

## Article title

What can trigger the resumption of economic growth in a small open economy like Greece: Exports or Inward FDI?

## Abstract:

The purpose of this article is to investigate the effect of Exports and Inward Foreign Direct Investment (FDI) on Economic development in Greece, in the long and short run from 1980 to 2013. This study applies the Ng-Perron and DF-GLS unit root tests to determine the level of integration as well as the autoregressive distributed lag (ARDL) method to identify the long run relationship. Our analysis confirms the long run relationship between inward FDI, exports and national income. Our results imply that any policy by the Greek Government aimed at boosting economic development through Exports will have to be considered for the long run since Greek authorities cannot rely on exports in the short run. However, Inward FDI appears more efficient than Exports as far as boosting economic progress in the short run.

**Keywords:** Exports, FDI, Economic Growth, Greece, Causality, ARDL.

**JEL classification** – C22, F14, F21, F43, O40, O52

## 1. Introduction

Greece constitutes an exemplary case study. While over the period 1997-2007 the Greek economy averaged 4% GDP growth, the recession that began in 2008 continued to persist in the following years. More importantly, after 2008 Greece experienced a structural crisis, which was demonstrated in the distinct decline of the main economic indicators and deteriorating outlook. The main features of the crisis were the huge fiscal deficit, the enormous public debt, the high unemployment rate but, more importantly, the rapid drop in Gross Domestic Product (GDP). The cumulative decline of Greek GDP reached the record of 21.78% for the six-year period 2008-2013 (World Bank 2014).

Persistent over consumption in the public sector leaking over into the private sector, disclosed significant structural gaps in competitiveness and productivity. Greece's flourishing private and public spending between 2000 and 2008 (97% of the aggregate GDP development was determined by consumption) produced a worsening trade balance, as demand could not be met by foreign and domestic investment. Moreover, competitiveness worsened by 10-20 percent from 2000 to 2009. In comparison, over the same period most of Greece's EU partners

witnessed a much more satisfactory external balance and their domestic investment reached 20% of GDP (McKinsey & Company 2012; Bank of Greece 2011; 2012).

In this sense, the Greek economic crisis is the crisis of a growth model that could no longer be sustained. Therefore Greece requires a new growth model. The aim of this analysis is to examine the role of long-term growth indicators, such as exports and FDI in a time-series framework from 1980 to 2013, as well as their direction for Greece in terms of an integrated framework. This study applies the ARDL bounds testing approach to analyze the long-run relationship and the direction of causality is examined by employing the Error Correction Model (ECM) method for multivariate causality analysis. The rest of the paper is organized as follows: Section II indicates key macroeconomic trends in Greece. Section III contains the literature review. Section IV presents the methodology, the description of the variables used and the data set. Section V displays the estimation and empirical results. Section VI presents the conclusions.

## 2. Key Trends of GDP, FDI, and Export in Greece

### *2.1 The Growth Performance of the Greek Economy*

Over the sample period (1980-2013) we can identify three growth phases: Stagflation (1980–94), Growth recovery (1995–2007) and finally the Decline of Growth Rates (2008-2013).

This first period was characterized by financial instability, noticeable state intervention and a tentative official attitude towards the European Union. However, policy directives started to improve in the early 1990s due to the liberalization of the financial sector as well as efforts to control the fiscal deficits and inflation (Featherstone, 2003; Collins, and Pontikakis, 2006).

During the period of economic revival (1995–2007), the Greek economy reverted to financial stability and development as political strategies were motivated by the conditions for EMU participation. This significantly contributed to decreasing the rate of unemployment and boosted the overall prosperity of the Greek society.

However, since 2008 the Greek economy has been facing a structural crisis. The main characteristics of the turmoil were the important fiscal deficit, the massive public debt, the excessive unemployment rate but, more notably, the rapid decline of the Gross Domestic

Product (GDP). The cumulative drop of Greek GDP registered the record of 26.23% for the six-year period 2008-2013 (World Bank, 2014), which is the biggest decline of economic activity in the post-World War II era among the European states.

## *2.2 Foreign Direct Investment in Greece*

Historically, the attraction of Foreign Direct Investment (FDI) and foreign capital in Greece, especially in peak technology sectors, infrastructures and export oriented sectors was crucial. Recently, the importance of this factor was enlarged by the difficulty of mobilising domestic capital, shrinking liquidity and the high domestic cost of money that accompanied the Greek crisis.

The accession of Greece to the European Union (EU) in 1981, and to the European Monetary Union (EMU) in 2001 are regarded as decisive moments in the country's economic history but did not contribute to the attractiveness of Greece for foreign investors as expected. According to Mardas and Varsakelis (1996) this can be mainly attributed to the fact that Greek governments since 1981, with few exceptions, followed a conservative policy towards foreign investors.

After, the creation of the European Monetary Union, total FDI inflows for the period 2000-2010 quadrupled as a percentage of GDP in the Eurozone members. In Greece however, they remained unchanged. The weak structural characteristics of the Greek economy did not allow it to take advantage of the common currency area. On the contrary, competitive EU countries, such as Spain and Portugal, took advantage of their accession to the E.U. and the E.M.U. as far as enhancing their appeal as host destinations. During 1980-2002 FDI inflows in Portugal and Spain witnessed rapid increases of 602% and 700% respectively (UNCTAD, 2013).

In general, concerning the FDI inward stock, Greece presents stock for the period 1980-2013 (see Table 1), which, on average, equivalent almost 12% of the country's GDP and epitomizes the lowermost rate in the EU area. Some reasons for this low performance can be listed as structural barriers, but many relative studies highlight inefficient public governance, bureaucracy, corruption, high taxation, and general macroeconomic conditions as the decisive factors concerning the aversion of foreign investors (Bitzenis et al. 2009,a). Concerning motives, empirical studies revealed, that the main motives for FDI inflows were market and efficiency related, alongside with the 2004 Olympic games in Athens (Bitzenis et al. 2009,b).

**Table 1: FDI Stocks as % of GDP**

### *2.3 The Export Performance of the Greek Economy*

Historically, high deficits in the external balance of Greece were the rule. Actually, from time to time high external balance deficits had been an issue that constrained the country's further economic development and the goal of a stabilization and growth policy. Greece performed better in services, notably shipping and tourism, which have been accounting for over 60% of exports of goods and services during the last decade, the third highest percentage among European countries (after Cyprus and Luxembourg) (Eurostat, 2011).

As indicated in Table 2, the Greek export performance, measured by exports as a percentage of GDP, is the lowest among the EU-17 countries and lower by approximately 10 percentage points compared to the EU average during the period 1980-2000. Since 2001, the gap between Greece and the EU in relation to this indicator has widened further; in 2011 it was 18 percentage points lower than the EU average. The significant deterioration observed since 2001 can be explained by the fact that Greece did not exploit the favorable effects of EMU participation, contrary to Spain and Portugal.

