relatively stronger social relationships and traditions and the urge to show off of the *nouveaux riches*, as argued and demonstrated in several studies. (Case *et al.*, 2013; Linssen, Van Kempen & Kraaykamp, 2011; Özpinar, Aldemir & Özpinar, 2010; Van Kempen, 2004; Bonsu & Belk, 2003; Belk, 1988) This kind of consumption surfaced immediately and furiously after the fall of communism in the newly democratic societies, since open displays of wealth and marking social distinction were socially or even legally forbidden by previous regimes and their ideological commitment to equality. (Thompson, 2013; Friehe & Mechtel, 2012; Petre, 2010; Pop-Eleches, 2009; Tse, Belk & Zhou, 1989) It is thus fascinating to investigate reasons, factors and other aspects concerning this behaviour. This may help to better understand the coexistence of the impossibility to fulfil sometimes even the basic needs and the insistence on buying extremely expensive products simply to show off.

The concept studied here has its origins in the work of Thorstein Bunde Veblen, a Norwegian-American economist and sociologist, one of the founders of institutional economics. He wrote his *The Theory of the Leisure Class* more than one hundred years ago (1899), based entirely on observation. It still represents a powerful critique of the neoclassical theory of consumption. It contrasts the neoclassical approach, which assumes the individual's maximization of utility according to exogenous preferences, by developing an evolutionary framework in which there are also social factors. Thus, preferences are determined socially depending on the positions of individuals in the social hierarchy. (Trigg, 2001) Veblen is one of the first theorists who argued that consumption is actually a process of socialization and goods have a function as markers of social class. (Patsiaouras, 2010) He argues that "wealthy individuals often consume highly conspicuous goods and services in order to advertise their wealth, thereby achieving greater social status". (Bagwell & Bernheim, 1996) Veblen named this kind of unnecessary and unproductive expenditures, as *conspicuous consumption*. Besides the desire for uniqueness, he introduced "pecuniary emulation" as another path leading to conspicuous consumption, which even those from the lowest scales of the social hierarchy can also follow, imitating the consumption habits of other ones, situated in higher positions. (Veblen, 1899)

Therefore, it is a mistake to see conspicuous consumption as the exclusive province of the rich.

Finally, even after a close reading and analysis of the different arguments given in *The Theory of the Leisure Class*, the formulation of Veblen's most famous concept is not sufficiently clear to permit any general agreement on its definition and study. In his well-known critique of Veblen's work Campbell insists that "it would be unreasonable to assume that, just because an individual's conduct succeeds in impressing others, such conduct could be attributed to that person's... manifestation of "pecuniary strength" unless other alternatives have been considered". Moreover, the interpretive approach, which considers conspicuous consumption as the manifestation of specific subjective states within the individual, does not make clear the decisive defining principle and the consumer's consciousness in that regard. This criterion may be an intention (such as "outdoing" others) or a motive (such as "satisfaction" of knowing that one has more than others). Finally, neither subjective nor functionalist approaches clarify the precise feedback processes through which the conspicuous consumer receives the signal to persevere with conspicuous consumption. (Campbell, 1995)

Reformulating arguments given by Veblen, conspicuous consumption can be defined as the consumption of goods and services that is motivated mainly by secondary (conspicuous) utility, i.e. by utility deriving from evidence or social confirmation of the consumer's relative ability to pay. (Basmann, Molina & Slottje, 1988). Consumers make their decisions to buy and consume "conspicuous" goods, paying attention not only to the material needs that these products can satisfy, but also to social needs such as prestige. (Amaldoss & Jain, 2005a; Belk, 1988; Grubb & Grathwohl, 1967) Hence, individuals, not only the rich, but also members of the middle and working class, are involved in a competitive race for gaining status or prestige. Examining modern relevant literature, Scheetz (2004) defines conspicuous consumption as any consumption whose purpose is that of showing off wealth to others when the good is publicly consumed, "ranging from applying an expensive lipstick in public to driving an expensive car". So, the concept created by Veblen, is generally seen by researchers (mainly economists) as a process or means to achieve or maintain status and other social benefits, mainly through the consumption of luxury goods. It is still almost impossible to give an exhaustive definition of it, maybe due to the composite nature of the phenomenon, which requires multidisciplinary analysis combining viewpoints from economics, marketing, sociology, psychology and even biology. "Consumer behaviour is often too complex to be handled by eco-

nomics alone and, if done, may severely limit the scope of findings". (Chaudhuri & Majumdar, 2006)

2.   Main Determinant Factors of Conspicuous Consumption

Taking into account the abovementioned intricate nature of the phenomenon, it is practically impossible to give a thorough list of motives and factors to be considered when referring to conspicuous consumption patterns. Hence, only some of these influencing circumstances will be relied on for the following theoretical and empirical analysis.

A study conducted using USA representative data on consumption show that Blacks and Hispanics spend larger shares of their total expenditure on conspicuous goods (clothing, jewellery, and cars) than do comparable Whites (Charles, Hurst & Roussanov, 2009). The observed differences are relatively constant over time and economically large. Another similar study used South African household data and found that non-White households spend relatively more (30 to 50 percent more) on visible consumption than do comparable White ones. (Kaus, 2013) In both cases, this implies lower spending on other consumption categories, especially on health and medical services and education. The reasons for these racial differences can be found in the discrimination and the marginal position of non-White individuals, even in several modern societies. Thus, this is a case of conspicuous consumption playing the role of compensatory consumption for non-White individuals. We expect this to be true in general for marginalized groups.

Gender is another factor that may affect the level of conspicuous consumption, in two different and antagonistic ways. De Fraja (2009) argues that desire for conspicuous consumption was shaped during evolutionary times by a mechanism that biologists define as sexual selection. This occurs when an observable trait (in our case, conspicuous consumption) is used by members of one sex to signal their unobservable characteristics valuable to members of the opposite sex. Tracing the origins of the phenomenon back to the handicap principle, reliable and therefore costly signals (like conspicuous consumption) that signal a man's mate value will be developed, to avoid the risk of deception. (Pollet & Thienpont, 2004) Conducted experiments demonstrate that the motivation to conspicuously consume and display, in a mating context, is evident among men (Janssens *et al.*, 2011). While conspicuous consumption may serve as a mating strategy for men, mating conditions are irrelevant for women (Sundie *et al.*, 2011). Hence, we should find relatively higher

levels of this consumption among men. On the other hand, due to the higher propensity among women toward social and emotional links with others (greater interdependence), conspicuous consumption as a means of social signalling may be more present among them. (Prakash, 1992; Meyers-Levy, 1988) Furthermore, a recent study uses five different experiments to show how women's visible costly possessions serve to signal their romantic partner's devotedness to them. (Wang & Griskevicius, 2013) Thus, the research identifies a novel function of conspicuous consumption, as regards its important role in relationships.

Young individuals are the conspicuous consumers *par excellence*, because of their great attention to others and to mass media. (Sims-Muhammad, 2012; Grant, 2004) Moreover, they also influence their (adult) relatives' spending patterns. (Moschis & Churchill, 1979) They are probably the most studied consumer category in this regard. Shukla (2008) suggests (based mainly on a survey conducted with customers of the BMW, Mercedes Benz and Lexus dealerships) that middle-aged consumers, like the youth segment, are also a significant target group that needs to be studied, in the area of conspicuous consumption. These consumers feel several years younger then their actual age and so there is a difference between their chronological age and their spending habits. (Underhill & Cadwell, 1983) Furthermore, middle-aged individuals have generally relatively higher incomes, a more stable career and a higher access to credit and debit resources, which give them higher capacities to pay for conspicuous consumption (Spero & Stone, 2004). Levels of conspicuous consumption should also be higher among young and middle-aged consumers, due to the higher propensity to engage in sexual signalling, as argued previously.

Even education may have a similar influence on the levels of conspicuous consumption. Higher levels of education generally bring higher access to financial resources and a stronger need to signal the achieved wealth, status, prestige, etc. (Amaldoss & Jain, 2005b; Chao & Schor, 1998; Yoon & Seok, 1996). Examples coming from the cosmetics market confirm this idea, with the demand for conspicuous cosmetics that increases with price for college educated individuals and a normal downward-sloping demand curve for the ones who have not graduated. Thus, we should observe relatively higher levels of conspicuous consumption accompanying higher levels of education.

Being often a society-oriented behaviour, conspicuous consumption patterns depend not only on personal traits of the consumers, but also on the surrounding social environment. Ostentatious consumption may be particularly significant in complex

and dynamic contexts where long-standing social networks do not exist, ergo areas with high labour mobility and big cities rather than small towns and villages (Vikander, 2007; Frank, 1985). We observe a less prevalent role of conspicuous consumption in small towns and rural settings because "through the medium of neighbourhood gossip… everybody's affairs, especially everybody's pecuniary status, are known to everybody else". (Veblen, 1899)

Finally, there is an interesting relationship between advertising and conspicuous consumption. A recent research paper formalizes the idea that advertising creates the possibility of conspicuous consumption, because it is a source of the signalling power of brands. (Krähmer, 2005) Advertisements inform the public of brand names and render them a signalling device. In a price competition framework, the research shows that advertising increases consumer's willingness to pay for these products. But this can lead the firm selling to the "conspicuous consumer" to increase its spending on advertising. The later serve as an incentive to further increase levels of consumption, and so forth…This is only one of the many studies (Tereyağoğlu & Veeraraghavan, 2012; Sajeesh, 2010; Bagwell & Bernheim, 1996, among others) focusing on the links between conspicuous consumption and firms' behaviour (advertising, brands, pricing, positioning, etc.). Nonetheless, we adopt a viewpoint focused on consumer behaviour in this research.

Finally, we should mention that the impact of the aforementioned factors on conspicuous consumption patterns may vary from one society to another. This is due to different historical, social, economic, political, or even legal backgrounds. (Memushi, 2013; Patsiaouras & Fitchett, 2012; Bekir, El Harbi & Grolleau, 2011; Anderson, 2003; Eastman *et al.*, 1997; Page, 1992; Tse, Belk & Zhou, 1989) To give an example, conspicuous consumption is found to be higher in individualist cultures than in collectivist ones. (Souiden, M'Saad & Pons, 2011)

3. Conspicuous Consumption of Albanian Households

The last decade of the twentieth century was one of significant socioeconomic changes in Albania. The fall of the communist regime (one of the most violent and isolated in Europe), after nearly fifty years of "war" for a society based on equality and against condemned foreign influences, cleared the way for a new open society, trying to catch up with globalization trends in lifestyle and economy. (Hana & Telo, 2005) Inevitably, the new environment brought to life new consuming patterns in the Albanian society (perceived as rather individualist by locals), similar to the ones

appearing in other developing post-communist countries in Europe, as referred to above. Nowadays, Albania is an upper middle income developing country, where the young population, a great (lately, decreasing) number of emigrants to the European Union and strong economic links with these countries, (World Bank, 2014; Memushi & Kokaveshi, 2011) facilitate the imitation of Western consumerism habits. Nevertheless, to the best of the author's knowledge, except for mass media focus, there is an almost total lack of scientific research concerning conspicuous consumption in the country. This may be due to the availability of only very generic and (for a long period) rather unreliable official data on the consumption of Albanian households, incomes, prices, etc. Hence, this research aims to be only a starting exploratory point for more extended and exhaustive upcoming analyses.

The following study is based on data coming from the Living Standard Measurement Survey Albania 2008 (LSMS 2008), conducted by the Albanian Institute of Statistics (INSTAT). A similar sampling procedure to the one in LSMS 2005 (The World Bank, 2006) was carried out. It was considered a stratified two stage cluster sampling design in which the Primary Sampling Units (PSUs) were represented by the census Enumeration Areas (EAs), while the Second Stage Sampling units (SSUs) were the households (denoted as HUs). The EAs were stratified according to geographic criteria:

- Large geographic areas: "Mountain Area", "Coastal Area" and "Central Area" and their belonging to "Urban" area (big towns), "Other Urban" areas (i.e. small towns) and "Rural" areas.
- Tirana, the capital city, was considered as a separate stratum.

The LSMS final sample consisted of 3,600 households; 8 households selected for each of the 450 EAs selected at the first stage of the sampling. The selection of the EAs within each stratum was carried out by means of a Probability Proportional to Size (PPS) design; the measure of size was represented by the number of households living within each EA. The second stage units were selected by means of systematic sampling. In particular, within each selected PSU, 12 HUs were initially selected, 8 of them formed the base sample while the remaining 4 were considered as available substitutes. The selection of the new sample of 450 EAs has been carried out using the frame of EAs resulting from the Population Census at the end of editing stage. Before selecting the sample of PSUs, EAs from Tirana and Durrës (the second most populated city) have been quickly updated (quick counts) to take into account migration flows.

