Vadyba
Journal of Management
2018, № 1 (32)
ISSN 1648-7974

EFFECTS OF ECONOMIC CRISIS: A REGIONAL EXAMINATION BASED ON TOURISTIC REGIONS IN GREECE

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Abstract
The economic crisis affected Greece more than other countries in the European Union. In 2010 it appeared that huge public deficits could no longer be covered by the markets. As a consequence Greek government requested the financial support of the European Union and the International Monetary Fund. The financial support was followed by serious economic and social commitments by the Greek state towards its lenders described at the memorandums of understanding. The accomplishment of commitments incurred further consequences to the Greek economy. The crisis' effects appear to almost all macroeconomic indicators but to a different level within regions in Greece. This study examines the fluctuations of some main economic indicators that are unemployment, bank deposits, gross value added and declared income. The study has a regional character; it focuses on the prefectures of Greece, (Greece is divided into 54 prefectures, including the four prefectures in the capital of Greece). A study can offer more significant conclusions on the economic consequences if it is based on a regional and particularly in a more decentralized examination as the prefecture. The study gives a particular emphasis to the prefectures depending on tourism. The significance of tourism is examined according to its share to the gross value added, as calculated by the national statistical service on a prefecture basis. The study compares the evolution of economic indicators between touristic and non touristic departments for the time period 2006-2016. It appears that prefectures with important touristic activities tackled more efficiently the economic consequences of the crisis, especially on the employment level.
KEY WORDS: Crisis, tourism, region, Greece, macroeconomic indicators.

Introduction

Greece faces a long period of economic crisis that began just after the international financial crisis and continues till now. The financial crisis was not translated in Greece to a banking crisis from the very beginning as in the case of other countries, for example the case of Irish banks, (see Whelan, 2013). Contrary to other foreign banks, Greek banks were not involved in risky financial activities, having followed a more conservative credit policy. On the contrary, Greece suffered from high public debt and public deficit. The financial crisis created a huge problem on the financing of the deficit and the debt of the country. Private investors refused to finance the Greek debt, or accepted to do so under very high cost for Greece. Greek governments had to ask the financial support of the European Union and the International Monetary Fund (IMF). As a consequence to this financial help, the Greek economic adjustment program was decided, (see on this issue, **Bank of Greece, 2014**). This program required a specific austerity policy with the aim of reducing deficits and hence reducing public debt in the long run. Macroeconomic consequences of this policy appear on **the table 1**. Long after the international crisis, Greek economy suffers from a continuing economic downturn that is evident on the reduction of gross domestic product (GDP), investments and consumption and, on the other hand, on the rise of unemployment and non paid loans.

Table 1. Evolution of macroeconomic indicators, (rate change, %)

	2009	2010	2011	2012	2013	2014	2015	2016
1. Gross Domestic Product (GDP)	-2,3	-4,2	-9,2	-7,3	-3,2	0,4	-0,3	0,0
2. Private consumption	-1,8	-4,1	-9,9	-7,9	-2,7	0,6	-0,3	1,4
3. Public consumption	7,6	-9,0	-7,0	-7,2	-5,5	-1,2	0	-2,1
4. Investments	-11,4	-17,4	-20,7	-23,4	-8,3	-4,4	-0,2	0,0
5. Percentage of Unemployment	9,6	12,7	17,9	24,4	27,5	26,5	24,9	23,5
6. Mon-performing to total loans	7,7	10,5	15,9	22,5	31,2	35	35,7	46,3

Source: Bank of Greece, 2016 and 2017 and Bank of Greece, 2017a, (author's calculations)

The crisis does not affect all regions or sectors to the same extent. Some of them present better macroeconomic results compared to the national level or the rest of regions or sectors.

The paper tries to investigate the consequences of the crisis on a regional basis. It focuses, in particular, on administrative departments, (prefectures), characterized by tourism activities and tries to compare macroeconomic results obtained in these prefectures to the national level. The investigation is based on such macroeconomic indicators as unemployment, GDP, bank deposits, declared revenue and number of tax payers. Touristic departments are distinguished by the importance of tourism to the gross value added (GVA). The investigation is based on a prefecture level because we obtain more accurate results. Greece is divided administratively into 54 prefectures placed in 13 regions. The time period begins before the crisis, in 2006, and continues till the year of 2016 for most macroeconomic indicators. The time period is crucial, since Greece is still subject to fiscal policy constraints and suffers from the economic adjustment programs. To our knowledge, this is the first study comparing the effects of the crisis, through the mentioned economic indicators, between prefectures depending on tourism activities and the others who do not rely on tourism for their GVA. After the introduction, the paper discusses some previous studies related to the regional effects of the crisis; section 3 examines the evolution of the macroeconomic indicators used in this study on a prefecture level; it is followed by the conclusions.