**Table 2: Greek Exports as % of GDP**

There is a widespread consensus among economic experts that the competitiveness of the Greek economy has worsened considerably since the country's accession to the EMU, as a consequence of the high price/wage spiral prevailing, which leads to inflationary pressures and the inability of Greece to devalue its currency after joining the eurozone.

As outlined by various studies, the loss of competitiveness which has affected export performance and resulted in the deterioration of the country's Current Account Balance over the past years, is reflected in the following factors:

- 1) The increase of unit labour cost relatively to Greece's trading partners;
- 2) The appreciation of the Euro, especially during the first three years after its introduction;
- 3) Greece acceded to the EMU with a conversion rate which did not encourage the competitiveness of Greek exports;
- 4) Greek manufacturing exports are dominated by low-tech products for which Greece did not

enjoy any advantage over emerging economies, which have lower labour costs; 5) The relative rise in the real effective exchange rate, which was only partially offset by the final devaluation of the Greek currency in 1999 before EMU participation, continued thereafter with rising inflation in a fixed exchange rate environment; 6) The high import content of Greek exports ; 7) Many sectors of the Greek economy enjoyed high profit margins in the local market particularly after 2000, which acted as a deterrent for export activities; 8) After the 2008 crisis, Greek export companies faced many financial impediments; 9) lack of domestic marketing and exporting culture (Malliaropoulos, 2010; Malliaropoulos and Anastasatos 2011; Karamouzis and Anastasatos, 2011; OECD, 2011; Bank of Greece 2011; European Commission, 2012).

However, by the end of 2013 Greece regained more than 75% of the decline in cost competitiveness experienced over the 2001-2009 period due to the implementation of significant reforms primarily in the labor market (Bank of Greece, 2013).

### 3. Literature review

#### 3.1. *Theoretical framework*

Since the early 1980s, inward foreign direct investment (FDI) has provided a strong impetus for economic progress across countries. It is claimed that FDI is less volatile than other forms of foreign capital inflows and provides a significant source of finance for domestic investment, therefore supporting capital formation in the host country (Duttaray, et al.2008). In addition, capital stock increased via FDI will lower the costs of capital and thereby induce the entry of new firms (Jenkins, 1987).

Furthermore, FDI can improve the balance of payments of host countries directly as a result of capital inflows, and also by augmenting exports and diminishing imports of goods which are produced by TNCs in the host country (Carkovic and Levine, 2005). A counter argument here is that, as a result of high levels of profit repatriation (i.e. transfer pricing) new FDI inflow is often less than capital outflows resulting from profit repatriation, thus leading to a net outflow of foreign capital (Duttaray, et. al. 2008). In host countries with a scarcity of financial resources, MNEs financing their investments through local credit may cause a rise in interest rates and therefore might make borrowing unaffordable for some domestic firms, thereby reducing domestic investment (Herzer, 2008).

Additionally, the presence of MNEs in a host country offers better working conditions; higher wages; greater job security; and a demand for qualified employees, so that the technical and knowledge spillovers as a result of FDI improve the local human capital (Makki & Somwaru, 2004).

On the contrary, the hypothesis of “growth-driven FDI” recognises economic growth as one of the determinants of FDI inflows in the host country. A significant number of foreign investors choose to invest in a country mainly to serve the host market with no intention for extrovert activities; this is the case of market-seeking FDI (Agiomirgianakis, et al. 2006). The probability of a feedback relationship between inward FDI and economic development is not rejected either. Since FDI inflows enhance economic growth in a host country, and economic expansion attracts more FDI inflows, this cycle may continue thereafter (De Mello, 1997).

Since exports are a component of GDP, the growth of exports promptly leads to GDP growth. An expansion in exports may demonstrate an increased external demand for a country’s output and consequently contribute to increasing total output as well as national savings (Yenteshwar, 2003; Ergashev et al.1999).

When a country’s domestic market is relatively small to allow for adequate specialization, the development of export sectors may facilitate the exploitation of economies of scale by specializing in production. As a result there would be a reallocation of productive resources from the relatively ineffective non-trade sectors to more productive tradables sectors and this reallocation could possibly lead to higher output growth (Helpman & Krugman, 1985; Mahadevan, 2007).

Besides the internal to the firm increasing returns, modern trade theory advocates that exports can affect total output by means of social increasing returns owing to: knowledge spillovers via labor mobility or monitoring of the procedures of other businesses; efficiency gains stemming from the size of the goods market; quality upgrade of the local workforce originating from increased competition in the enlarged labor market; optimal provision of social goods , services and institutions due to the increased demand by private businesses over policy governance (Venables, 2009).

Recently, there is a growing empirical literature proposing that technological frontiers are vital

in explaining economic growth across countries and territories as technological advances in one economy might be diffused to other economies as well. Accordingly, international trade links economies, by means of generating a common production among economies with large trade volumes. However, it is argued that only in economies participating in R&D activities will there be a convergence in growth rates. On the contrary, in economies with no incentives to innovate, growth prospects would appear rather bleak (Howitt 2000; Ertur and Koch 2011)

In opposition to standard trade and growth theory that advocates that poor economies will gradually converge to a high income level (see, for example, Lucas 2000), recently several arguments suggest that modern sector export growth can result into speedy economic progress but, this will be “lumpy” in three concepts: i) geographic area, as it will be unequal, focusing on a certain number of economies only and a propensity to develop serially instead of parallelly; ii) product scope, as economies tend to be specialised in a narrow area of tasks, as opposed to the production of unified products; iii) temporal aspect, as initial handicaps in terms of capabilities, may prohibit some economies from fully integrating in production networks, thus lagging behind for a prolonged period of time (Venables 2009).

Opponents of the export-led growth hypothesis state that the markets of developed countries are not large enough to absorb the products of less developed countries (Giles and Williams 2000a), as well that, when compared to exports, other factors play a more crucial role in economic growth (Rodrik, 1992). Finally, while import demand in developed economies may be affected by factors such as the unpredictability of financial markets and the volatility of commodity prices, an export expansion may not result in a sustainable economic development in less developed countries.

The opposite proposition, the “growth-driven exports” hypothesis, assumes a reverse relationship. It is based on the idea that economic growth has a positive impact on productivity growth as a result of scale economies, which in turn acts as a stimulus to exports (Krugman, 1984). Moreover, economic development can also create comparative advantages in certain sectors leading to specialisation and facilitating exports. The two-way link between exports and growth arises from the fact that increased trade produces more income, and more income facilitates more trade, the result being a virtuous circle (Bhagwati 1988).

In the empirical literature, the case where FDI stimulates exports in a host country is called “FDI-led export hypothesis”. The essence of the argument is summarized briefly. FDI stimulates the exports of host countries by: (a) supplementing domestic capital for exports; (b) bringing knowledge about international markets and global distribution networks not necessarily available to local firms; (c) improving local firms’ competitiveness through the transfer and diffusion of technologies, management know-how, entrepreneurial skills and labour (Caves, 1996; UNCTAD, 2003; Muchielli and Chedor, 1999).