3.1 Estimation of the econometric model

It is rather difficult to find in the relevant literature a clearly specified model showing the impact of different factors on the level of ostentatious consumption. On the other side, drawing upon this literature it is very easy to find theoretical explanations about these factors (some of them mentioned above) and their influence. Trying to include most of these factors as independent variables, the main model upon which the study is based is a model of multiple linear regressions, whose equation is presented below:

$$concons = \beta_1 hhsize + \beta_2 stratum + \beta_3 totcons + \beta_4 malehead$$
$$+ \beta_5 age15_{25} + \beta_6 highdip + \beta_7 malehdip + u$$

In this equation, *concons* and *totcons* refer respectively to conspicuous consumption of status luxury goods and household total consumption during a month, in Albanian Leks (ALL). Ostentatious consumption is calculated as the sum of consumption in these categories: domestic services (paid staff in private service such as child care, babysitting, cooks, cleaners, drivers, gardeners, etc); pet food, pet supplies and services; entertainment (cinema, theatres, opera houses, concert halls, circuses, amusement parks, sports events, gym or fitness centre admission, etc.); sports and hobby equipment, toys of all kinds, and their repair (including musical instruments, video games, cassettes and CDs, gardening plants and supplies for ornamental gardens and balconies, etc.); excursion and holiday (including travel expenses and lodging), excluding school excursions; gifts/payments to relatives (not living in household) and to nonrelatives; donations to church/mosque/non-profit institution; gambling and lottery losses. Variables named *hsize*, *age* 15_25 and *stratum* respectively show the number of members in the household (household size), the number of members aged 15-25 years and the stratum in which the household is included. The variable *stratum* takes the value *1* (for households included in the coastal area), *2* (for households in the central area), *3* (for the mountain area) and *4* (for Tirana, which is considered a separate stratum). The *malehead* variable is the dummy variable for the gender of the head of the household and *highdip* refers to his highest diploma attained in school. In the case of gender, the variable name illustrates the situation in which it takes the value 1 (the head of the household is a male), while the opposite case is described by the value 0. The *highdip* variable is equal to *0* (no diploma attained), *1* (primary 4 years), *2* (primary 8/9 years), *3* (secondary general), *4* (vocational 2-3 years), *5* (vocational 4/5

years), *6* (university in Albania), *7* (university abroad), *8* (post-graduate in Albania) and *9* (post-graduate abroad). The variable $malehdip$ is the interaction term of gender and education of the head of the household (given by $malehead\ x\ highdip$). Finally, the term *u* (error term) includes all other (unobserved) factors which have any kind of influence on the dependent variable.

The level-level form (linear specification) has been used, instead of the log-level form (semi-logarithmic specification). There are several reasons that make this the most appropriate choice. First, when *y* (in our case, conspicuous consumption) does not always have positive values, the models including *ln(y)* (in our case, *lnconcons*) as the dependent variable cannot be used, even though they satisfy the classical linear model assumptions better than models that use the level form of this variable. Secondly, applying the logarithmic or semi-logarithmic specification to these data yields different regressions in which most of the explanatory variables are statistically insignificant.[1] The reader should note the use of a regression through the origin (without the intercept term β_0). This choice is due to the fact that it is meaningless to have a $\beta_0 \neq 0$ level of conspicuous consumption in a household whose total consumption is equal to zero! Moreover, it is meaningless to analyze a household with zero members ($hhsize = 0$). The reader should also note the inclusion of the interaction term of gender and education of the household head ($malehdip$) due to a possible correlative relation between the two characteristics.

Using the household data collected, we estimate the main model for the sample with the OLS method. The result of processing such data is the following regression:

$$concons = -1161.488\ hhsize + 670.014\ stratum$$
$$(262.688) \qquad (349.078)$$
$$+0.044\ totcons - 7888.178\ malehead$$
$$(0.002) \qquad (1386.195)$$
$$+1167.855\ age15\_25 - 1987.396\ highdip$$
$$(444.176) \qquad (495.474)$$
$$+1716.371\ malehdip + u\ (2)$$
$$(538.219)$$

We can use the F-test statistic *F=143.840* (*sig=0.000<0.001*) in the corresponding ANOVA table to test the overall statistical significance of the regression. The regression is statistically significant even at very low significance levels (e.g.

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1. See for example Annex 2, illustrating the semi-logarithmic specification.

0.1%). Anyway, the coefficient of determination $R^2 = 0.228$ in the corresponding Model Summary table shows that only *22.8%* of the variance of *concons* is explained by the independent variables (a relatively low proportion).

Heteroscedasticity testing: We may use the *Gluser*[2] test and the *Breusch-Pagan*[3] test to search for heteroscedasticity. We cannot reject the null hypothesis of homoscedasticity using any of the mentioned tests (they don't show significant evidences of heteroscedasticity).

3.2 Model analysis

Using the data in the Coefficients table in Annex 1, we can interpret the OLS estimators in regression *(2)* as follows:

Hhsize is statistically significant, even at low significance levels. An increase by one unit in *hhsize* leads to a decrease by 1161.488 ALL in the monthly conspicuous consumption level, *ceteris paribus*. Hence, *hhsize* is economically significant (the monetary effect is important), too. In conclusion, larger households spend less (on average) on conspicuous goods, maybe owing to a greater necessity to fulfil more basic needs.

Age15_25 is statistically significant, at the conventional significance level of *1%*. If *age15_25* increases by one unit, the conspicuous consumption level increases by 1167.855 ALL, *ceteris paribus*. Thus, *age15_25* is also economically significant. In accordance with what is said in the relevant literature, households having more young members spend (on average) more on conspicuous goods.

Stratum is not statistically significant at a significance level of *5%*, but it is significant at the *10%* level and also at any other significance level above *5.5%*. Figures show that *stratum* is economically significant. Households in Tirana have (on average) higher levels of conspicuous consumption compared to those located elsewhere. So, the level of conspicuous consumption of a household in Tirana (*stratum = 4*) is on average 670.014 ALL higher than the corresponding level of a household in the mountain area (*stratum = 3*), 1340.028 ALL higher than that of a household in the central area (*stratum = 2*) and 2010.042 ALL higher compared to a household in the coastal area (*stratum = 1*), *ceteris paribus*. This is consistent with the theoretical argument that in large urban areas, the surrounding environment promotes a higher level of ostentatious consumption as a signalling tool. What is

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2. See Annex 3.
3. See Annex 3.

surprising is that the data indicate declining levels of conspicuous consumption, moving from mountain areas to the central area and then the coast, which seems rather strange considering the nature of Albanian society (mountain areas are the less developed ones).

Totcons is statistically significant, even at low significance levels. An increase by 100 units (ALL) in *totcons* causes an increase by only 4.4 ALL in the monthly conspicuous consumption level, *ceteris paribus*. Hence, *totcons* is not economically significant, because on average only 4.4% of an increase in the total consumption of an Albanian family would go on conspicuously consumption. Such a low value is normal considering the low development level of the country, but contrary to the general perception even among Albanians themselves.

Malehead is statistically significant, even at low significance levels. At a given level of *highdip*, the conspicuous consumption level in the households with a male household head (*malehead = 1*) differs on average by (*-7888.178 + 1716.371 highdip*) ALL from that of female-head households, *ceteris paribus*. For example, the monthly consumption of conspicuous goods of a household, the male household head of which has a secondary general diploma attained (*highdip = 3*) is by 2739.065 ALL lower (-7888.178 + 1716.371 × 3 = -2739.065), compared to a household with a female household head who has the same education level, *ceteris paribus*. Hence, *malehead* is also economically significant. It should be noted that higher levels of education lead to smaller differences between the two household types and even to the inversion of such differences at the highest levels. In accordance with the theoretical and empirical literature that emphasizes the relatively stronger social links between women and their higher propensity to conspicuously consume, households headed by a female spend more (on average) on ostentatious goods (at least, at lower levels of education).

Highdip is statistically significant, even at low significance levels. An increase by one unit in *highdip* (a diploma located just one degree higher in the 1-9 scale previously explained) causes a 271.025 ALL decrease (-1987.396 + 1716.371 = -271.025) in the conspicuous consumption level, in the case of a male household head, *ceteris paribus*. In the opposite case, the consequence of the one unit increase in *highdip* is a 1987.396 ALL decrease in conspicuous consumption, *ceteris paribus*. Hence, *highdip* is economically significant and the negative effect of education is stronger for women. It should be noted that the results contradict the theoretical viewpoint which argues that education is an incentive for the "desire for uniqueness" and consequently for ostentatious consumption. This may be attributed

to a greater "consciousness" of the economic situation (on the eve of first conse-
quences of the recent global economic crisis) and a stronger "self-control" among
the highly educated individuals, behavioural aspects not previously studied in the
relevant referred literature. *Malehdip* is statistically significant at a significance
level of *1%.* This interaction term is economically significant, too.

Thus, the results of the model analysis are generally in accordance with expec-
tations. An important conclusion is that the consumption of conspicuous goods is a
small share of the total consumption of Albanian households. Gender and education
of the household head are the factors which have the greater effects on the level of
ostentatious consumption, at least among the influencing factors studied here.

4.   Conclusions

Conspicuous consumption is generally seen by researchers as a process or means to
achieve or maintain status and other social benefits, mainly through the consum-
ption of luxury goods. As the relevant literature suggests, it may be an instrument of
signalling. Individuals use it to signal sexual or social relevant characteristics to
others. It can also be a matter of self-fulfilment or just serve as a means to fill social
voids. It is because of this that marginal groups spend relatively more on conspicu-
ous consumption. Higher levels of education should generally bring higher levels of
such consumption, due to a higher access to financial resources and a stronger need
to signal social characteristics. Similarly, levels of ostentatious consumption should
also be higher among young and middle-aged consumers, owing to the higher prop-
ensity to engage in social and sexual signalling. Women play an important role on
the stage of conspicuous consumption. It seems that their "presence" is important
both for their part as direct consumers and as an incentive for the opposite gender to
conspicuously consume. Anyway, conspicuous consumption patterns depend not
only on personal traits of the consumers, but also on the surrounding socioeconomic
background.

To the best of the author's knowledge, there is an almost total lack of previous
scientific research concerning conspicuous consumption in Albania, due to the
availability of only very generic and rather unreliable official data on consumption,
incomes, goods' prices, etc. Hence, this empirical research, based on data from the
Living Standard Measurement Survey Albania 2008, aims to be only a starting ex-
ploratory point for more extended and exhaustive upcoming analyses.

Our study shows that the consumption of conspicuous goods comprises a small
share of the total consumption of Albanian households, in contradiction to the gen-

eral perception among locals themselves. On average, only *4.4%* of an increase in the total consumption of an Albanian family would go on conspicuous consumption. Gender and education of the household head are the factors which have the greater effects on the level of ostentatious consumption, at least among the influencing factors studied in our model. Households headed by a female spend more (on average) on ostentatious goods (at least, at lower levels of education). Our work has therefore to be included in the literature stream defending the idea of higher conspicuous spending by women. Their higher propensity toward social and emotional relationships (greater interdependence) and the accompanying social signaling motives may overcome the sexual signalling incentives for men.

Education has a negative impact on conspicuous consumption and its effect is greater among women. This contradicts the theoretical argument of education as an incentive for the "desire for uniqueness" and consequently for ostentatious consumption. Such a result may be attributed to a greater "consciousness" of the new economic situation (the recent global economic crisis) and a stronger "self-control" among the highly educated individuals, behavioural aspects not previously studied in the relevant referred literature.

Larger Albanian households spend less (on average) on ostentatious consumption, maybe due to a greater necessity to fulfil their needs for "normal" products. As expected, households having more young members spend typically more on conspicuous goods, due to the higher propensity of these individuals toward social and sexual signalling. Finally, households in Tirana have relatively higher levels of conspicuous consumption compared to those located elsewhere, confirming the existing idea about the importance of an urban environment in the enhancement of conspicuous consumption habits.

Limitations and possible paths in upcoming research: In the presented model, the choice of components of household consumption included in the category of conspicuous consumption is somewhat subjective. This is due to the scarcity of detailed data on consumption and the difficulties of determining what is actually "conspicuous", since in any case individuals tend not to admit they are involved in such behaviour. In this context, bringing analysis to the level of individual consumption is an interesting problem to be addressed in future research. Conspicuous consumption of marginal groups such as Romani or Ashkali and Balkan Egyptians has also to be studied in comparison with the rest of the population (in the context of expected compensatory consumption patterns among them). In conclusion, in this study we analyze only factors affecting ostentatious consumption,

not examining in detail the reasons behind such behaviour and its consequences, which are important both at a microeconomic and macroeconomic level.

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ANNEXES

Annex 1

Regression
Variables Entered/Removed (b,c)

Model	Variables Entered	Variables Removed	Method
1	malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip(a)	.	Enter

a All requested variables entered.
b Dependent Variable: concons.
c Linear Regression through the Origin.

Model Summary (c,d)

Model	R	R Square(a)	Adjusted R Square	Std. Error of the Estimate
1	.478(b)	.228	.226	22151.02715

a For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.
b Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.
c Dependent Variable: concons.
d Linear Regression through the Origin.

ANOVA (c,d)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	494044624047.601	7	70577803435.372	143.840	.000(a)
	Residual	1672687224355.175	3409	490668003.624		
	Total	2166731848402.776(b)	3416			

a Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.
b This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.
c Dependent Variable: concons.
d Linear Regression through the Origin.