Previous studies

The consequences of the crisis have been examined in several cases including the Greek case. Karafolas and Alexandrakis (2015) examined the effects on the unemployment in Greece for the time period 2009-2012 on a regional level . They found that prefectures depending on tourism and agriculture had better results. Petrakos and Psycharis, (2015) examining the GDP per capita in the 13 regions of Greece during the time period 2008-2012, found that regions with higher specialization in sectors oriented to export were less affected by the economic crisis. Monastiriotis and Martelli, (2013) examining the unemployment in the period 2000-2012 in the 13 regions found that the decrease in the demand of employees was largest in urban regions and the north and north-eastern periphery. Psycharis et al. (2014) examined the GDP per capita in two periods, 2005-2008 and 2009-2011 in Greek regions; they found that the most urbanized and high income level regions were more affected by the economic crisis. Marelli et al. (2012), interested on the regional unemployment in the EU in the time period 1999-2012, concluded that sectoral specialization, long-term unemployment or reliance on temporary workers had conditioned the regional reactions to the crisis. Dokic et al. (2016), working on the case of Croatia in the period 2008-2012 concluded that crisis negatively affected the national economy but also regional ones, leading to significant regional disparities. Cuadrado-Roura et al. (2016), focusing on specialization and productivity, concluded that Spanish regions having a specialization on dynamic and productive industries performed better than the other regions during the crisis period. Fratesi and Rodriguez-Pose, (2016), interested on sheltered regional economies in Europe in the periods 1995-2007 and 2008-2012 concluded that regions with more sheltered economies had more difficulties in absorbing the consequences of the crisis on the employment, contrary to regions that generated dynamism in employment during the pre-crisis period.

The evolution of main macroeconomic indicators

Methodology and data

Our study is based on the departmental - prefecture level. Greece is divided into 13 regions; every region has a number of prefectures, 54 in total. The use of prefectures was chosen because such a study gives more specific and accurate results compared to national but also regional level. The time period extends from 2006 to 2016. It is a time period before the crisis and goes into the crisis period that continues till the end of 2016.

The investigation is based on five macroeconomic indicators, distinct from each other. In order to pinpoint the prefectures influenced by tourism we used the GVA produced in every prefecture; we considered the GVA of distinct activities in comparison to the total GVA produced in the same prefecture. In this study touristic areas are considered those which have at least 30% of GVA produced by activities related to tourism; in the whole country, tourism activities offered about 24% of GVA in 2014.

The following macroeconomic indicators are examined:

a/ The unemployment rate at the time period 2006-2016 for the whole country and for prefectures based on tourism. Data is offered by the national statistic service (Hellenic Statistical Authority - ELSTAT).

b/ The annual growth of bank deposits is examined for the time period of 2006-2016. Data is provided by the Bank of Greece.

c/ The declared revenue and d/ the number of tax payers. These two indicators permit considering the revenue created in the departments. By the number of tax payers we can also have an picture of new legal and physical entities created on prefecture level and, thus, if a local economic dynamism appears. The time period is from 2006 to 2015, (last year with available data). Data is provided by the tax national services.

e/ The gross domestic product considered for the time period 2006-2014; 2014 is the last year we have data by prefectures. The annual development can show the consequences of the crisis on the production. Data is provided by ELSTAT.

The prefectures characterized by the tourism activities

Tourism is one of the most important activities for the Greek economy. On a national level activities related to tourism contributed 24% of the total GVA in 2014, followed by activities related to public administration (21%), real estate (18%), mining and manufacturing (13%), agriculture (4%), while 21% of GVA is offered by a number of activities not specified by the Hellenic Statistical Authority (2016). In some of the Greek prefectures tourism contributes more than half of the total GAV; these include the islands of Andros, Thira, Kea, Milos, Mykonos, Naxos, Paros, Syros, Tinos and Zakynthos, table 2. More than 40% of the total GAV is produced by tourism activities in the islands of Ithaki, Kefallinia, Lefkada, Kalymnos, Karpathos, Kos, Rodos, Kerkyra, the department of Chalkidiki, and this of Thesprotia. On table 2 we have the departments for which tourism activities represent more than the average of the country, (24% in 2014).