Alternatively, the opposite causality from exports to FDI can also be found; actually, FDI is attracted to countries with a better trade perspective both in terms of imports and exports, and in turn the adoption of an export promotion strategy encourages FDI inflows, and the cycle continues (Ponce, 2006).

### *3.2 Review of the empirical literature*

In the existing literature there are three main strands on the relationship between exports, FDI and economic growth. The first and second strand focus on the exports growth nexus and inward FDI growth nexus respectively. There is an extensive review of the relevant studies in comprehensive papers by Giles and Williams (2000a; 2000b) and Borensztein, et al. (1998). Accordingly, both conclude that there is no consensus on the export-led growth and FDI-led growth debate.

The third strand encompasses empirical studies that have been mainly conducted in recent years but tend to focus on the direction of causality between exports, FDI and economic growth by using causality tests in a multivariate framework. Thus, in this section we attempt to review selected work that was carried out in a multivariate framework, and is contemporary to our research.

Makki S. and Somwaru A. (2004) examined the Granger causality relations among FDI, trade and economic growth in a sample of 66 developing countries. They showed that FDI and trade contribute to promoting economic growth in developing countries. They also found a positive interaction between FDI and exports. Similarly, Duttaray M. et al. (2008) investigated multivariate causalities among exports, FDI and economic growth, for 66 developing countries. The outcomes of the Granger causality tests reveal that FDI affects growth in just 44% of the countries in their sample of 66 LDCs. They also found that FDI affects growth in a larger

proportion of South American countries than in Asia and Africa, while North American countries lie in the middle. Finally it is revealed that exports represent a more important mechanism in Asia and Africa while in South America productivity growth is more important.

Wang et al. (2004) analysed the relationship between openness and economic growth in different country groups based on a data set of 79 countries over the period 1970 – 98. Their main conclusion was that FDI is rather more beneficial to high-income countries, while international trade is more important for low-income countries. Similarly, Tiwari and Mutascu (2011) analysed the impact of foreign capital and exports in 23 Asian countries over the period 1986-2008. The main finding of the study was that the causality test supports the export-led growth hypothesis during initial development while the FDI-led growth hypothesis is applicable in the later period of development. Furthermore, Awan et al. (2012) empirically tested selected economies of South Asia between 1973 and 2010, to check for possible long-run convergence and causality between Foreign Direct Investment (FDI), international trade, domestic investment and economic development. In accordance with previous studies, the outcome of the study supports the export-led growth hypothesis as compared to the FDI-led growth nexus in all selected South Asian countries.

Varamini and Kalash (2010) analysed the role of foreign direct investment in economic growth and in relation to the trade balances of 10 emerging European economies before their accession to the EU. They provide little support for an exogenous positive effect of FDI on economic growth. Furthermore, it is revealed that foreign capital penetration had no or negative effects on the trade balances of the majority of emerging European nations. Andraz and Rodrigues (2010) investigated the relationship among exports, FDI and economic progress for Portugal, over the period 1977-2004. Their empirical findings reveal that both exports and FDI stimulate economic growth in the long run.

In another study, Tsamis and Georgantopoulos (2011) examined the causal relationships between economic development, FDI and exports for Turkey, over the period 1970 – 2009. The outcomes of the Granger causality tests confirm unidirectional causalities stemming from FDI to GDP and exports to GDP. Similarly, Klasra, (2011) empirically examined the economies of Turkey and Pakistan over the period 1975–2004. The results support the growth-driven exports nexus for Turkey and trade openness-growth hypothesis in Pakistan.

Jayachandran and Seilan (2010) investigated the causal links between exports, Foreign Direct Investment (FDI) and economic progress for India during the period 1970-2007. The results indicate bidirectional causality between exports and economic growth. However, the results clearly reject the FDI led Growth hypothesis. In addition, Dash, and Sharma, (2010) investigated multivariate causalities among FDI, trade and economic growth, in India, for the period 1991Q3 to 2006Q3. Their study supports the existence of linkages – bidirectional Granger causality – between economic growth and FDI and also a unidirectional causality from exports to economic growth.

Recently, Gharana-Guru (2012) investigated the long run and short-run relationships among Exports, FDI and GDP for the case of India. The results indicate the prevalence of the Export-led growth nexus solely in the post liberalization era while the inclusion of the pre-liberalization epoch enfeebles this indication. In another study, Belloumi, (2014) tested the relationship among trade, foreign direct investment and GDP in Tunisia over the period 1970-2008. The results indicate that economic growth and trade openness promote foreign direct investment in the long run. In contrast, the findings reject the validity of FDI-led Growth and Exports-led Growth hypothesis in the long run. It is also inferred that domestic investment is the main driver of economic expansion in Tunisia.

The existing empirical literature on Greece is limited but also reveals the same mixed results seen in the international literature (see Table 3). This ambiguity has been partly associated with different methodologies and model specifications, as well as differences in the variables analysed [1] and/or the period included.

A study by Dritsaki et. al. (2004) examined the relationship between exports, nominal Foreign Direct Investment (FDI) and nominal economic growth for Greece over the period 1960-2002. The results showed a bidirectional causal relationship between exports and GDP and a unidirectional relationship running from FDI to real output. It is also inferred that FDI stimulates exports over the sample period. Dritsakis, et al. (2006) investigated the causal links between exports, domestic investment, foreign direct investment and GDP for Greece during the period 1960-2002. The test results revealed that there is a unidirectional causal relationship running from foreign direct investments to per capita GDP. However, they found no indication of a causal relationship between exports and GDP per capita. Konya, (2006) investigated the causal links between real exports and real GDP in twenty-four OECD countries from 1960 to

1997. The results for the case of Greece indicate a causality relationship running from GDP to exports

Alexiou and Tsaliki (2007) examined the FDI led Growth Hypothesis for Greece from 1954 to 2003. They provide little support for an exogenous positive effect of FDI on economic growth. Similarly, Georgantopoulos and Tsamis (2011) find that for the period 1970 – 2009, the long-run causality runs only from GDP to FDI.

More recently, Athanasenas and Katrakilidis (2009) examined the relationships among Foreign Direct Investment Exports and Economic Growth in Greece from 1976 to 2004. The empirical findings revealed the support of the ELG and FDI led growth hypothesis for Greece. Finally, Awojobi (2013) using time series data covering the period 1960-2009, points out the existence of a bidirectional causality between exports and economic growth.

**<<Table 3: Major Studies of Export, FDI and Economic Growth related to Greece>>**

## **4. DATA AND METHODOLOGY**

### *4.1 Analytical Framework*

In the previous sections of our paper, we presented the different mechanisms through which exports and inward FDI may contribute to the increase of GDP. Additionally we discussed the potential causal relationships between national income, exports and inward FDI.