Coefficients (a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	hhsize	-1161.488	262.688	-.199	-4.422	.000
	stratum	670.014	349.078	.068	1.919	.055
	totcons	.044	.002	.847	26.523	.000
	malehead	-7888.178	1386.195	-.296	-5.691	.000
	age15_25	1167.855	444.176	.059	2.629	.009
	highdip	-1987.396	495.474	-.265	-4.011	.000
	malehdip	1716.371	538.219	.220	3.189	.001

a Dependent Variable: concons.
b Linear Regression through the Origin.

Residuals Statistics (a,b)

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-14867.5449	150031.1719	5992.1918	10428.42846	3416
Residual	-138840.57813	473697.15625	-170.33142	22130.90375	3416
Std. Predicted Value	-2.000	13.812	.000	1.000	3416
Std. Residual	-6.268	21.385	-.008	.999	3416

a Dependent Variable: concons.
b Linear Regression through the Origin.

Annex 2

Regression
Variables Entered/Removed (b,c)

Model	Variables Entered	Variables Removed	Method
1	highdip, age15_25, totcons, stratum, malehead, hhsize, malehdip(a)	.	Enter

a All requested variables entered.
b Dependent Variable: logconcons.
c Linear Regression through the Origin.

Model Summary

Model	R	R Square(a)	Adjusted R Square	Std. Error of the Estimate
1	.682(b)	.466	.464	3.90039

a For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.
b Predictors: highdip, age15_25, totcons, stratum, malehead, hhsize, malehdip

ANOVA (c,d)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45179.363	7	6454.195	424.255	.000(a)
	Residual	51861.130	3409	15.213		
	Total	97040.492(b)	3416			

a Predictors: highdip, age15_25, totcons, stratum, malehead, hhsize, malehdip.
b This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.
c Dependent Variable: logconcons.
d Linear Regression through the Origin.

Coefficients (a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	stratum	-.187	.061	-.090	-3.036	.002
	totcons	4.65E-006	.000	.425	16.005	.000
	hhsize	.026	.046	.021	.552	.581
	age15_25	.023	.078	.005	.293	.770
	malehead	1.757	.244	.312	7.197	.000
	malehdip	-.483	.095	-.292	-5.093	.000
	highdip	.513	.087	.323	5.875	.000

a Dependent Variable: logconcons.
b Linear Regression through the Origin.

Annex 3

Regression 1 (B-P)
Variables Entered/Removed (b,c)

Model	Variables Entered	Variables Removed	Method
1	malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip(a)	.	Enter

a All requested variables entered.
b Dependent Variable: res_1sq.
c Linear Regression through the Origin.

Model Summary

Model	R	R Square(a)	Adjusted R Square	Std. Error of the Estimate
1	.303(b)	.092	.090	5005048950.81514

a For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.
b Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.

ANOVA (c,d)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8648619685145240000000.000	7	1235517097877892000000.000	79.321	.073(a)
	Residual	85397205635190100000000.000	3409	25050515000055770000.000		
	Total	94045825320335400000000.000(b)	3416			

a Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.
b This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.
c Dependent Variable: res_1sq.
d Linear Regression through the Origin.

Coefficients (a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	hhsize	-172623091.964	59354648.587	-.142	-2.908	.004
	stratum	120474148.074	78874589.065	.059	1.527	.127
	totcons	6362.995	372.471	.591	17.083	.000
	malehead	-1383784017.469	313212378.841	-.250	-4.418	.000
	age15_25	-225491504.935	100362115.877	-.054	-2.247	.025
	highdip	-342520226.631	111952783.293	-.220	-3.060	.002
	malehdip	251801218.216	121611216.289	.155	2.071	.038

a Dependent Variable: res_1sq.
b Linear Regression through the Origin.

Regression 2 (Gluser)
Variables Entered/Removed (b,c)

Model	Variables Entered	Variables Removed	Method
1	malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip(a)	.	Enter

a All requested variables entered.
b Dependent Variable: res_1abs.
c Linear Regression through the Origin.

Model Summary

Model	R	R Square(a)	Adjusted R Square	Std. Error of the Estimate
1	.647(b)	.418	.417	16893.65216

a For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.
b Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.

ANOVA (c,d)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	699774021461.972	7	99967717351.710	50.278	.077(a)
	Residual	972913202893.204	3409	285395483.395		
	Total	1672687224355.176(b)	3416			

a Predictors: malehdip, age15_25, stratum, totcons, hhsize, malehead, highdip.
b This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.
c Dependent Variable: res_1abs.
d Linear Regression through the Origin.

Coefficients (a,b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	hhsize	-834.842	200.341	-.163	-4.167	.000
	stratum	744.070	266.227	.086	2.795	.005
	totcons	.046	.001	1.008	36.396	.000
	malehead	-7104.550	1057.193	-.304	-6.720	.000
	age15_25	-979.076	338.754	-.056	-2.890	.004
	highdip	-1580.487	377.877	-.240	-4.183	.000
	malehdip	1282.298	410.477	.187	3.124	.002

a Dependent Variable: res_1abs.
b Linear Regression through the Origin.

CO-OPETITION: A BUSINESS STRATEGY FOR SMES IN TIMES OF ECONOMIC CRISIS

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Abstract

Cooperation between competing organizations (co-opetition) to achieve common objectives has become a prerequisite for global competitiveness and innovativeness. Co-opetition is a business strategy which emphasizes both cooperative and competitive relations between two or more organizations. It implies that firms, especially Small and Medium-sized Enterprises (SMEs), perform better when they are involved in competitive and cooperative relationships at the same time and combine their complementary strengths to create synergies. The present study discusses the various definitions and types of co-opetition strategy and addresses the implications of economic crisis on SMEs. Finally, the paper suggests that co-opetition could be an appropriate business strategy for SMEs in difficult economic conditions provided that they develop a co-opetitive portfolio with different kinds of partners by seeking to obtain the advantages of each partnership and become more competitive.

1. Introduction

The constantly changing and challenging global business environment requires firms to be proactive, flexible and open-minded if they want to succeed. In fragile economic conditions, firms are called on to deal with difficult external circum-

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stances, so they need to find new ways of conducting business, in order to survive and increase their competitiveness and innovativeness. Cooperation between independent organizations to achieve common goals has become a prerequisite in today's networked and knowledge-based economy.

Over the years, organizations have formed alliances with other parties in order to gain a better position in local and global markets and create competitive advantages (Kossyva and Georgopoulos, 2011). As P. Drucker (1996) stated, *"The greatest change in corporate culture, and the way business is being conducted, may be accelerating growth of relationships based not on ownership, but on partnership"*.

As uncertainty increases, the ability of firms to adapt in their external environment and to remain competitive is closely related to their capacity to innovate. Hence, it is crucial for firms to continuously develop innovations in order to create value for their buyers and of course value for their stakeholders. Furthermore, they have to be able to identify and explore business opportunities, so as to exploit future competitive advantages (Sarri *et al*., 2010; Kossyva and Georgopoulos, 2011). In order to succeed in that, they need to accelerate the innovation process through more flexible forms of collaboration such as co-opetition (Acharya 1999; Bengtsson and Kock, 1999).

Co-opetition is a dynamic process in which organizations seek competitive advantages arising from both cooperation and competition. Through this process, organizations look for complementary partners, as a way of promoting their own resources; transferring and creating knowledge; exploring entrepreneurial opportunities, without losing sight of their own interests (Kossyva *et al*., 2012). Therefore, firms are called on to initiate collective actions with their competitors to create value in a market and at the same time they compete to capture the created value individually (Bengtsson and Kock, 2000; Kossyva and Georgopoulos, 2011).

Undoubtedly, the current economic crisis has caused severe damage to global economies and has created a number of challenges for business firms. The global financial crisis has significant impact on business activities, especially on small and medium-sized enterprises (SMEs). SMEs are considered the worst affected as they have to face several challenges such as reduced sales, decreased liquidity, fall in demand for goods and services, increased payment delays on receivables as well as tightening in credit terms (OECD, 2009).

The present study discusses the definitions and types of co-opetition strategy and addresses the implications of economic crisis on SMEs. It focuses on small and

medium-sized enterprises (SMEs) as they play a vital role in every economy worldwide and are key drivers for employment, innovation and growth. Further-more, it stresses the importance of SMEs forming co-opetitive relationships in order to gain access to complementary resources and skills. Finally, the paper suggests that co-opetition could be an appropriate business strategy for SMEs in difficult economic conditions provided that they develop a co-opetitive portfolio with different kinds of partners by seeking to obtain the advantages of each partnership and become more competitive.

2.   The concept of co-opetition

The term "co-opetition" was first introduced in 1993 by Raymond J. Noorda, foun-der and CEO of Novell Corp. Later, Adam Brandenburger, Professor at Harvard Business School and Barry Nalebuff, Professor at Yale School of Management adopted this term in their best seller book called "co-opetition" (Brandenburger and Nalebuff, 1996). According to these authors, co-opetition is defined as the com-bination of cooperation and competition for value creation. Co-opetition is based on game theory where business is a game with multiple players (firms) who play multiple roles and depend on each other. A business game is different from sports or war where there are winners and losers. Taking part in a business game, firms may obtain more benefits at the end, as their interaction might generate positive-sum games. It means that the success of a firm does not necessarily mean the failure of others but there can be multiple winners.

Brandenburger and Nalebuff (1996) developed a framework which is called "Value Net" to depict the relationships and interdependencies among different players of a business game (figure 1). The Value Net constitutes a network of co-opetitive relationships in which organizations "play" multiple roles and look for complementary partners to create value. It includes five players of a business game; the focal firm, its suppliers, its customers, its *substitutors* or competitors and its *complementors*. In the center of the Value Net the firm in question is placed. On the vertical axis there are the suppliers and the customers who contribute equally to the value creation process. On the horizontal axis there are the *substitutors* and the *complementors*. *Substitutors* are firms which can replace the focal firm, either by selling to its customers, or by buying from its suppliers while *complementor*s are defined as players whose products are valued more when they are combined with the products of the focal firm. For example, a software company needs a hardware company to improve and market its products or services.
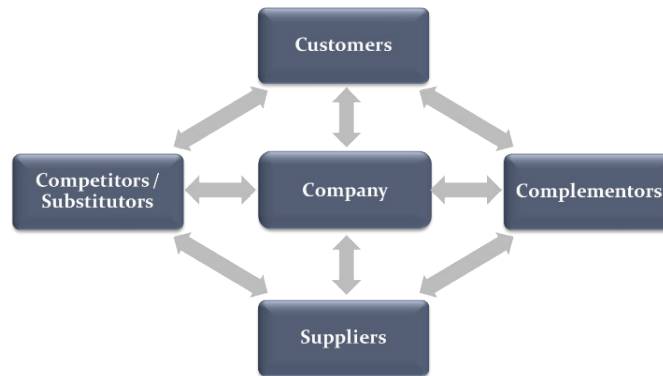
Figure 1: The Value Net
Source: Brandenburger & Nalebuff (1996), p. 16

The above definition of co-opetition is rather broad as the cooperative and competitive part is distributed among various actors who are influenced by the behavior of other actors in the value chain. According to the broad approach, co-opetition is considered as a context where two competitors (computer manufacturers) can be complementors through their collaboration with a third firm (software producers) (Bengtsson *et al.*, 2010). Consequently, the broad approach views co-opetition as cooperation among indirect competitors for value creation.

In contrast, many authors focus on a more narrow approach of co-opetition (Bengtsson and Kock, 2000; Bengtsson *et al.*, 2010; Gnyawali and Park, 2011; Ritala, 2012). They define it as cooperation between two or more direct competitors in some activities and at the same time competition in some other activities. For example, two competing firms may cooperate in activities far from customers, such as manufacturing, and at the same time compete in activities close to them, such as sales, in order to increase their market share (Bengtsson and Kock, 2000). Therefore, the narrow approach views co-opetition as a process where cooperation and competition are two interrelated parts of either a dyadic or network co-opetitive relationship which are divided between activities rather than the actors of a business game. A network co-opetitive relationship arises when the most major competitors within an industry cooperate through joint marketing initiatives in order to promote a new idea or technology and at the same time they compete in consumer markets. This type of co-opetition is called collective horizontal co-opetition (Choi *et al.*, 2010).

Dagnino and Padula (2002) argue that co-opetition is the integration of cooperation and competition where organizations have partially convergent interests in order to create new value and forms a new kind of strategic relationship between firms. Thus, they term the interdependence among different organizations as a "co-opetitive system of value creation", which is based on Kanter's (1994) approach that cooperation leads to competitive advantage when the focus is on new value creation (Kossyva and Georgopoulos, 2011). Through this system, organizations exchange and create value to become more competitive and gain competitive advantages over other competitors. Moreover, the authors (Dagnino and Padula, 2002) have distinguished two kinds of co-opetition for value creation; *dyadic* and *network* co-opetition. Dyadic co-opetition refers to the relationship between two competing business organizations whether on one or more levels of the value chain, while network co-opetition refers to the situation where more than two organizations cooperate and compete at the same time along one or more levels of the value chain.