Table 2. Part of tourism (*) on GVA, by prefecture, on 2014, (%) (**)

Prefectures	
Andros, Thira, Kea, Milos, Mykonos, Naxos, Paros, Syros, Tinos	54%
Zakynthos	52%
North Aegean (region)	49%
Ionian Islands (region)	46%
Ithaki, Kefallinia	46%
Lefkada	46%
Kalymnos, Karpathos, Kos, Rodos	45%
Chalkidiki	44%
Kerkyra	43%
Thesprotia	41%
Rethymni	39%
Aegean Islands, Creta (region)	38%
Peiraias, Islands	36%
Chania	36%
Creta (region)	35%
Irakleio	33%
Lasithi	33%
Thasos, Kavala	33%
Ikaria, Samos	32%
Pieria	31%
Greece	**24%**

Source: Hellenic Statistical Authority, 2016, Gross value added by industry (A10) - NACE REV.2, (author's calculations)

(*) Tourism activities are referred on "Trade, transportation, accommodation and food service activities"

(**) Only departments with tourism's part on GVA higher than the national level (Greece)

The effects of the crisis on unemployment

The crisis particularly influenced unemployment in Greece. **Table 3** presents the progress of unemployment during the time period 2006-2016, which includes the pre-crisis and the crisis period, mainly after the agreement of the first Memorandum of Understanding (MoU) in 2010. On a national level we observe that during the crisis period the unemployment was multiplied by 2,3 times; it rose from 9,5%, (average of the period 2006-2010), to 22,5%, (average of the period 2010-2016). During the crisis period, (2010-2016), out of 29 prefectures with the lower average rate of unemployment eleven are based on tourism activities; further on, we find eight of them in the top 15 prefectures with the lower unemployment, **table 3.** One can notice that the annual data on unemployment rate does not give the precise picture because particularly during the touristic period the unemployment rate is significantly lower in touristic areas.

Table 3. Unemployment rate by department, (%)

	Average 2016/06	Average 2010/06	Average 2016/10
Zakinthos*	10,2	10,9	11,3
Lakonia	9,2	5,7	12,1
Ilia	11,3	8,5	14,2
Chalkidiki*	11,6	7,7	15,5
Rodopi	11,7	6,9	15,7
Argolida	12,2	7,8	15,9
Dodecanisos*	13,7	12,3	16,5
Trikala	13,2	8,0	17,2
Kiklades*	13,3	7,7	17,7
Preveza*	15,0	12,1	18,5
Kerkira*	14,9	12,2	18,6
Kavala	15,1	11,1	19,0
Chios*	14,0	6,2	19,2
Lesvos*	14,9	9,6	19,2
Larisa	15,3	10,3	20,0
Korinthia	14,7	8,3	20,0
Serres	14,3	6,2	20,0
Karditsa	14,9	7,5	20,6
Rethimni*	15,7	10,4	20,6
Arkadia	16,2	11,4	20,7
Messinia	15,2	7,1	20,9
Imathia	16,7	11,6	20,9
Chania*	15,2	6,6	21,3
Ioannina	16,2	10,1	21,3
Pella	15,9	8,1	21,3
Viotia	16,8	11,3	21,4
Irakleio*	15,8	8,4	21,7
Fokida	17,5	12,4	21,9
Fthiotida	15,4	5,2	22,1
Total Greece	**16,8**	**9,5**	**22,5**

Source: Hellenic Statistical Authority, 2017, (author's calculations)
* Departments having as major activity the tourism

The effect of the crisis on the evolution of bank deposits

Bank deposits all over Greece were influenced by the crisis since 2010 and for almost all those years. During the time period 2006-2016 deposits in the Greek banking market decreased on average by 3,0%. Aggregate of the period was especially influenced by the fall during the crisis period 2010-2016, (-8,3%) since at the pre-crisis period, 2006-2010, deposits grew by 5,0%, (Bank of Greece, 2017b, author's calculations).

The negative evolution of bank deposits characterizes in particular the years 2010, 2011 and for specific reasons the year 2015. The years 2010 and 2011 the implication of the MoU agreements affected savings as well. 2015 is characterized by the political problems of the summer of 2015 that incurred the capital controls in June 2015. Negative political and economic expectations resulted in the withdrawal of deposits. The year 2016 is a very interesting case; while total deposits decreased by 2% compared to 2015, in most of the departments based on tourism deposits rose considerably. Between the fifteen departments with the highest rise of deposits in 2016 ten are based on tourism activities, while the top two departments with the highest rise of deposits (7%) are in the island of Crete, table 4.