Since 2008, the Greek economy has been negatively affected by the severe domestic debt crisis which has resulted into a sharp drop of national income and employment. Additionally, in this period of economic turmoil, Greece has been characterised by scarce domestic capital, resulting from the excessive shrinkage of domestic savings by households and businesses. In reality, all these facts have caused many doubts and questions about the pre-crisis development model as well as the future growth prospects of the Greek economy. Thus, it is essential to examine extrovert factors that can trigger the resumption of economic development in a small open economy like Greece.

In the light of the above discussion, the main objectives of this study can be identified as: (i) to find a long run relationship between FDI, Exports and GDP (ii) to test the effect of exports and inward FDI on national income by econometrically applying the following equation:

$$\ln GDP_t = \alpha_1 + \beta_1 \ln EX_t + \gamma_1 \ln FDI_t + u_{1t} \quad (1)$$

where  $GDP_t$  is the real GDP (in constant 2005 US dollars),  $FDI_t$  is real inward foreign direct investment (in constant 2005 US dollars),  $EX_t$  is real exports of goods and services (in constant 2005 US dollars),  $\alpha_1$ , is a constant parameter and  $u_{1t}$ , is the normally distributed residual term. The signs of the constant elasticity coefficient,  $\beta_{EX}$  and  $\gamma_{FDI}$  are all expected to be positive. All series are transformed into natural log form.

#### 4.2 Data Descriptions

The original data set contains annual observations for Greece, of real inward foreign direct investment (FDI) retrieved from the UNCTAD statistical database, real gross domestic product (GDP) and real exports of goods and services (EX) obtained from the World Bank, over the period 1980-2013.

FDI inflows in Greece during the estimation period have been rather volatile and the results that we received applying FDI inflows instead of Inward FDI Stock in our model were quite inconclusive [2]. The use of stock variables alongside with flow variables is quite common in empirical studies [3]. Moreover, we took into consideration the study of Andraz, and Rodrigues, (2010) who evaluated the causal links between exports, inward FDI and GDP in Portugal, for the period 1970-2002. Bearing in mind that Greece and Portugal are both peripheral European countries with similar macroeconomic characteristics, we thought it would be interesting to select Inward FDI Stock for relative comparison reasons.

Since data on FDI Stock is available only in the UNCTAD statistical database in current prices, we defined it in real values by deflating it to 2005 prices, using GDP deflators obtained from the IMF-IFS Statistics. Furthermore, all variables are seasonally adjusted and transformed into logarithms. The data referring to these variables are shown in Figure 1. Their trends suggest

that there may be a positive correlation among these variables.

**Figure 1. Plot of GDP, Exports and Inward FDI (1980-2013)**

#### 4.3 Econometric Methodology

This study uses DF-GLS and the Ng–Perron unit root tests to determine the order of integration of the variables. The ARDL approach to co-integration is applied to investigate the long run relationships between the selected variables. Thus, in the present study we apply the more solid technique developed by Pesaran and Shin (1999), and Pesaran et al. (2001), and apply a multivariate framework by including GDP, Exports and Inward FDI. The ARDL approach has assured benefits, relatively to other conventional co-integration approaches such as Engle and Granger (1987), Johansen (1988), and Johansen & Juselius (1990). First, it tests for the presence of long run relationships irrespectively of whether the variables are I(0),I(1) or I(1)/I(0). Second, the ARDL technique is more dynamic and the elasticities of short-run and long-run parameters in this technique are consistent especially in relative small data sets (Pesaran and Shin 1999) and are estimated simultaneously with a simple modification. Finally, the ARDL bounds testing approach is lacking the endogeneity problem (Shahbaz, and Rehman, 2012).

The first step in the ARDL approach to co-integration is to investigate the existence of the long run relationship using the following unrestricted error correction model:

$$\Delta \ln GDP_t = a_0 + \sum_{i=1}^n a_{iGDP} \Delta \ln GDP_{t-i} + \sum_{i=1}^k a_{iEX} \Delta \ln EX_{t-i} + \sum_{i=1}^k a_{iFDI} \Delta \ln FDI_{t-i} + a_{1GDP} \ln GDP_{t-1} + a_{2GDP} \ln EX_{t-1} + a_{3GDP} \ln FDI_{t-1} + e_{1t} \quad (2)$$

where  $\Delta$  is the first difference operator,  $\ln GDP$  is the log of Gross domestic product,  $\ln EX$  is the log of exports and  $\ln FDI$  is the log of FDI . We used the F test to evaluate the long run association between these time-series by examining the statistical significance of the lagged levels of the variables. The null conjecture in the Pesaran and Shin (1999) criterion is the non-existence of a long run equilibrium relationship (no co-integration) between the variables in Eq. 2, which can be denoted as:  $H_0 : a_{1GDP} = a_{2GDP} = a_{3GDP} = 0$ , against the alternative

hypothesis:  $H_1 : a_{1GDP} \neq a_{2GDP} \neq a_{3GDP} \neq 0$ .

Since the F-test has a non-standard distribution, we estimate the F-statistic against the critical values noted in Pesaran et al. (2001). These authors make available two sets (lower and upper bounds) of critical values. The lower critical values presume that the explanatory variables included in the ARDL model are I(0), when the upper bound critical values presume that all variables are I(1). Consequently, if the estimate value of the F-statistic is smaller than the lower bound value, the null hypothesis is not turned down; and if the estimated F-statistic is superior to the upper bound value then the null conjecture of no co-integration is rejected. If the estimated value of F is found to be between the lower and upper bound values, then the result is inconclusive.

After establishing the existence of co-integration (long run relationship) among these series, the presence of Granger non-causality is ruled out. Thus we form the error correction representation of ADRL model founded on equation (1), which is our basic model and includes the error correction term ( $ECT_{t-1}$ ) to capture the long run relationship. In other words, standard causality test augmented by an error correction term is formulated as follows:

$$\Delta \ln GDP_t = \theta_1 + \Phi_1 ECT_{t-1} + \sum_{i=1}^k \eta_i \Delta \ln GDP_{t-i} + \sum_{i=1}^k \beta_i \Delta \ln EX_{t-i} + \sum_{i=1}^k \varphi_i \Delta \ln FDI_{t-i} + \mu_{1t} \quad (3)$$

Where  $\Delta$  is the difference operator, while ECM is the error correction term resulting from the long-run co-integrating equation using the ARDL model. The constant term is denoted by  $\theta_1$ , in the single ECM equation (3) and the m ( $i= 1$ ) residual term is assumed to be normally distributed. The selection of the lag is based on the Akaike information criterion (AIC) denoting that AIC is superior for small sample data set and more consistent compared to other criteria.

The significance of the lagged ECM terms using the t-test confirms the existence of a long-run causality, and a short-run Granger causality is seized by the significance of the F-statistic or Wald test.