A notable example of *dyadic* co-opetition is the joint venture between Sony and Samsung called S-LCD for the development and production of 7th generation liquid crystal display (LCD) panels for flat screen TVs (Gnyawali and Park, 2011). This partnership was critical for both firms because they could not develop LCD technology in isolation (Katsanakis *et al*., 2011). Both rivals contributed their technological capabilities in order to increase and lead the LCD TV market while each firm launched its own TV model in the market to appropriate a larger market share individually (Gnyawali and Park, 2011). Another example is the alliance between Apple Computer Inc. and Sony Corporation. The two global computer manufacturers formed an alliance in order to carry out cooperative research and development (R&D) activities, so as to manufacture more powerful desktops and laptops (Garaffo, 2002).

There are many examples of *network* co-opetition as well, such as the joint venture among Nokia, Sony Ericsson, Samsung, and Psion called Symbian for the creation of an operating system to compete against traditional computer companies (Garaffo, 2002). Another example is the case of SAP, the ERP software provider, which developed a business ecosystem consisting of clients, suppliers, other software providers and research institutions. The aim of this initiative was to create value for participating actors through the exchange of information and knowledge (Gueguen and Pellegtin-Boucher, 2004).

Therefore, co-opetitive relationships consist of two dimensions; value creation and value appropriation. The first dimension arises from cooperative activities

while the second arises from competitive activities. Value creation derives from joint efforts with direct competitors who have complementary and relevant resources and capabilities. Through this process competing firms which have common interests, form alliances in order to increase the size of a market or create a new one. Value appropriation derives from diverse interests where firms compete to capture the created value for individual purposes. At the same time, competing firms try to exploit the resources gained through cooperation, depending on their knowledge base and absorptive capacity, and use them for future competitive advantages (Ritala and Hurmelinna-Laukkanen, 2009; Kossyva and Georgopoulos, 2011). The philosophy of co-opetition is that the purpose of each firm might not be the elimination of its competitors, but the exploration and exploitation of future competitive advantages by changing the game to their benefit.

3.   The impact of the economic crisis on SMEs

The economic crisis which started in September 2008 with the collapse of Lehman Brothers has caused severe socio-economic changes worldwide. More specifically, in the European Union the Gross Domestic Product (GDP) declined by 4.2% in 2009 and the employment growth rate was -2.1%. The unemployment rates have increased to 10.0% and 10.7% in 2011 and 2012 respectively with the lowest unemployment rates accounted in Austria (4.3%), Germany and Luxembourg (5.3% in both countries), the Netherlands (5.8%), and the highest levels in Greece (26.8%) and Spain (26.1%) (Eurostat, 2012).

Undoubtedly, the economic crisis has affected both large and small and medium sized enterprises (SMEs) as it made business opportunities less certain. As a result, business firms have suffered a significant decrease in demand and revenues, staff lay-offs, stressful working environments and reluctance to invest in long-term activities (Kash and Darling 1998; Archibugi *et al*., 2013). However, SMEs are more vulnerable in difficult economic times than large enterprises for many reasons. First of all, they cannot undertake downsizing activities as they are already small. Furthermore, they lack sufficient capital to finance their investments, they have a lower or no credit rating and they are less diversified in their economic activities (OECD, 2009).

Small and medium-sized enterprises (SMEs) constitute the majority of enterprises in the European Union, as they account for over 99% of all enterprises. Although the definition of SMEs varies from country to country, there is evidence that in most countries SMEs are considered the most sensitive sector and the most af-

fected by the economic downturn (OECD, 2009). According to the European Commission definition, an SME is an enterprise which "employs fewer than 250 people and has an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro".

SMEs play a significant role in all economies as they are considered the key drivers of employment, innovation and economic growth. Furthermore, due to their size, they are more flexible than larger firms and have the ability to create and sustain entrepreneurial opportunities by implementing new services and launching new products more easily. Therefore, their entrepreneurial activities can result in economic welfare, creation of new jobs and national competitiveness (Zikou *et al*., 2011). It is worth mentioning that in the OECD regions, SMEs employ more than half of the labor force in the private sector (OECD, 2009).

As demand for goods and services has declined, SMEs have to face conditions of weaker cash flow and less equity reserves; the deficiency of resources and the lack of necessary skills to pursue long-term strategies (Ates and Bititci, 2011; Wesson and De Figueiredo, 2001). They also have to deal with difficult circumstances, such as liquidation problems, extended payment delays on receivables and on accounts payable, and even worse the increased number of insolvencies and bankruptcies. In Belgium, for instance, 43 % of surveyed SMEs experienced extended delays in their receivables while in the Netherlands, 50 % of SMEs have to cope with longer payment terms from their customers. In countries like Denmark, Italy, Ireland, Norway and Spain the percentage of insolvencies was higher than 25%. Thus, in Sweden, bankruptcies increased over 50% in 2009 compared to the previous year (OECD, 2009).

Overall, the main challenges most SMEs are called on to deal with are the following (Hodorogel, 2009; OECD, 2009):

- Downturn in demand for goods and services.
- Increased payment delays on receivables as well as on accounts payable.
- Rising prices of raw materials.
- Liquidity problems.
- Increasing insolvencies and bankruptcies.

In order to survive and continue their activities, SMEs respond by cutting costs, reducing assets, planning personnel lay-offs, extending their own payment delays and or cancelling new investments (Lussier, 2008). However, SMEs, unlike large firms, are characterized by flexibility, adaptability and resilience. Therefore, they are able to perceive the opportunities created by the economic crisis in order not on-

ly to ensure business continuity but also to explore and exploit entrepreneurial op-portunities. This could be achieved either by participating in collaborative networks or by forming alliances with direct competitors to combine their complementary strengths and create new markets. Besides, recession conditions are considered as *"periods of 'creative destruction', that contribute to economic restructuring, during which industries decline, while new ideas, technologies, products and industries emerge and become the driving forces of subsequent economic growth"* (Bryson 1996; Kitching *et al*., 2009).

4.   Co-opetition in SMEs: Advantage-seeking through the development of a co-opetitive portfolio

Small and medium-sized enterprises (SMEs) face tremendous challenges in their at-tempt to pursue entrepreneurial opportunities, given a lack of resources and cap-abilities, their dependence on a niche customer base, high risks of failure as well as limited market presence (Gnyawali and Park, 2009; Bengtsson and Johansson, 2012). The short product life cycles, the high uncertainty and risk of developing products and services, the market and technological convergence, the need for ex-ternal resources and high R&D costs constitute the factors that increase the likeli-hood of co-opetition in SMEs (Gnyawali and Park, 2009). Furthermore, Eikebrokk and Olsen (2005) argued that in terms of efficiency, complementarities, lock-in and novelty, the formation of e-business alliances in SMEs is positively correlated with e-business value-creation.

Co-opetition strategy implies that co-opetitors are critical sources of innovation, especially in fast-paced industries, where firms are not able to develop new pro-ducts or services in isolation. By collaborating with competitors, SMEs have the op-portunity to create temporary "blue oceans" collectively and gain "first mover" ad-vantages over other competitors. Competing firms have market commonality, face common challenges and possess similar and complementary resources and capab-ilities (Afuah, 2000; Gnyawali and Park, 2009; Kossyva and Georgopoulos, 2011). Therefore, they perform better when they are involved in co-opetitive relationships by acquiring new knowledge and skills and accessing complementary capabilities which will produce synergistic effects.

In order to achieve this, it is suggested that an SME will have to form different types of partnerships so as to build a "co-opetitive portfolio" that will allow it to manage each collaborative agreement separately (figure 2). Developing a "co-opetitive portfolio", an SME will be able to collaborate with other SMEs within the

same industry, with large competitors, as well as take part in various business networks by seeking to obtain the advantages of each partnership. The types of collaborative agreements will vary based on the degree of interdependence among co-opetitors. The most frequent forms of collaboration between competing organizations are the following (Dyusters and Hagedoorm, 2000):

- Licensing
- Second sourcing agreements
- Cross-licensing
- Mutual second sourcing agreements
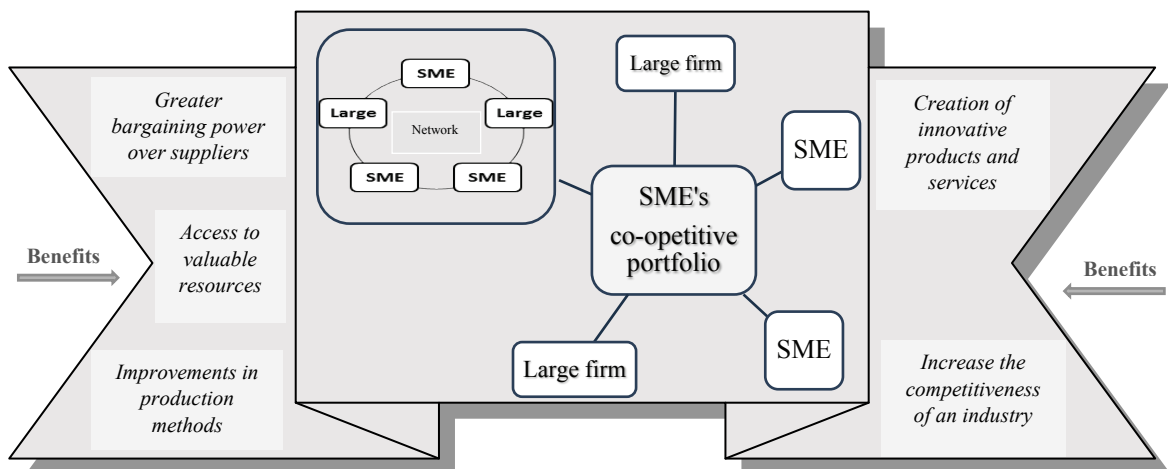- Joint R&D agreements
- Minority equity
- Joint ventures

Figure 2: Potential benefits from an SME's co-opetitive portfolio

As shown in figure 1, an SME can develop a co-opetitive portfolio consisting of competing organizations in order to create added value through the exchange of financial capital, ideas, experiences and knowledge. More specifically, co-opetition among SMEs creates economies of scale, reduces uncertainty and the timespan for R&D, mitigates risk, accelerates the product development process, leverages resources and enable market entry (Gnyawali and Park, 2009; Morris *et al*., 2007; McCutchen and Swamidass, 2004). The technological uncertainty and the integ-

ration of partners' knowledge through in-learning lead to the development of innovations among SMEs (Bouncken and Kraus, 2013). Co-opetition strategy enables SMEs to establish different kinds of relationships with their competitors in order to explore and exploit a variety of international opportunities (Kock *et al.*, 2010).

SMEs have limited knowledge stocks and lack of market power which inhibit their ability to create competitive advantages. In contrast, large firms have strong market power, put heavy emphasis on efficiency, are able to provide a wider spectrum of complementary resources and are more skilled at creating competitive advantages (Quintana-Garcia and Benavides-Velasco, 2004; Ketchen Jr. *et al.*, 2007). Therefore, collaboration with large firms within the same industry enables SMEs to enter new markets more easily as well as develop and sustain business opportunities. Quintana-Garcia and Benavides-Velasco (2004) found that co-opetition between SMEs and large diversified companies has a positive effect on firms' technological diversity and overall innovative capability.

The participation of SMEs in business networks enables them to identify customer needs and find innovative ways to address them by creating better products or services than other SMEs which act alone (Slater and Narver, 1995; Nasution *et al.*, 2011). In business networks, SMEs are able to create value through the exchange of valuable resources and capabilities, especially knowledge. Their main objectives are to reduce costs and uncertainty, accelerate the creation of new knowledge, streamline workflow and increase performance (Kossyva *et al.*, 2012). Furthermore, SMEs that participate in various networks consisting of different kinds of competitors have the opportunity to develop R&D projects and gain access to specific and complementary resources and capabilities. Schiavone and Simoni (2011) propose two different types of co-opetitive relationships; *intra-network* and *inter-network* co-opetition. Intra-network co-opetition constitutes a cooperative relationship between competing organizations within a network, while inter-network co-opetition occurs when firms and organizations take part in several projects and therefore cooperate with firms and organizations from competing networks.

Taking into consideration the above arguments, the present study deals with the positive effects of co-opetition strategy on SMEs and considers it a beneficial business strategy in times of economic crisis. Furthermore, it focuses on the narrow definition of co-opetition which involves cooperation between two or more direct competitors in activities far from customers, such as manufacturing and R&D, and at the same time competition in activities close to them, such as sales and mar-

keting. In this case, competitors are defined as "actors that produce and market the same products" (Bengtsson and Kock, 2000).

The downturn in demand for goods and services, the rising costs of raw materials, increased payment delays on receivables as well as on accounts payable, liquidity problems, and increasing insolvencies and bankruptcies constitute the main challenges that most SMEs are called on to deal with in difficult economic times (Hodorogel, 2009; OECD, 2009). In order to respond to the above conditions, it is suggested that SMEs have to develop a co-opetitive portfolio with different sizes of competing organizations which will bring a variety of different resources, capabilities and skills to the collaborating actors and therefore lead to the following potential benefits:

- Creation of innovative products and services.
- Improvements in production methods.
- Access to valuable resources.
- Greater bargaining power over suppliers.
- Increase the competitiveness of an industry.