## **5. Results and discussion**

### *5.1 Unit Root Tests*

The macroeconomic variables we see in Figure 1 are more than likely to have unit roots and therefore are non stationary. The results reported in Table-4 show that levels of  $\ln GDP$  are stationary while levels of other variables have unit root problems. At the first 1st difference level,  $\ln FDI_t$  and  $\ln EX_t$ , are stationary. This shows that the variables have a mixed order of integration. The dissimilarity of the integration order for the variables in the model suggests the application of ARDL bounds testing by Pesaran et al. (2001) to test for the existence of co-integration.

**Table 4: Unit Root Tests**

### *5.2 Co-integration*

Table 5 provides the estimated results of Eq. 2 applying the ARDL approach to co-integration and (Panel A) shows the critical values of the F-statistics. These results imply that the null hypothesis of the ‘nonexistence of a long run relationship’ is rejected for  $GDP_t$  equation for Greece at the 5% per cent significance level, as the estimated value of F is greater than the upper critical value.

**Table 5: The Results from Co-integration Test**

The lower segments of Table 5 show that the ARDL estimated models have passed various diagnostic tests that reveal no evidence of serial correlation and heteroscedasticity.

### *5.3 Estimation of Short Run and Long Run Coefficients*

Once we established that a long-run co-integration existed, we proceeded to the estimation of the impact of Exports and inward FDI on national income both in the short run and in the long run. The results of the short-run dynamic coefficients associated with long-run relationships obtained from the ECM equation (3) are given in Table 6. The signs of the short-run dynamic

impacts are maintained in the long run only in the case of FDI. However, the empirical evidence reveals that differenced and lagged differenced levels of exports have a negative impact on national income. The negative impact of lagged and differenced terms of exports implies that exports of goods and services require time for positive spill-over effects on economic development.

#### **Table 6: Results for short-run estimates**

The sign of the estimated lagged error term  $ECM_{t-1}$  is negative and statistically significant at the 1% significance level. This corroborates our established long-run relationship between economic growth, exports and FDI. The magnitude of the coefficient on the error correction term (48.30) indicates that it roughly two periods are necessary for national income to adjust to its long run equilibrium when a shock leads to disequilibrium.

The long-run analysis is reported in Table 7. Our empirical evidence indicates that real exports have a positive effect on national income and are statistically significant at the 1% level of significance. All else remaining the same, a 1% increase in real exports will stimulate economic growth by 0.454 %. This finding supports the export-led growth hypothesis in the case of Greece and is consistent with the existing literature, Dritsaki and Dritsakis (2008), Athanasenas, and Katrakilidis (2009) and Malliaropoulos and Anastasatos (2013).

#### **Table 7: Results for long-run estimates**

Concerning the impact of inward FDI on GDP, is positive but statistically significant at only 10% level of significance. This shows that FDI also contributes to economic expansion, and a 1 per cent rise in inward FDI foster economic growth by only 0.066 per cent.

However, given the findings in the empirical literature this is perhaps not surprising. It has been shown that a country's ability to fully exploit the positive effects of FDI in the long run, depends on its absorptive capacity and on local conditions such as the development of the local financial markets (Alfaro et al., 2010), the educational level of the country (Borensztein et al. 1998), legal variables (Durham, 2004), and general government policy (Edison et al. 2002). In addition, scholars have documented that the quality of FDI is more important than quantity alone. According to Enderwick, (2005) FDI is considered as higher-quality if it is export-

driven, operates as a conduit of foreign technologies to the host country, and triggers economic spill-over benefiting local enterprises and workers. In the case of Greece over the period 1980-2013, the political risks were high, the macroeconomic environment was less stable, with the result that Greece offered no significant motives for high quality foreign direct investment to flow massively in the country and contribute significantly to economic development in the long run.

#### *5.4 Granger Causality Analysis*

The existence of co-integration between economic growth, exports and FDI leads us to investigate the causal relationship between the variables using the Error Correction Model (ECM) approach for multivariate causality analysis, in order to extract a clear picture which might be useful for policy makers to design comprehensive policies to sustain economic development by attracting FDI and promote exports of goods and services.

The empirical findings regarding the Granger causality test are presented in Table 8. Since the variables are co-integrated, causality can be divided into long and short-term relationships. The importance of the elasticity of  $ECM_{t-1}$  indicates a long-run Granger causality applying the t-statistic. The short-run Granger causality is specified by the combined importance of the lagged explanatory variables (Wald test F-statistics).

#### **Table 8: Results of Granger causality**

Beginning with the long run results, the value of the lagged error correction term is statistically robust in the economic growth equation at the 1% level and with the correct sign. In particular, the coefficient value of the estimated lagged ECT in Eq. (3) is -0.483, indicating that changes from the short-run to the long-run time period are corrected by almost 48.3 per cent over each year. Thus, it implies a fairly high speed of adjustment to equilibrium after a shock. These long run results support the export led growth (ELG) and FDI led growth (FLG) hypothesis for Greece, which is consistent with the existing literature for this case, such as Dritsaki M. et al. (2004), Athanasenas, and Katrakilidis (2009) and Malliaropoulos and Anastasatos (2013).

Thus this paper provides strong evidence that FDI and exports are important drivers of economic growth for Greece. Because of the strong evidence of long-term growth through FDI and exports in Greece, it is important to reduce barriers to greater flows of exports and FDI. In particular, there should be a strong emphasis on reducing not only trade barriers but also to address 'behind the border' issues such as technical barriers to trade and institutional barriers. This will enhance stronger regional integration through FDI and exports.

Additionally, it has been argued that an expansion in exports may stimulate specialization in the production of export products and in the case of Greece where the domestic market is too narrow for the attainment of optimum scale, this would enable increasing returns to ensue with entree to international markets. Thus, this would plainly lead to augmented productivity and prompt the general level of expertise to improve in the Greek export sector, thereby leading to a re-allocation of resources from the relatively inefficient industry of non-tradables to the comparative advantage of tradable goods and services.

Checking out the short run effects, exports and FDI appeared significant at the 10% and 5% level respectively, in the economic growth equation. Thus, the results show that in a short span of time, FDI has played a dominant role in stimulating economic progress rather than exports of goods and services.

Furthermore, as an outcome of the structural alterations in the Greek economy over the period 1980-2013, it is possible that macroeconomic series may be subject to structural breaks. For this specific reason, the stability of the short-term and long-term elasticities is re-examined through the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests based on ECM of Eq. (3) and suggested by (Brown et al., 1975). Appendix A shows the plot of CUSUM and CUSUMSQ tests statistics that fall inside the critical bounds of 5% significance. Thus we assume that the estimated coefficients are stable over the periods.

## **6. Conclusions and Policy Implications**

This empirical study has applied the ARDL bounds testing approach to co-integration to examine the long and short run impact of exports and inward FDI on economic development using Greece as the case study. The results confirm the long run relationship among exports,

inward FDI and national income. The empirical findings indicate that both exports and inward FDI stimulate economic progress in Greece.

The policy implications of inward FDI and exports in our model seem quite interesting. In the short run, the results show that exports increases will have little impact on economic progress in Greece, whereas in the long term, augmented exports can be a key growth generator. Conversely, the results show that over a relatively short period, FDI have played a dominant role in stimulating economic development rather than exports of goods and services.

In addition, the results provide important outcomes in terms of policy implications, mainly for the neighbouring countries of South Eastern Europe, that have recently become EU members, with economic patterns and constraints similar to those prevailing in the Greek economy since the 1980s.

Greece has experienced a poor growth performance since 2008 and is hoping for an immediate turn-around in economic activity. Moreover, It has become obvious that the flawed economic and growth models of the past need to be replaced. The previous consumption-driven growth model in Greece is now obsolete, since it has been proven unsustainable and credit has become scarce and expensive since the beginning of the economic crisis in 2009.

Our key policy implication is that in a small open economy such as the Greek one, with a relatively small domestic market, a transitional period is necessary for the economy to adjust to a different stable-condition equilibrium, as the specialization and the attainment of external economies of scale by means of exports could allow the small open economy to overhaul its specified input into a superior value of final output.

The logic behind the above implication is the fact that the gains of improved export performance (mainly by means of increasing returns) on national income, may arise after a transitional period of time. In fact during this intermediate period, owing to the transformation of the economy and the gradual increase of the market size, the competition pressures from larger indigenous firms may result to crowding out effects to uncompetitive small domestic businesses. Additionally, one cannot ignore the point that in the Greek economy, 85% of the private labor force has worked for SMEs over time and more than 50% in small enterprises (of up to 10 employees) belonging mainly to non-tradable sectors (E.C. 2013). Therefore,

during this transitional phase of ongoing expansion of the market size, the detrimental effects that may occur from rising unemployment rates and crowding out of uncompetitive and non-extrovert indigenous firms may possibly exceed the gains stemming from increasing returns such as knowledge spillovers; efficiency gains; quality upgrade of the local workforce due to the rise of competitive dynamics in a larger labor market; and optimal provision of complementary public goods, services and institutions (see Venables, 2009). However, in the long run it is expected that a reciprocal relationship could be established between private vigorous local businesses and political governance which could act as a source of sustainable increasing returns as the greater business sector leads to optimal provision of complementary public goods, the result being a virtuous cycle.

On the contrary, inward FDI would be more important in providing supply funds for domestic investment into the economy, contribute to a significant reduction in unemployment and an improvement in efficiency, and thus brings the crucial growth momentum in the medium-term. In addition, there is the prospect that the Greek privatization program that has been accelerated, (after the mid of 2011), through the Hellenic Republic Asset Development Fund (HRADF) might attract more foreign capital. However, the early signs of the privatization process are not very promising, due to the fact that it is mainly domestic investors who submit final offers for assets, in spite of the initial interest of many foreign investors. The country's remaining complexities in key areas (legislative, technical and taxation) as well as the preferential treatment that solely domestic investors enjoy in the Greek political system deter long term foreign investments. Since 2008, Greece has been facing a scarcity of financial resources and if these domestic enterprises finance their acquisitions and investments solely through local credit they could make borrowing unaffordable for the rest of the domestic firms, thereby reducing domestic investment.

Greece needs to adopt a new growth model, more extrovert and focused on foreign markets, both for producing export goods and services and attracting mainly foreign direct investments with an export orientation. Thus, a sustainable allocation of resources is needed, especially in the tradable goods and service sectors such as tourism, business services and agricultural products, so as to contribute to an improvement of the external balance and to the country's dynamic comparative advantage in exporting goods and services.

However, the long-run result would place the Government in a better position to achieve its goal of stimulating economic activity through exports of goods and services. Given the fact that relative wage costs have declined as a result of last year's recession in Greece, which, combined with ongoing structural reforms in the Greek economy that stem from the Troika's Economic Adjustment Program will help to recover competitiveness in a relatively short period of time.

Nevertheless, it is essential that the Greek economy shifts towards the production of advanced technology goods and quality services because any attempt at a constant reduction of the labor cost will prove ineffective, as there will be always neighboring countries in Central and South East Europe with lower labor costs.

### Notes:

1. There is no indication that the data were deflated in many of these empirical papers.
2. FDI inflows for Greece appear almost flat over the period 1980-1997 in the sample but exhibit many inconsistent variances afterwards. In addition statistical reports from International Organizations such as (IMF, World Bank, UNCTAD) provide only the net FDI inflows for every economy, not gross FDI inflows. However, according to statistics from the Bank of Greece (2013), total (gross) FDI inflows in Greece after the 2008 crisis are much higher than net FDI inflows presented in international reports due to the estimation methodology (negative reinvested earnings, due to losses of MNE's subsidiaries in Greece as an outcome of crisis).
3. FDI stock has been used in several studies such as: Wang et al. (2004), Breuss et al. (2001), Fortanier (2007), Brouwer et al (2008), Hsiao and Hsiao (2006), Liangshu, (2007), Won and Hsiao (2008) and Andraz, and Rodrigues, (2010).

### Appendix A.

#### Figure 2: Plot of Cusum and Cusumq for Coefficients Stability for ECM Model of Eq. (3)

**Acknowledgments:** I would like to thank my supervisor, Dr Christos Nikas, for his valuable and beneficial advices during the development of this empirical study. Any remaining errors are the authors' sole responsibility.

### References

Agiomirgianakis, G., Dimitrios, A. and Papatoma, K. (2006), "The Determinants of FDI: A Panel data study for the OECD Countries", *Discussion Paper Series, No. 03/06, Department of Economics, City University*.

Ahmad, M. H., Alam, S., & Butt, M. S. (2004), "Foreign direct investment, exports and domestic output in Pakistan", *Paper presented at the 19th Annual General Meeting, PIDE, Quaid-e-Azam University, Islamabad*.

Alexiou, C. and Tsaliki, P.(2007). "Foreign Direct Investment-led Growth Hypothesis: Evidence from the Greek Economy", *Zagreb International Review of Economics & Business*,10(1), 85-97.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., and Sayek, S., (2010), "Does foreign direct investment promote growth? Exploring the role of financial markets on linkages," *Journal of Development Economics, Elsevier*, 91(2), 242-256.

Andraz J. and Rodrigues P. (2010), "What causes economic growth in Portugal: exports or inward FDI?" *Journal of Economic Studies*, 37(3), 267-287.

Athanasenas, A. and Katrakilidis, C. (2009), "An empirical Investigation of the FDI & Export Led Growth Hypothesis (ELGH): Evidence from the Greek Economy", *International Journal of Financial Economics and Econometrics*, 1(2), 171-185.