Creation of innovative products and services

According to its various definitions, co-opetition strategy involves the cooperation among two or more organizations within the same industry by combining their complementary strengths in order to develop innovative products, services and technologies. Many studies argue that co-opetition generates positive effects on a firm's innovation performance and is an effective way of creating completely new innovations under high market and technological uncertainty, high positive network externalities and low competition intensity (Quintana-García and Benavides-Velasco, 2004; Ritala, 2012; Bouncken and Kraus, 2013). Therefore, through co-opetition, competing organizations initiate collective actions with their competitors to create value in the market and at the same time they compete to capture the created value for individual purposes. They also have the opportunity to obtain new technological knowledge and use it for generating and developing innovative products and services (Quintana-García and Benavides-Velasco, 2004; Ritala *et al.*, 2009).

Improvements in production methods

The improvements made in production methods, such as input materials, task specifications, work and information flow mechanisms, and equipment that are used to produce products (Damanpour, 1992) are crucial for the effectiveness and ef-

ficiency of innovative products and services in global markets (Luo, 2007). By forming co-opetitive relationships, competing organizations combine their know-how in order to improve the way they produce their products. In this way, they use fewer resources, or use their current resources more efficiently and achieve economies of scale and scope (Gnyawali and Park, 2009; Ritala, 2012).

Access to valuable resources
Due to their smallness, SMEs have to deal with the lack of financial resources and raw materials, rising R&D costs, limited knowledge required for product development process, and limited time available for pursuing business opportunities. Competitors have high degrees of market commonality and resource similarity and complementarity (Gnyawali and Park, 2009). Therefore, by combining their resources and skills they obtain more benefits than by acting alone. Through co-opetition, they gain access to financial, human and technological resources, acquire new knowledge, and look for complementary capabilities.

Greater bargaining power over suppliers
SMEs are also called to cope with the rising prices for raw materials used in the production process. By joining their strengths with other firms within the same industry, they have greater bargaining power over their suppliers as they are able to jointly order larger volumes of raw materials at lower prices.

Increase the competitiveness of an industry
The mutual support among co-opetitive partners within an industry might increase the competitiveness of an industry and ensure its long-term sustainability. Firms operating in the same industry support each other when various problems arise – such as the lack of critical raw materials, limited access to financing, which is considered the most significant challenge for the creation, survival and growth of SMEs – and deliver services to clients on time, so as to prevent an industry shrinkage. They are also able to share the switching costs of production and deal with the high requirements of distributors and sophisticated consumers (Choi *et al.*, 2010).

5.   Conclusions

The fragile economic business environment requires new cooperating structures and alternative ways of conducting business in order for organizations to achieve their business objectives and enhance their competitiveness (Kossyva and Georgopoulos,

2011). Co-opetition strategy constitutes an alternative business strategy for firms to form alliances with various competitors and look for complementary resources and capabilities in pursuit of business opportunities. In order to deal with difficult external conditions, firms need to have strategic flexibility and to adapt quickly in their external business environment. Through co-opetition, firms are called to initiate collective actions with their competitors to create value in the market and at the same time they compete to capture the created value individually. Taking part in various business games, firms may obtain more benefits at the end, as their interaction might generate positive-sum games. It means that the success of a firm does not necessarily mean the failure of others but there can be multiple winners (Brandenburger and Nalebuff, 1996; Ritala and Hurmelinna-Laukkanen, 2009).

Small and Medium-sized Enterprises (SMEs) are called on to deal with difficult circumstances including the downturn in demand for goods and services, the deficiency of resources and the lack of necessary skills to pursue long-term strategies, liquidation problems, extended payment delays on receivables and on accounts payable, and even worse the increased number of insolvencies and bankruptcies (Hodorogel, 2009; OECD, 2009). However, their response actions against severe economic conditions, such as cutting costs, cancelling new investments, reducing assets, and staff lay-offs, do not contribute to their long-term survival (Lussier, 2008). Consequently, in order to ensure their business continuity and become more competitive, they have to establish partnerships with direct competitors who have complementary strengths and face similar challenges as the economic crisis makes them less willing or even unable to undertake business initiatives on their own.

This paper discussed the definitions and types of co-opetition strategy as well as the implications of economic crisis on Small and Medium-sized Enterprises (SMEs) and suggested that co-opetition might be an appropriate business strategy for overcoming it. By adopting co-opetition strategy, SMEs gain access to financial resources and valuable knowledge which will enable them to improve their core competencies, pursue large-scale innovation projects, create new products and services in less time via joint innovation efforts and increase their product range. Therefore, it was suggested that SMEs have to build a "co-opetitive portfolio" consisting of different kinds of co-opetitive partners; other SMEs, large enterprises as well as taking part in business networks. Developing a "co-opetitive portfolio", will allow them to manage each collaborative agreement separately and try to obtain the advantages of each partnership. The potential benefits that SMEs might gain from co-opetition strategy are the creation of new products and services, the improvement of

production methods, access to valuable resources, greater bargaining power over suppliers due to higher volumes of raw materials at lower prices, cost sharing in product development, the production process acceleration and new market entry. Furthermore, competing organizations support each other when various problems arise – such as the lack of critical raw materials, limited access to financing, which is considered the most significant challenge for the creation, survival and growth of SMEs – and deliver services to clients on time, so as to prevent industry shrinkage.

However, co-opetition strategy is not a panacea. SMEs should also take into consideration the potential disadvantages of co-opetition which are the high risk of opportunistic behavior among partners, technological risks, management challenge, loss of control, information leakage as well as miscommunication (Gnyawali and Park, 2009; Kossyva *et al*., 2012). In terms of innovation, co-opetition is considered a risky strategy which can be harmful for a firm's innovation performance (Nieto and Santamaria, 2007; Ritala, 2012; Kossyva and Georgopoulos, 2013). There is a high risk of opportunism and a lack of trust when competing organizations share knowledge as they might lose their proprietary knowledge (Gnyawali and Park, 2009; Bouncken and Kraus, 2013). Therefore, SMEs have to develop the ability to manage and maintain many different co-opetitive relationships so as to balance both cooperative and competitive elements. The factors which are likely to make a co-opetition strategy successful are the management commitment, the development of high trust and dependency as well as communication management in order to systematically plan, implement, monitor and review all communication channels within and outside the company (Chin *et al*., 2008; Bouncken and Kraus, 2013).

Due to its high complexity, co-opetition strategy raises public policy issues as firms' potential anti-competitive behaviors may arise. Such behaviors mainly concern the fear of collusion between large firms which can lower the degree of competition in a market by restraining outputs and raising prices. They might be advantageous to firms in the short term but eventually firms' long term sustainability is undermined. Despite the fact that co-opetition is considered a value-creating strategy for the participating actors, sometimes it may reduce the competition and become harmful for the customers (Gnyawali, He and Madhavan, 2008; Ritala, 2012). From the antitrust regulators' point of view, co-opetition is likely to be problematic in the downstream side of the value chain, such as joint marketing activities, but in the upstream aspect, such as R&D and product development may not be problematic. As far as SMEs are concerned, it is suggested that co-opetition strategy is unlikely to cause anti-competitive effects because they cannot efficiently

build collective strengths to determine prices and dictate competition in the market (Gnyawali and Park, 2009). Therefore, it is proposed that antitrust policy makers should stimulate co-opetition since it is expected to have a positive impact on an industry's competitive intensity and increase its attractiveness. It would also be useful to establish a legislative and institutional framework based on best practices which will lead to the creation of an ethical business environment for the implementation of co-opetition.

The present paper was only a part of the authors' attempt to discuss through literature the various definitions and types of co-opetition strategy and suggested that co-opetition could be a beneficial business strategy for SMEs to confront the economic crisis and create business opportunities. Despite the growing interest in co-opetition strategy as an emerging and under-researched construct, the development of theoretical frameworks is still in an emergent phase. Thus empirical research should be conducted either through large scale or in-depth case studies in order to support the considerations previously mentioned. Therefore, a future study is necessary to examine whether SMEs can manage different forms of co-opetitive relationships and gain advantages of each partnership. It is suggested that researchers should take into consideration certain factors such as the level of trust and commitment between competing organizations, the previous co-opetition experience of the focal SME and its competitor-partners, and their co-opetition mindset – i.e. if senior executives regard co-opetition as a short-term or long-term strategy, as well as an emerging or a deliberate strategy. Finally, it would be interesting to investigate the above theoretical approaches in countries that face the consequences of economic crisis so as to find out whether co-opetition is a beneficial business strategy for SMEs which operate in these countries.

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COMBINING PRIMARY DESTINATION IMAGE WITH ACQUIRED EXPERIENCE FOR EFFECTIVE MARKETING IN TOURISM AND TOUR OPERATING

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Abstract

Nowadays, Mediterranean destinations face intense competition. Consequently, the enhancement of their image is imperative. This paper concentrates on the primary aspect of the destination image (perceived after the visit,) as a basis for evaluating the acquired experience and as a tool which can indicate improvements that would result in a positive future assessment and enhancement of the image.

The paper uses as a case study Corfu island, a mature Mediterranean destination. The study implements descriptive statistics, factor analysis and logistic regression. The findings revealed the impact of several factors, in measurable terms, on the improvement of the overall acquired experience and destination image. Mostly though, revealed the way to convert a moderate "good" experience to an enthusiastic "very good".

It suggests management priorities and targets for product differentiation, competitive advantage and supply improvements and the increase of product loyalty for both the tourism marketing authorities and the tourism entrepreneurs. The whole approach has not been applied to these types of destinations, being in that sense innovative.

JEL Classification: M31, M21, F23

Key words: Tourism destination image, primary image, factor analysis, logistic regression, experience, tour operators.

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1. Introduction

Destinations compete, among other aspects, also on the basis of their perceived images. The growth of the tourism phenomenon in general and the existence of a large number of competing destinations in particular provide justification for seeking ways to strengthen a destination's perceived image and the performance of its attributes experienced through the visit.

It is therefore imperative, especially for destinations that have reached the mature or even the saturated stage of their life cycle (Butler, 1980, Kotler *et al.* 1996), to find ways to improve their image. This improvement is directly connected with the improvement of their offer and the actual experience acquired during the visit, the one that contributes, among other things, to the creation of the primary image. The tourists perceive primary image and experience as a mixture (Guthrie and Anderson, 2010).

Knowing that the image plays a crucial role in the final destination choice, any effort to identify the factors whose improvement would enhance the evaluation of the acquired experience is of great importance and could lead to future effective strategic decisions. The basic step, in order to accomplish this process, is to capture the visitors' perceptions. The comprehensive knowledge of their perception and the evaluation of their experience are vital for the implementation of effective strategies and the improvement of competitiveness. Because competitiveness can be enhanced through an exact matching between tourists' evaluations of supply (destinations' attributes) and tourism professionals' (stakeholders, entrepreneurs, local and international tour operators, travel agencies, authorities) relative responses and corrective actions.

Therefore, the general objective of this study is to evaluate the primary image and through this evaluation to indicate the factors whose improvement would contribute to the enhancement of the overall experience that is expected to lead to customer satisfaction, loyalty and recommendation to friends and relatives. An objective which is of great importance for both the tourism marketing authorities and the various tourism enterprises such as the accommodation sector, the travel businesses either at a national level (incoming tour operators and local agents) or at an international level (foreign outgoing tour operators).

Tour operators have realized that the number of mature destinations that can be considered by potential tourists is not unlimited. Also, they have noticed that today, more than ever before, their customers are more experienced tourists with higher standards and demands. Therefore, they are interested in focusing on destinations

that can offer an enhanced experience and have a beneficial image.

This kind of destination presents increased possibilities to be chosen by their clientele and enable them to offer profitable travel products and packages in the long term. Additionally, the local agents or incoming tour operators can sell a considerable number of travel products (excursions, accommodation, tours, tickets etc.) to the visitors who will choose the destination under consideration.

2. Primary and secondary tourism destination image

There are several definitions for image, some are the following: Crompton (1979) defines it as the sum of beliefs, ideas and impressions that a person has of a destination, while Hunt (1975) defines it as the impressions that a person holds about a region in which he or she does not reside. Echtner and Ritchie (1993) propose that image is not only the individual traits or qualities but also the total impression an entity makes on the minds of others. Furthermore, Milman and Pizam (1995) describe destination image as the visual or mental impression of a place or a product experienced by the general public.

The image concept has generally been considered as an attitudinal construct consisting of an individual's mental representation of knowledge (beliefs), feelings, and global impression about an object or destination (Baloglu, 2001). The potential tourists are likely to have developed a series of images of the destination. It is argued that potential tourists buy package tours not only for what is included but also for what this purchase means to them in terms of image (Vitouladiti, 2000). Behind the image that tourists have of their destination of choice, its products and services, lies a set of important needs, wants and motives (Vitouladiti, 2000).