Awan R., Javed, K. and Sher, F. (2012) "Foreign Direct Investment, Economic Growth, Trade and Domestic Investment Relationship: An Econometric Analysis of Selected South Asian Countries", *Journal of Contemporary Research in Business*, 3(12), 925-942.

Awojobi, O. (2013), "Does Trade Openness and Financial Liberalization Foster Growth?", *International Journal of Social Economics*, 40(6), 537-555.

Bank of Greece (2011; 2013) *Governor's annual Reports*.

Belloumi, M. (2014), "The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model", *Economics Systems*, 38(2), 269-287.

Bhagwati J., (1988), *Protectionism*, MIT Press, Cambridge, Massachusetts.

Bitzenis, A., Tsitouras, A. & Vlachos, V. A., (2009a), "Decisive FDI obstacles as an explanatory reason for limited FDI inflows in an EMU member state: The case of Greece," *The Journal of Socio-Economics*, 38(4), 691-704.

Bitzenis, A., Tsitouras, A. and V. Vlachos (2009b), "Motives for FDI in a Small EMU Member State: The Case of Greece", *East-West Journal of Economics and Business*, 10(2), 11-42.

Borensztein, E., J. De Gregorio, and J. Lee. (1998), "How Does Foreign Direct Investment Affect Economic Growth." *Journal of International Economics* 45(1), 115-135.

Breuss, F., Egger, P., Pfaffermayr, M., (2003), "Structural Funds, EU Enlargement, and the redistribution of FDI in Europe", *WIFO Working Papers*, 2003, (195).

Brouwer J., Paap, R. and Viaene, J.M. (2008), "The trade and FDI effects of EMU enlargement", *Journal of International Money and Finance* 27(2), 188-208

Brown, R., J. Durbin and J.M. Evans (1975), "Techniques for testing the constancy of regression relations over time" *Journal of the Royal Statistical Society. Series B, Statistical Methodology*, 37(2), 149-163.

Carkovic, M., & Levine, R. (2005). "Does foreign direct investment accelerate economic growth? In T. H. Moran, E. M. Graham, & M. Blomstrom (Eds.), *Does foreign direct investment promote development?* (195–220). Washington, DC: Institute of International Economics.

Caves, R., (1996), *Multinational Enterprise and Economic Analysis*, 2nd ed., Cambridge University Press, Cambridge: Collins P., Pontikakis D. (2006), "Innovation in the European Periphery: the policy approaches of Ireland and Greece", *Science and Public Policy*, 33 (10), 757-769.

Dash R. and Sharma C. (2010), "Does causality between FDI and trade exist: evidence from South Asia?" *International Journal of Trade and Global Markets*, 3(4), 390-413.

de Mello Jr., L. R. (1997), "Foreign direct investment in developing countries and growth: a selective survey", *Journal of Development Studies*, 34(1), 1–34.

Dritsaki, M. and Dritsakis, N. (2008), "On the Nexus Between Openness and Growth in Greece", *Applied Economics and Policy Analysis*, 2(1), 303-316.

Dritsaki, M., Dritsaki, C., and Adamopoulos, A., (2004), "A Causal Relationship between Trade, Foreign Direct Investment, and Economic Growth for Greece", *American Journal of Applied Sciences*, 1(3), 230-235.

Dritsakis, N., Varelas E. and A. Adamopoulos, (2006), "The Main Determinants of Economic Growth: An Empirical Investigation with Granger Causality Analysis for Greece", *European Research Studies Journal*, 10(3-4), 1-11.

Durham, J. B. (2004), "Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth", *European Economic Review*, 48(2), 285–306.

Duttaray, M., Dutt, A. & Mukhopadhyay, K. (2008), "Foreign direct investment and economic growth in less developed countries: an empirical study of causality and mechanisms", *Applied Economics*, 40(15), 1927-1939.

Edison, H. J., Levine, R., Ricci, L., and Slok, T. (2002), "International Financial Integration and Economic Growth", *Journal of International Money and Finance*, 21(6), 749–776.

Enderwick, P. (2005), "Attracting "desirable" FDI: Theory and Evidence". *Transnational Corporations*, 14(2), 93–119.

Engle, R.F., Granger, C.W.J. (1987), "Cointegration and error correction: representation, estimation and testing", *Econometrica*, 55(2), 251–276.

Ergashev, B., Nikulin, S. and Rakhmatov, M. (1999), "Import Substitution and Export Promotion Policies, Including the Issues of Strengthening the Balance of Payments", [Online], available at: [www.cer.uz/files/downloads/p\\_papers/1999\\_14\\_full\\_en.pdf](http://www.cer.uz/files/downloads/p_papers/1999_14_full_en.pdf), (Accessed: 17 January 2012).

Ertur, C. and Wilfred K. (2011), "A contribution to the theory and empirics of Schumpeterian growth with worldwide interactions.", *Journal of Economic Growth*, 16 (3), 215-255.

Ethier, W. J. and Markusen, J. R. (1996), "Multinational firms, technology diffusion and trade", *Journal of International Economics*, 41(12), 1–28.

European Commission, (2012), "Communication from the Commission, Growth for Greece" Strasbourg., available at: [http://ec.europa.eu/economy\\_finance/articles/financial\\_operations/2012-04-greece-communication\\_en.htm](http://ec.europa.eu/economy_finance/articles/financial_operations/2012-04-greece-communication_en.htm) [Accessed: 17 December 2013]

European Commission, (2013), "Enterprise and Industry: 2013 SBA Fact Sheet Greece, available at: [http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2013/greece\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2013/greece_en.pdf)[Accessed: 09 December 2014]

Featherstone, K. (2003), "Greece and EMU: between external empowerment and domestic vulnerability". *Journal of common market studies*, 41(5), 923-940.

Fortanier, F. (2007) "Foreign direct investment and host country economic growth: does the investor's country of origin play a role?", United Nations Publications, 16(2), 41-76, New York, NY.

Georgantopoulos A. And Tsamis A. (2011), "The Causal Links between FDI and Economic Development: Evidence from Greece", *European Journal of Social Sciences* 27(1), 12-20.

Giles, J.A. and Williams, C.L. (2000a), "Export-led growth: a survey of the empirical literature and some non-causality results. Part 1", *The Journal of International Trade and Economic Development*, 9(3), 261-337.

Giles, J.A. and Williams, C.L. (2000b), "Export-led growth: a survey of the empirical literature and some non-causality results. Part 2", *The Journal of International Trade and Economic Development*, 9(4), 445-470.

Guru-Gharana, K. K. (2012), "Relationships among Export, FDI and Growth in India: An application Of Auto Regressive Distributed Lag (ARDL) Bounds Testing Approach", *Journal of International Business Research (JIBR)*, 11(1), 1-18.

Helpman, E. and Krugman, P. (1985), "*Market Structure and Foreign Trade. Increasing Returns, Imperfect Competition, and the International Economy*", MIT Press, Cambridge, MA, 1985.

Herzer, D. Klasen, S. and Nowak-Lehmann, F. (2008), "In search of FDI-led growth in developing countries: The way forward.", *Economic Modelling*, 25(5), 793 – 810.

Howitt, P. (2000), "Endogenous Growth and Cross-Country Income Differences." *American Economic Review* 90 (4), 829-846.

Hsiao, F. and Hsiao, M.C. (2006), "FDI, exports, and GDP in East and Southeast Asia—Panel data versus time-series causality analyses" *Journal of Asian Economics* 17(6), 1082–1106.

Jayachandran G. and Seilan A. (2010), "A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for India", *International Research Journal of Finance and Economics*, 42, 74-88.

Jenkins, R. (1987), *Transnational Corporations and Uneven Development*, Methuen, London.

Johansen, S. (1988). "Statistical analysis of cointegrating vectors". *Journal of Economic Dynamics and Control*, 12, 231-254.

Johansen, S. and Juselius, K., (1990), "Maximum Likelihood Estimation and Inference in Cointegration - With Application to the Demand for Money," *Oxford Bulletin of Economics and Statistics*, 52, 169-210.

Krugman, P. (1984), "Import Protection as Export Promotion", in H. Kierzkowski (ed.), *Monopolistic Competition in International Trade*, Oxford University Press, Oxford.

- Karamouzis, N. and Anastasatos, A. (2011). "The Development of the Greek Economy, Economy and Markets, 6(3), *Eurobank*, (in Greek).
- Klasra M. (2011). "Foreign direct investment, trade openness and economic growth in pakistan and turkey: an investigation using bounds test" *Quality & Quantity*, 45(1), 223–231.
- Kónya, L., (2006), "Exports and growth: Granger causality analysis on OECD Countries with a panel data approach", *Economic Modelling*, 23(6), 978–992.
- Krueger, A. (1985), "The Experiences and Lesson's of Asia's Superexporters", in V. Corbo, A. Krueger, and F. Ossa (eds), *Export-oriented Development Strategies: The Success of Five Newly Industrializing Countries*, Westview Press, Boulder.
- Liangshu Q. (2007), "The Relationship Between Growth, Total Investment and Inward FDI: Evidence from Time Series Data", *International Review of Applied Economics*, 21(1), 119-133.
- Lucas, R. (2000), "Some Macroeconomics for the Twenty-First Century." *Journal of Economic Perspectives*, 14 (1), 159–168.
- Mahadevan, R. (2007), "New Evidence on the Export-led Growth Nexus: A Case Study of Malaysia", *World Economy*, 30(7), 1069–1083.
- Makki, S. & Somwaru, A. (2004), "Impact of foreign direct investment and trade on economic growth: Evidence from developing countries", *American Journal of Agricultural Economics*, 86(3), 795–8001.
- Malliaropoulos, D. (2010), "How much did competitiveness of the Greek economy decline since EMU entry?" *Economy and Markets*, 5(4), Eurobank.
- Malliaropoulos, D. and Anastasatos, A. (2011), "Competitiveness, External Deficit and External Debt of the Greek Economy", *Economy and Markets*, 6(7) Eurobank.
- Malliaropoulos, D. and Anastasatos, A. (2013), "The improvement in the Competitive Position of the Greek Economy and Prospects for an Export-led Growth Model", *Economy and Markets*, 8(1), *Eurobank*.
- McKinsey & Company (2012), "Greece 10 Years Ahead", available at: [http://www.mckinsey.com/locations/athens/greeceexecutivesummary\\_new/](http://www.mckinsey.com/locations/athens/greeceexecutivesummary_new/) (Accessed: 17 January 2013).
- Mardas, D. and Varsakelis, N. (1996), "Direct Investment in a Small Open Economy: The Case of Greece", *Economia Internazionale / International Economics, Camera di Commercio di Genova*, vol. 49(3), pages 401-415.
- Mucchielli, J.L., & Chedor, S. (1999), "Foreign direct investment, export performance and the impact on home employment: an empirical analysis of French firms. In: S.G. Lee, & P.-B. Ruffini (Eds.), *New horizons in international business*. Cheltenham, UK: Edward Elgar.
- Ng, S., and Perron, P., (2001), "Lag Length Selection and the Construction of Unit Root Test with Good Size and Power" . *Econometrica*, 69(6), 1519-54.
- OECD (2011): Economic Surveys: Greece, August 2011.
- Pesaran, M.H., Shin, Y. (1999), "An autoregressive distributed lag modeling approach to cointegration analysis. In: Storm, S. (ed.) *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Cambridge University Press, Cambridge (1999).
- Pesaran, M.H., Shin, Y., Smith, R. (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, 16(3), 289–326.
- Ponce, P., (2006). "Openness and Foreign Direct Investment: The Role of Free Trade Agreements in Latin America", MPRA Paper 4187.
- Rodrik, D. (1992), "The limits of trade policy reforms in developing countries", *The Journal of Economic Perspectives*, 6(1), 87-105.
- Sasidharan, S., and A. Ramanathan. (2007), "Foreign Direct Investment and spillovers: evidence from Indian manufacturing", *International Journal of Trade and Global Markets* 1(1), 5-22.
- Shahbaz, M. (2012), "The Dynamic of Financial Development, Imports, Foreign Direct Investment and Economic Growth: Cointegration and Causality Analysis in Pakistan", *Global Business Review*, 13(2), 201-219.

Tiwari A. and Mutascu M. (2011), "Economic Growth and FDI in Asia: A Panel-Data Approach, *Economic Analysis & Policy*, 41(2),173-187.

Tsamis, A. D., Georgantopoulos, A. G. (2011), "The Triangular Causal Links between Economic Development, FDI and Exports: Evidence from Turkey", *Middle Eastern Finance and Economics*, 15(1), 66-75.

UNCTAD (2003), "World investment report" United Nations.

UNCTAD (2012), "World investment report" United Nations.

Varamini, H. & Kalash, S. (2010), "Foreign Direct Investment Inflows, Economic Growth, and Trade Balances: The Experience of the New Members of the European Union", *Journal of East-West Business*, 16(1), 4-23.

Venables, A. J. (2009), Rethinking Economic Growth in a Globalizing World: An Economic Geography Lens. *African Development Review*, 21: 331–351.

Wang, C., Liu, S., & Wei, Y. (2004), "Impact of openness on growth in different country group" *World Economy*, 27(4), 567–585.

Won Y.,Hsiao F. Yang, D.Y. (2008),"Panel Causality Analysis on FDI — Exports - Economic Growth Nexus in First and Second Generation ANIEs", *The Journal of the Korean Economy*, 9(2), 237-267.

World Bank, (2013), World Development Indicators, Washington, DC.

World Bank, (2014), World Development Indicators, Washington, DC.

Yenteshwar Ram (2003), "An empirical examination of the Export-led growth hypothesis in Fiji", *Working Paper, 2003/01, Economics Department, Reserve Bank of Fiji*.