There are also, many typologies concerning the formation of the image, Gartner's (1993) is one of the most important and suggests that images are formed throughout a continuum of eight stages that proceed from induced to organic agents, and concern the image perceived before experiencing the destination, which is called a secondary or naïve image according to Phelps' approach (1986). In contrast, the primary is formed by actually visiting and experiencing the destination. It is believed that the actual visit creates an image more realistic than that existing prior to visitation (Tasci and Gartner, 2007). The primary or reevaluated image is considered as the most dynamic kind because it incorporates the experience itself and because it is the basis on which the secondary image will be built. The secon-

dary image represents the static element, since it is already shaped, because it has been based on several information agents.

A destination can be regarded as a combination (or even as a brand) of all products, services and ultimately experiences provided locally. Tourists "consume" destinations as a comprehensive experience, without often realising that each element of the product is produced and managed by individual players (Buhalis, 2000). Tourists' overall impression of the destination's experience develops their image of the destination after the visit, meaning the primary image. In the minds of the visitors image and experience are blended together (Guthrie and Anderson, 2010).

Moreover, certain studies (Gartner, 1993, Baloglu and Brinberg, 1997, Walmsley and Young, 1998, Baloglu and McCleary, 1999a, Baloglu and McCleary, 1999b) assert that image incorporates two interrelated components, cognitive elements, referring to the individual's own knowledge and beliefs about the object and affective elements relating to an individual's feelings towards the object.

Fairweather and Swaffield (2002) have claimed that the destination image sets criteria for even a negative evaluation. The image displayed in the media often focuses on a number of positive descriptions and experiences. If visitors encounter situations and experiences that differ markedly from their expectations, their evaluation can be very negative. It is clear, therefore, that the creation of image through promotion and thus the formation of the secondary image, as part of the overall image, needs much more than the mere use of advertising, brochures, internet etc. It needs complex information to guide effectively those responsible for the marketing of the destination. Furthermore, it needs the kind of information that would help avoid detachment from the desires of visitors. Meaning, the indication of elements whose improvement will result in a positive evaluation of the experience and therefore the satisfaction of visitors. This leads to a recurring selection of the destination from among its rivals, and to customer loyalty.

Bigne, Sanchez and Sanchez (2001) add at this point that an improved and therefore positive tourism image is a prerequisite for perceived quality, customer satisfaction, intention to repeat visit, recommendation to friends, and dedication to the destination and services offered. Facts which are of great importance for local authorities, tourism marketers and tour operators. Echtner and Ritchie (2003) are among those who argue that by visiting the destination, the image will be affected and altered by "first hand" information and experience. If we accept that experience affects the image and forms its primary dimension, then the experience acquires special and unique significance in image formation. Therefore, all efforts to en-

hance this experience will result in an improved image (Bigne, Sanchez and San-
chez, 2001). These efforts concern the identifying of the factors that would contrib-
ute to increased satisfaction and evaluation of destination services, products and
their image.

The marketing, development, branding and management strategies in tourism
are highly dependent on knowledge about tourist behaviour with respect to destina-
tion choice, preferences, standards etc. which in turn are inextricably connected
with destination image attributes as perceived and assessed by tourists. Therefore,
approaches to understanding the assessment and the enhancement of its components
have high practical value. The various studies examine many perspectives of the
crucial role of tourism destination image in marketing strategies, however they have
not focused on the potential of the primary image to indicate factors, in measurable
terms, whose improvement could contribute to the improvement of the overall ex-
perience acquired. The indication of these factors would have multiple benefits for
tourism marketing, for the evaluation of tourism supply and in general for efficient
regional tourism development strategies.

3. Tourism experience

According to Buhalis (2000) destinations are amalgams of tourism products, offer-
ing an integrated experience to consumers. According to Poon (2002), tourists gen-
erally perceive and evaluate their visit as a single experience, even though the vari-
ous services are offered by different operators. Actually, their visit consists of a
structured series of services and producers which operate separately.

According to Middleton and Clarke (2001), the overall tourism offering might
be defined in terms of five main components, namely: destination attractions; desti-
nation facilities and services; accessibility of the destination (including transport);
images, brands and perceptions; price to the visitor. Hence, a destination is a pro-
vider of experiences. As Soteriades (2012) indicates, the tourism offering is a "se-
ries of experiences" achieved through the combination of a diverse array of prod-
ucts and services. For visitors, the product is the total experience, covering the en-
tire amalgam of all aspects and components of the product, including attitudes and
expectations.

Academically, the contribution of an enhanced or improved experience, in the
context of travel, has yet to be explored. It can be argued, logically, that for tourism

planners such as destination management organizations (DMOs), delivering an im-
proved tourism experience is fundamental to long-term competitiveness and sus-
tainability (Ritchie and Crouch, 2003). Several authorities have already invested in
providing travellers with an enhanced experience. For example, the Canadian
Tourism Commission (DMO), has identified the importance of delivering an im-
proved experience as tomorrow's tourism product because it consistently creates
superior value (Parks Canada, 2005). In a similar fashion, Hong Kong's Airport
Authority emphasizes its commitment to providing travellers with a unique, pleas-
ant and enhanced airport experience (Airport Authority Hong Kong, 2007). Singa-
pore's Tourism Board has even established a new tourism award, dedicated to the
tourism establishment that constantly reinvents itself to create and provide memo-
rable experiences for families (Singapore Tourism Board, 2006).

Previous tourism research (Woodside, Caldwell and Albers-Miller, 2004) sug-
gests that visitors' memories of their travel experience form one of the bases for
competitive advantage. Several studies indicate that the memory of their prior travel
experience is an important motivation for return visits and a primary source of
positive word-of-mouth to family and friends who will later use that assessment
when they make their own travel arrangements (Andereck and Caldwell, 1993). An
evaluation of great importance for the tour operators, travel agencies, destination
authorities and several kinds of entrepreneurs.

It must be understood that local authorities, DMO's and various enterprises can-
not provide the enhanced experience directly. It is to be expected that different in-
dividuals will recall experiences differently even though tourism planners may have
provided equivalent services, events, and activities due to the experiential nature of
the tourism product (Ooi, 2005). However, their attempts should concentrate on
enabling the enhanced experience and facilitating the positive evaluation.

Therefore, the visitor experience is the core of the tourism product of a destina-
tion (Vitterso *et al*, 2000, Swarbrook, 2002, Jennings and Nickerson, 2006) and
businesses' successful operation depends on this recognition (Richards, 1999). The
quality of a destination complex system is of vital importance to the destination
performance. Beerli and Martin (2004) underline that the acquired experience pre-
sents, till now, an extensive and growing research interest, since it is considered a
very good index of the tourist's needs, motivation, satisfaction and tourism market
segmentation.

Practitioners worldwide have realized that they must elevate their tourism prod-
uct (e.g. tourism supply attributes, package tours, accommodation etc.) to an en-

hanced experience. However, as several researchers point out, there has not been sufficient research on the issue of experience (Connell and Meyer, 2004, Larsen, 2007). Even less research has approached destinations from the aspect of the tourism experience provider and the formation of their primary image (Ryan, 1997, Lawson *et al*., 1998, Mason and Cheyne, 2000).

4. Objectives of the study and development of basic hypotheses

The primary image is formulated in the tourist's mind, according to a series of elements-variables and characteristics of the destination, which deliver experiences. According to the detailed study of Gallarza, Gil Saura & Calderon Garcia (2001) the most common attributes used in destination image research include a multitude of variables. These were adapted and enriched to serve the purposes and objectives of this study. Specifically, the variables used are the following: availability of suitable accommodation for me, giving a feeling of prestige, local cuisine, developing friendships with others, quality of service personnel, cleanliness of sea and beaches, discovering new places/different cultures, availability of facilities for sports and activities, availability of entertainment, safety, unspoiled physical environment, having fun/being entertained, historical and cultural attractions, scenic beauty/ natural attractions, relaxing physically and mentally, affordable/reasonable prices overall, being adventurous/being active, escaping from daily routine, sunbathing on the beach and doing nothing.

However, the important questions are, which of them contribute to the enhancement of the overall experience? All of them? None of them? Some of them? Which ones? Do they have an equal contribution to the improvement of the acquired experience and the enhancement of the product's image? Can they be measured and quantified in order to guide the implemented strategies? As far as the above questions haven't been answered through empirical research, only assumptions can be made about the variables' contribution to the improvement of the acquired experience.

Therefore, it is very important to examine if the improvement of these variables can affect positively the total evaluation and in what degree. As a result, all the above mentioned variables can formulate the basic question of this research and can also be transformed into groups of variables (factors) in order to examine their contribution to the enhancement of the overall experience. In other words we would like to detect if there are factors whose improvement will influence positively the

final evaluation of the experience acquired in the destination and the level of their contribution.

So, the objectives of the study are:

1) To find out the evaluation of the primary image.

2) To transform the individual variables of the primary image into basic factors- "experience factors".

3) To examine the potential contribution of each basic factor's improvement to the overall evaluation of the acquired experience at the destination.

Subsequently, the basic hypotheses of the study are as follows:

H0: improvement of the basic factors of the primary image doesn't result in enhancement of the overall acquired experience.

H1: improvement of the basic factors of the primary image does result in enhancement of the overall acquired experience.

The objectives of the study and the testing of the hypotheses were fulfilled through the implementation of several statistical approaches. Specifically, descriptive statistics, factor analysis and logistic regression. The analytical research hypotheses to test are presented in section 7.3, after implementation of factor analysis which will allow the reduction of the above analytically mentioned variables and the creation of the basic factors (experience factors)**.**

5. Research methodology

5.1. Research design and survey sites

In order to achieve the targets of the study, it was necessary to carry out primary quantitative research. It was decided that the implementation of the research and the collection of the primary data would take place in the tourism destination of Corfu Island. This destination could be considered as a miniature of Greek tourism. Also, it is a traditional destination for the British target market. So, the nationality chosen for the sampling population was British, since they represent the main target market of the island under consideration, displaying several fluctuations in arrivals over the years.

5.2. Sampling and data collection

Considering the fact that this research relates to an issue which concerns several destinations that have reached the maturity stage or a relative saturation in their lifecycle, it was essential that the sample should not be chosen by convenience in

order to be able to extract reliable results. The sample was to be stratified, because it is a probability sample and more representative. It should be noted that the majority of the respondents had booked their holidays via a tour operator or travel agent. The island is divided into three areas, North, Central and South. Since the boundaries of the areas were known, they were defined as strata. In every one of these strata, accommodation of every category was chosen by random sampling. The members of the sample were also chosen by random sampling in all the selected hotels and accommodation types.

5.3. Sample size

The final sample size obtained was 376 British first time visitors. This sample size (n=376) gives a statistical error (e≈5%) which is considered very satisfactory (level of significance α=0, 05, level of confidence 95%). This sample size and statistical error could permit the generalisation of results.

5.4. Questionnaire design

The questionnaire was structured and self administrated. Its content was decided after studying the most common attributes used in destination image research as displayed in the detailed study by Gallarza, Gil Saura & Calderon Garcia (2001). The basic question, through which the visitors evaluated the vacationing experience in Corfu on the last day of their stay, contained 19 variables. The questionnaire comprised closed-end questions. The closed-end questions had a five-point rating scale. All the rating scales were labeled. For the statistical analysis and the interpretation of the results the five-point scale of the questions was coded from 1 to 5, considering 5 the best and 1 the worse rating, meaning the higher the better. Specifically, 5= "very good", 4= "good", 3= "neither good nor bad", 2= "poor", 1= "very poor".

6. Profile and description of the sample

Concerning the distribution of the sample by sex it is noted that both sexes had an almost equal participation in the survey. Female respondents represented 57%, or 216 persons, male respondents represented 43%, or 160 persons out of a total of 376.

Regarding age categories, 44% of the sample is between the ages of 35 and 54 years. An important element due to the fact that it concerns those ages that have increased possibility for tourist mobility and therefore have increased travel experience. The other age categories are represented with the percentages of 27% for the under 34 age group and 29% for the 55+ group.

Distribution by income demonstrates expected percentages. The income brackets ">£20.000" and "£20.000 -£40.000" are represented with 36% and 41% respectively. Their percentages are increased compared to the income bracket of "£40.000+". This is an expected element which reassures the reliability of the sampling method, since it is known that the British market segment of Corfu belongs to the average income levels.

Table 1. Demographic characteristics of the respondents

Gender	%
Female	57%
Male	43%
Total	**100%**
Age	**%**
Under 34	27%
35 – 54	44%
55+	29%
Total	**100%**
Income	**%**
Under £20.000	36%
£20.000 - £40.000	41%
£40.001+	23%
Total	**100%**

The duration of stay for 50,5% of the sample is at least one week. While the duration of stay for 39,4% is two weeks. This element is very positive because it underlines that the sample had an extensive experience of the destination. This is a positive element in relation to the targets of the study.

62,2% of the respondents have traveled to several destinations, from 5 to 10 times, during the last 5 years. This indicates that the sample consists of experienced tourists who have the ability to recognize and judge the characteristics of a destination and also to compare destinations. This is considered another positive element in

relation to the goals of the study. In the following table, the image variables which are used in this study are presented along with their ratings (total sample).

<p align="center">Table 2. Evaluation of primary image</p>

Image Variables	Descriptive Statistics	
	mean	Standard deviation
Availability of suitable accommodation for me	4,22	0,78
Giving a feeling of prestige	3,66	0,86
Local cuisine	4,22	0,76
Developing friendships with others	3,77	0,83
Quality of service personnel	4,31	0,69
Cleanliness of sea and beaches	4,01	0,98
Discovering new places/different cultures	4,04	0,77
Availability of facilities for sports and activities	3,78	0,80
Availability of entertainment	3,82	0,88
Safety	3,80	0,98
Unspoiled physical environment	3,88	0,93
Having fun/being entertained	3,72	0,86
Historical and cultural attractions	3,82	0,76
Scenic beauty/Natural attractions	4,27	0,75
Relaxing physically and mentally	4,50	0,62
Affordable/reasonable prices overall	4,02	0,88
Being adventurous/being active	3,62	0,76
Escaping from daily routine	4,51	0,59
Sunbathing on the beach and doing nothing	4,35	0,81

7. Implementation of factor analysis-correlation-findings

At this point we will present the implementation of factor analysis in order to detect the factors which "summarize" the total amount of the variables that describe the image after the visit (primary image). The resulting factors will be named experience-basic factors and will formulate the basis for the implementation of logistic regression and the test of the hypotheses.

7.1. Factor analysis

The basic question, through which the visitors evaluate the vacationing experience in Corfu on the last day of their stay, contains 19 variables. For all these variables the means were examined. This indicated the points where the visitors expressed more or less satisfaction. But how are all these variables connected? Do they tend to shape groups? For these questions it is necessary to examine the correlations among the variables.

For the goals of the study, a data reduction was decided. The requirement, in this case, is the data reduction that can be achieved through the use of multivariate techniques. Specifically, the method implemented here is factor analysis. The basic prerequisite for the realization of factor analysis is the existence of correlations. The following table (table 3) demonstrates the correlations among the 19 variables, which are statistically significant (a = 0,05) for all the interconnected pairs. In this table (table 3) the correlations which are higher than 0,40 are in grey color and this allows us to distinguish the groupings among the variables. In conclusion, the existence of statistically significant correlations and the arising groupings imply the existence of common factors and allow the implementation of factor analysis.

The factorability of the data is determined in two ways:

- The Bartlett's test of Sphericity, which tests the null hypothesis that the data are not correlated (non collinear). In our case this hypothesis is rejected. The data are correlated and p=0,00 (p<0,0,5).
- Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) which tests the existence of common factors. Measured by the KMO statistics, sampling adequacy predicts if data are likely to factor well, based on correlation and partial correlation. If KMO ≈ 1,0 the data are factorable. In our case KMO = 0,896 which is considered a very good result.

Table 3. Correlations among the 19 variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1		0,53	0,29	0,31	0,46	0,25	0,29	0,20	0,22	0,37	0,30	0,34	0,33	0,31	0,50	0,33	0,24	0,38	0,25
2	0,53		0,36	0,34	0,44	0,22	0,37	0,18	0,23	0,38	0,31	0,35	0,35	0,27	0,39	0,28	0,30	0,33	0,24
3	0,29	0,36		0,30	0,37	0,23	0,39	0,14	0,22	0,20	0,32	0,37	0,31	0,36	0,32	0,36	0,28	0,35	0,26
4	0,31	0,34	0,30		0,40	0,18	0,32	0,22	0,28	0,25	0,19	0,40	0,30	0,18	0,27	0,30	0,36	0,21	0,24
5	0,46	0,44	0,37	0,40		0,27	0,36	0,18	0,25	0,27	0,25	0,41	0,34	0,35	0,41	0,42	0,29	0,37	0,26
6	0,25	0,22	0,23	0,18	0,27		0,32	0,21	0,07	0,31	0,40	0,18	0,16	0,33	0,34	0,23	0,23	0,25	0,35
7	0,29	0,37	0,39	0,32	0,36	0,32		0,21	0,21	0,25	0,38	0,29	0,51	0,50	0,32	0,30	0,33	0,29	0,21
8	0,20	0,18	0,14	0,22	0,18	0,21	0,21		0,34	0,18	0,10	0,29	0,18	0,13	0,18	0,10	0,44	0,23	0,29
9	0,22	0,23	0,22	0,28	0,25	0,07	0,21	0,34		0,23	0,18	0,60	0,23	0,17	0,24	0,33	0,40	0,28	0,30
10	0,37	0,38	0,20	0,25	0,27	0,31	0,25	0,18	0,23		0,47	0,28	0,23	0,19	0,30	0,27	0,22	0,26	0,22
11	0,30	0,31	0,32	0,19	0,25	0,40	0,38	0,10	0,18	0,47		0,23	0,34	0,47	0,34	0,26	0,23	0,31	0,25
12	0,34	0,35	0,37	0,40	0,41	0,18	0,29	0,29	0,60	0,28	0,23		0,33	0,22	0,35	0,39	0,49	0,34	0,33
13	0,33	0,35	0,31	0,30	0,34	0,16	0,51	0,18	0,23	0,23	0,34	0,33		0,50	0,22	0,25	0,34	0,22	0,12
14	0,31	0,27	0,36	0,18	0,35	0,33	0,50	0,13	0,17	0,19	0,47	0,22	0,50		0,42	0,30	0,27	0,37	0,24
15	0,50	0,39	0,32	0,27	0,41	0,34	0,32	0,18	0,24	0,30	0,34	0,35	0,22	0,42		0,37	0,26	0,54	0,42
16	0,33	0,28	0,36	0,30	0,42	0,23	0,30	0,10	0,33	0,27	0,26	0,39	0,25	0,30	0,37		0,34	0,33	0,25
17	0,24	0,30	0,28	0,36	0,29	0,23	0,33	0,44	0,40	0,22	0,23	0,49	0,34	0,27	0,26	0,34		0,38	0,25
18	0,38	0,33	0,35	0,21	0,37	0,25	0,29	0,23	0,28	0,26	0,31	0,34	0,22	0,37	0,54	0,33	0,38		0,49
19	0,25	0,24	0,26	0,24	0,26	0,35	0,21	0,29	0,30	0,22	0,25	0,33	0,12	0,24	0,42	0,25	0,25	0,49	

1. Availability of suitable accommodation for me
2. Giving a feeling of prestige
3. Local cuisine
4. Developing friendships with others
5. Quality of service personnel
6. Cleanliness of sea & beaches
7. Discovering new places / different cultures
8. Availability of facilities for sports and activities (e.g. surfing, sailing, water skiing, golf, tennis etc)
9. Availability of entertainment (e.g. night life, discos, bars, pubs)
10. Safety
11. Unspoiled physical environment
12. Having fun, being entertained
13. Historical and cultural attractions
14. Scenic beauty/Natural attractions
15. Relaxing physically and mentally
16. Affordable/reasonable prices overall
17. Being adventurous / being active
18. Escaping from daily routine
19. Sunbathing on the beach and doing nothing

Bartlett's test of Sphericity p = 0,000   Kaiser-Meyer-Olkin = 0,896

Table 4. Extraction of common variables: Principal Component Analysis-Final Solution

A. Variance explained			Final Solution (Varimax Rotation)				
				Rotation Sums of Squared Loadings			
		Component	Eigenvalue	% of Variance		Cumulative %	
		1	2,78	14,64		14,64	
		2	2,45	12,89		27,53	
		3	2,37	12,49		40,02	
		4	2,19	11,51		51,53	
		5	1,67	8,81		60,34	
		B. Basic factors – Principal components					
Variables		*Communality*	**Quality of human res. & services**	**Natural & cultural attractions**	**Entertainment & activities**	**Relaxation/ Rest**	**Conservation of natural env. & safety**
1. Availability of suitable accommodation for me	accommodation	*61%*	**0,68**	0,10	0,04	0,24	0,29
2. Giving a feeling of prestige	prestige	*59%*	**0,68**	0,17	0,11	0,08	0,30
3. Local cuisine	cuisine	*46%*	0,37	0,47	0,13	0,29	-0,05
4. Developing friendships with others	friendships	*45%*	**0,52**	0,17	0,38	-0,01	0,06
5. Quality of service personnel	personnel	*56%*	**0,63**	0,27	0,13	0,26	0,02
6. Cleanliness of sea & beaches	clean sea	*56%*	-0,02	0,24	0,07	0,38	**0,59**
7. Discovering new places / different cultures	new/different	*64%*	0,20	**0,72**	0,18	0,08	0,20
8. Availability of facilities for sports and activities	sport facilities	*60%*	-0,09	0,03	**0,71**	0,13	0,27
9. Availability of entertainment	entertainment	*60%*	0,25	0,05	**0,71**	0,15	-0,05
10. Safety	safety	*72%*	0,41	-0,01	0,17	0,01	**0,73**

11. Unspoiled physical environment	unspoiled environment	*63%*	0,14	0,44	0,03	0,19	**0,62**
12. Having fun, being entertained	fun	*66%*	0,45	0,14	**0,63**	0,19	-0,04
13. Historical and cultural attractions	historical attractions	*67%*	0,27	**0,72**	0,23	-0,12	0,11
14. Scenic beauty/Natural attractions	natural beauty	*72%*	0,09	**0,76**	0,00	0,33	0,16
15. Relaxing physically and mentally	relaxing	*65%*	0,41	0,16	0,04	**0,65**	0,18
16. Affordable/reasonable prices overall	prices	*44%*	0,47	0,25	0,19	0,33	-0,07
17. Being adventurous / being active	adventure	*60%*	0,14	0,28	**0,69**	0,15	0,08
18. Escaping from daily routine	escape routine	*65%*	0,24	0,18	0,19	**0,72**	0,08
19. Sunbathing on the beach and doing nothing	sunbathing	*65%*	0,05	0,00	0,31	**0,72**	0,20

7.2. Findings of the Factor analysis (Principal Component Analysis)

Among the several approaches of factor analysis the method of Principal Component Analysis was chosen. The final solution gave 5 basic components which are identical with the common factors. The percentage of variance explained is 61%. All the variables are represented satisfactorily with percentages (communalities) between 44% and 72%. Therefore, there is no reason to exclude any variable from the analysis. The results of the final solution are presented in table 4.

In part A of the table, the 5 basic components, the eigenvalues and the percentages of the variants explained are presented. In part B of the table, the loadings of the variables are presented. Solutions with a larger number of components were rejected because their meaning and their explanation become difficult due to the fact that the variables tend to share their loadings with more than one component. For the final solution the Varimax method was chosen as the one that makes the explanation of the factors easier.

Therefore, the principal components that were extracted by the method described above and are presented in part B of table 4, are the final solution since they are identical with the requested common factors. Specifically, the 5 common factors (basic factors or components) are described as follows:

- The first one is named "Quality of human resources and services" and refers mostly to the quality of hospitality and service personnel.
- The second one is named "Natural and cultural attractions" and refers mostly to local physical and cultural attractions, directly associated with the desire to know other cultures and regions.
- The third one is named "Entertainment and activities" and refers mostly to the availability of infrastructure for entertainment, sports and activities, also to the desire for fun and adventure.
- The fourth one is named "Physical and mental relaxation" and refers mostly to the desire for rest in a summer tourist destination, without the need for any physical activity.
- The fifth one is named "Conservation of natural environment and safety" and refers to the cleanliness of the sea the conservation of the environment and safety. In this study the visitors associated the term safety with issues of transportation (pedestrian and automotive).

In conclusion the factor analysis reduced significantly the number of the data (from 19 variables to 5) and simultaneously revealed the hidden aspects of the data structure, distinguishing 5 dimensions that were not directly measured. These dimensions concern general issues that evaluate a tourism destination and determine the correlations among the data.

7.3. Development of analytical hypotheses Z1, Z2, Z3, Z4, Z5

Therefore, the general hypothesis to test is "Improvement of the basic factors of the primary image results in enhancement of the overall acquired experience".

In order to formulate the specific hypotheses, we stipulate the names of the basic factors, as they resulted from the factor analysis. These are:

- Quality of human resources and services
- Natural and cultural attractions
- Entertainment and activities
- Physical and mental relaxation
- Conservation of natural environment and safety

Specifically, the analytical research hypotheses to test are:

Z1. Improvement of the quality of human resources and services results in enhancement of the overall acquired experience.

Z2. Improvement of the natural and cultural attractions results in enhancement of the overall acquired experience.

Z3. Improvement of the entertainment and activities results in enhancement of the overall acquired experience.

Z4. Improvement of physical and mental relaxation results in enhancement of the overall acquired experience.

Z5. Improvement of the conservation of natural environment and safety results in enhancement of the overall acquired experience.

In order to test the above general hypothesis and its analytical statements the study focused on creating a logit model (logistic regression) where the formulation of the total evaluation is defined by the above 5 basic factors-components.

7.4. Implementation of logistic regression – logit model

The overall evaluation of the visit to Corfu (which results from the corresponding question "How do you rate the overall experience") is very positive with an overwhelming majority of 93%. Specifically, 53% of the respondents rate the visit as "very good" while 40% as "good". From the rest of the respondents a percentage of 6% rates the visit as "neither good nor bad" and a percentage of 1% gives negative answers. The last two categories give a percentage of 7% and a sample size of 26 persons which means that any analysis based on these numbers would be unreliable. Therefore, excluding this 7% of the sample which gave negative answers, the analysis focused on the exploration of the modification from a moderate rate

("good") to an enthusiastic rate ("very good") of the overall experience. For the evaluation of the overall experience we use the above mentioned five basic factors which resulted from the factor analysis.

At this point a basic hypothesis of the study is underlined. This hypothesis concerns the impacts of the experience (visit) as this is defined from the above mentioned five basic factors. In order to answer the above hypothesis the study focused on the construction of a logistic regression model, where the formation of the overall evaluation is defined by the five basic factors. Since the overall experience is expressed as two value result, meaning that it accepts only two values ("good" – "very good"), the binary logistic regression model is used.

Binary or binomial logistic regression is a form of regression which is used when the dependent is a dichotomy and the independents are of any type. The regression equation is

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_k x_k$$

where

- $\ln(p/1-p)$ = log odds ratio or logit
- p is the predicted probability of the event which is coded with one, 1-p is the predicted probabality of the other decision which is coded with 0
- $x_1...x_k$ are the predictor variables
- β_0 is the constant
- $\beta_1...\beta_k$ are the logistic regression coefficients, also called parameter estimates

In our case the binary logistic regression is used in order to check the impact (or the effect size) of the five basic factors (independent variables) on the formation of the overall experience (dependent variables), where this is defined as a two value result "good" – "very good".

In this study the event of the logistic model with the predicted probability p is the occurrence of "very good" is coded with 1 and is called "success" whereas the predicted probability p-1 is the occurrence of "good" is coded with 0 and is called "failure". The predictor factors are the above 5 basic factors.

So, the form of the logit model is

$$logit(p) = \beta_0 + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_4 F_4 + \beta_5 F_5$$

where F_1 to F_5 are the basic factors. Like in the linear regression the contribution of a predictor factor is significant if $\beta \neq 0$.

Therefore, the above model includes the following hypotheses:

H_{0i}: $\beta_{0i} = 0$ The modification of F_i does not affect significantly the modification of the overall experience from "good" to "very good" (meaning the contribution of F_i is *zero*)

        Vs

H_{1i} : $\beta_{0i} \neq 0$ The modification of F_i does affect the modification of the overall experience from "good" to "very good",

where i=1,2,3,4,5 F_1: Quality of human resources and services
                         F_2: Natural and cultural attractions
                         F_3: Entertainment and activities
                         F_4: Physical and mental relaxation
                         F_5: Conservation of natural environment and safety

The tests for the H_{0i} vs H_{1i} are conducted with the Wald statistic (test) (level of significance α=0, 05). The evaluation of the model is based on the following:

- Classification rates.

  They result from the classification table which consists of the comparison of the observed with the predicted values. The term "sensitivity" is used for the correct prediction of the "successes", the term "specificity" is used for the correct prediction of the "failures". In the classification table there is also the "overall success rate" which results from the weighted mean of the two above categories. Satisfactory models for the prediction of the dependency are considered those which have high percentages for the "overall success rate" under the condition that the "sensitivity" and "specificity" have the same contribution to the overall success rate.

- Goodness of fit tests. Include the following indices:

  *Hosmer and Lemeshow test. This is an index of goodness of fit and tests the hypothesis that the predicted values do not differ significantly from the observed values. The test is based on x^2. Smaller values of x^2 and as a result higher *p-value* mean that the model adequately fits the data.

- R-squared.

  In logistic regression there is not R^2 as in linear regression (there is no widely accepted direct analog). However, a number of logistic *R-squared* measures

have been proposed, called as *pseudo-R²*, which offer approximate interpretation of the percent of the variance explained. This analysis uses two of the most common *R²-like* measures: Cox and Snell and Nagelkerke. Their measures range from 0 to 1. Nagelkerke's *R²* will normally be higher than the Cox and Snell measure.

- Finally Cook's influence criterion was implemented in order to test for outliers and keeping the rule that for all cases this criterion is lower than one.

7.5. Findings and support of hypotheses Z1, Z2, Z3, Z4, Z5

The analysis of the data follows:

Table 5. Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	210,312	5	,000
	Block	210,312	5	,000
	Model	210,312	5	,000

Table 6. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	308,586(a)	,429	,573

Table 7. Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9,659	8	,290

Table 8. Variables in the Equation

Basic Factors		B	S.E.	Wald	Df	Sig.	Exp(B)	95,0% CI.for EXP(B)	
								Lower	Upper
Step 1(a)	F1	1,542	,197	61,042	1	,000	4,672	3,174	6,878
	F2	,939	,166	31,932	1	,000	2,558	1,847	3,543
	F3	,742	,154	23,213	1	,000	2,100	1,553	2,840
	F4	1,030	,154	44,910	1	,000	2,801	2,073	3,786
	F5	1,025	,164	39,219	1	,000	2,787	2,022	3,841
	Constant	,130	,143	,816	1	,366	1,138		

a Variable(s) entered on step 1: F1, F2, F3, F4, F5

According to the analysis, the hypotheses H_{0i} which assume that the contribution of the "experience factors" to the modification of the overall experience is *zero* are rejected (α=5%). Therefore, all the basic factors F1 – F5, do affect significantly the modification of the overall experience from "good" to "very good".

As a consequence, the hypotheses Z1 to Z5 are supported. All the impacts are positive, meaning increase in any one of these increases the possibility of total evaluation's formation from "good" to "very good".

Specifically, the classification rates and goodness of fit indices are:

- The Hosmer and Lemeshow test shows that the model fits the data, meaning that the predicted values do not differ significantly from the observed values.
- The *pseudo-R^2* of Cox and Snell and Nagelkerke have a range from 0,43 and 0,58 respectively. So, the model explains the 58% of the overall experience, which is considered satisfactory. Or according to a more conservative assessment, explains at least 43% of the overall experience.
- Finally, outliers were not detected (Cook's influence).

The classification indices of the model are very satisfactory

- The sensitivity, meaning the ability for the correct prediction of the "successes", is 82,7%. Therefore, the model predicts correctly the occurrence of the answer "very good" with a probability of 82,7%.
- The specificity, meaning the ability for the correct prediction of the "failures", is 82,6%.
- The overall success rate of the model is 82,7%.

7.6. Results regarding hypotheses Z1, Z2, Z3, Z4, Z5

According to the above analysis the results regarding the hypotheses Z1 – Z5 (logit model) are (table 8):

- Increase in the basic factor "quality of human resources and services" by one unit increases the possibilities for "very good" evaluation for 4,67 times. This increase refers to Exp (B). While for confidence interval 95% the lower bound is 3,17 and the upper bound is 6,88, meaning 3 to 7 times.
- Increase in the basic factor "natural and cultural attractions" by 1 unit increases the possibilities for "very good" evaluation 2,56. This increase refers to Exp (B). While for confidence interval 95% the lower bound is 1,85 and the upper bound is 3,54.

- Therefore, it is obvious that "quality of human resources and services" is the factor that affects the formulation of the overall evaluation more than all the other basic factors.
- The factor with the lesser contribution to the formation of a "very good" evaluation is "entertainment and activities". Specifically, increase in one unit in this factor increases the possibilities for a "very good" evaluation by 2,10 times. While the lower bound is 1,55 and the upper bound is 2,84.
- Increase in the factor "physical and mental relaxation" by one unit increases the possibilities for a "very good" evaluation 2,80 times, while the lower bound is 2,07 and the upper bound is 3,79.
- Finally increase in the factor "conservation of natural environment and safety" by one unit increases the possibilities for "very good" evaluation 2,79 times, while the lower bound is 2,02 and the upper bound 3,84.

At this point we have to repeat that the above basic factors are complex variables which have resulted from factor analysis, meaning a transformation of the 19 evaluation variables. Therefore, they represent the "underlying structure" of the 19 evaluation variables, the label and the meaning of which was decided after the implementation of factor analysis. As a result they are useful as relative and not as absolute measures.

The conclusion that results from the observation of the model is that some factors are more influential than others. The factor "quality of human resources and services" is presented as the most influential by far, while the factor "entertainment and activities" has the least impact. The factors "natural and cultural attractions", "physical and mental relaxation" and "conservation of natural environment and safety" are placed in a medium level, the least effective of the three being "natural and cultural attractions". The implementation of statistical analysis supports the model and the hypotheses.

8. Conclusions, implications and recommendations

The findings are consistent with existing studies on the significance of the primary image and experience (Bigne, Sanchez and Sanchez, 2001, Echtner and Ritchie, 2003, Beerli and Martin, 2004). Specifically, they display the potential of primary image to become a useful index of the tourists' wants and satisfaction. The findings also indicate factors whose improvement would contribute to a considerably higher rating of the overall experience and the destination image.

Furthermore, the findings bear three important implications, especially for Mediterranean destinations, similar to the one under consideration. Firstly, this research paper indicates the factors whose improvement would contribute to the improvement of the overall experience. Knowing such information may enable more appropriate allocation of the always limited marketing and promotional budgets. Secondly, the methodology of this research paper and the developed logit model, indicate the impact of each factor in measurable terms (the effect size) on the improvement of the overall experience and offer insights into variables capable of increasing substantially the positive future evaluation of a destination.

Thirdly, the findings offer guidelines for investment priorities and targeted marketing and development activities, able to improve the performance of the destination attributes. These findings are considered as very important, since the positive evaluation of experience and increase in satisfaction could lead to customer loyalty (Bosque, Martin, Collado, 2005). Consumer loyalty is crucial, also, to those responsible for designing the trips (tour operators) (Campo and Yague, 2008). Tour operators sell varied products and destinations. If they obtain loyal consumers, they increase the probability that these consumers will use their services in the future.Therefore, from the findings of this study also result guidelines and practical implications.

The quality of human resources and services stands out as the most influential factor, for destinations that have reached maturity in their life cycle, like the one under consideration, as well as similar ones. Quality perceived by the tourist is the variable that exerts the most impact on tourist loyalty (Campo and Yague, 2008).

This clearly indicates the need for immediate actions for systematic professional training and specialization in the tourism labor market, through collaborative programs of the state and the private sector. The study proved that well trained employees are a critical factor. That is in accordance with the statement of Nolan (2002 in Wang, 2006), who underlines that there is a growing interest in relying on human resources to achieve competitive advantages. Additionally, Dedousopoulos (2007), claims that investment in employees' training, education and development of skills is imperative. Moreover, Velissariou and Zagkotsi (2007) underline that the quality of services provided and resulting customer satisfaction depends to a large degree on the personnel providing the services.

Additionally, the authorities could design a regional master plan for infrastructure improvements and upgrading of the physical environment which will incorporate as priorities the target market's indications. It must be noted that when there is

a reference to tourism destinations' competitiveness, the sustainability of the local resources that ensure the maintenance of long term success as well as the achievement of equitable returns-on-resources utilised to satisfy all stakeholders, is of prime importance (Buhalis, 2000). The rating given by the respondents to the factor "natural and cultural attractions" is indicative of the importance given to issues associated with environment.

The materialization of the proposed improvements will offer the opportunity of a progressive diversification of the tourism product. Their subsequent communication, could be part of a new promotional strategy, focused on the factors which have been rated as the more influential on the positive assessment of the overall experience (as perceived and indicated by the client). A strategy capable of building competitive advantages and differentiation from the competitors.

Specifically, for the tour operators it is obvious that they will obtain better entrepreneurial results, in the long term, if they design package tours with differentiated tourism products. Destinations that offer competitive advantages facilitate their marketing strategies. Considering that package tours are still the main vehicle used by tourists to travel to destinations, similar to the one described, the local marketing authorities should work with the tour operators promoting the destination in order to indicate to them the incorporated improvements.

The value of these guidelines and their implementation rests with the impact they will have on the image formation cycle, meaning the development and communication of a secondary image, compatible with the customer's desires. Consequently, as a primary image, it will be able to satisfy the visitors since it will have been formed according to their perceptions and suggestions. Understanding what factors increase the interest of the potential travel markets and facilitate the selection of a particular destination is critical to destination planning and marketing. Therefore, marketing strategies could assist potential travellers to choose a particular destination through the benefits or advantages presentation and promotional process.

Future studies could test the model in destinations which are at different stages in their lifecycle. Also, they could insert demographic variables and investigate their influence on the model. The concept and methodology of this study offered answers to significant questions concerning the tourism destination image and the adaptation of marketing, development and management efforts to the demands of an era characterized by changes in the needs of tourists and continuous competition.

The research approach of this study could create a methodology able to be adopted by both private tourism enterprises and public tourism organizations which have the resources for the implementation of effective research contributing to feasible strategic plans which stimulate demand, improve supply and lead to specialized promotional campaigns.

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