Table 4. Fifteen prefectures with the higher growth of deposits in banks on 2016 compared to 2015, (%)

Department	2016/15
Rethimni *	7%
Irakleio*	7%
East and West Attiki	6%
Zakinthos *	6%
Dodecanisos *	6%
Chania *	5%
Lasithi *	4%
Kerkira *	4%
Larisa	3%
Karditsa	3%
Lefkada *	2%
Preveza *	2%
Kyklades *	2%
Rodopi	2%
Evros	2%
Total Greece	**-2%**

Source: Bank of Greece, 2017b, (author's calculations)
* Departments having as major activity the tourism

The effects of crisis on the progress of tax payment

We took into consideration two parameters to examine the effect on the tax payment, the revenue declared and the number of taxpayers, legal and physical individuals. An increase or decrease of taxpayers may indicate the creation or the closure of business regardless of the progress of revenue declared. One has to notice that the attempt to reduce tax evasion may have caused a small increase in taxpayers during the crisis period. On **table 5** we observe that during the crisis period, 2010-2015, on a total of 21 prefectures with the highest increase of tax payers, 13 of them are related to tourism activities. Additionally, within the first 10 departments with the highest increase of taxpayers, 7 of them are in the tourism business, **table 5.**

Table 5. Growth of taxpayers by department, average of period, (%)

	Average 2015/10
Rethimni*	4,4%
Lefkada*	4,2%
Zakynthos*	3,7%
Preveza	3,4%
Thesprotia	3,2%
Rodopi	3,2%
Chalkidiki*	3,2%
Xanthi	3,1%
Dodecanisos*	3,0%
Ileia	2,9%
Chania*	2,9%
Arta	2,8%
Drama	2,8%
Irakleio*	2,8%
Kerkyra*	2,8%
Lasithi*	2,8%
Kefalinia*	2,7%

Achaia	2,6%
Evrytania	2,6%
Messinia	2,6%
Pieria*	2,6%
Total Greece	**1,7%**

Source: General Secretariat of Information Systems, 2017 and Independent Public Revenue Authority, 2016, (author's calculations)
* Departments having as major activity the tourism

The crisis affected the declared revenue that fell drastically during the crisis as a consequence of the economic downturn. In the period 2010-2015 the total declared revenue dropped of 5,4%; in the pre-crisis period, the total declared revenue rose to 5,7%, (Independent Public Revenue Authority, 2016, author's calculations).

A similar development but on a different level was observed between Greek departments. Table 6 shows the progress of the declared revenue for 29 departments in Greece. These departments fared better in comparison to the national level during the crisis period. In the top ten we find 7 departments mainly based on tourism and in the first twenty we find 12 of them, **table 6**.

Table 6. Evolution of the declared revenue by department, average of period, (%)

	Average 2015/10
Chalkidiki*	-2,8%
Lakonia	-3,3%
Lasithi*	-3,5%
Chania*	-3,7%
Dodecanisos*	-3,8%
Zakynthos*	-4,0%
Thesprotia*	-4,3%
Drama	-4,5%
Thessaloniki	-4,5%
Chios*	-4,6%
Lefkada*	-4,6%
Messinia	-4,6%
Kastoria	-4,7%
Pella	-4,7%
Kerkyra*	-4,8%
Irakleio*	-4,9%
Rethimni*	-4,9%
Pieria	-5,0%
Preveza*	-5,0%
Ioannina	-5,1%
East Attiki	-5,1%
Xanthi	-5,2%
Kavala	-5,2%
Larisa	-5,2%
Argolida	-5,3%
Athens	-5,3%
Arta	-5,3%
Evros	-5,3%
Trikala	-5,4%
Total Greece	**-5,4%**

Source: Idem, table 5, (author's calculations)
* Departments having as major activity the tourism

The effects of crisis on the progress of gross domestic product

The economic recession is evident in the progress of the GDP; during the crisis, period 2010-2014, its fall reached 5%, on average, for the whole country; this fall negatively influenced the decade 2005-2014, (-1,1% the average progress of total GDP); in contrast to this period, during the sub-period 2005-2010 the total GDP increased by 2,7% on average (Hellenic Statistical Authority, 2017a, author's calculations). In the period that followed the agreements between Greece and its lenders the progress of GDP by prefecture shows that during 2010-2014 for 35 prefectures the fall of GDP is lower than the country's average; within them, the economy of 11 prefectures is based on tourism activities. One can notice that a/ data for 2105 and in particular for 2016 could offer better results because of economic improvements, see table 1, and b/ informal economy is more important in the touristic areas characterized by seasonality. If we consider the mentioned parameters we would expect better results for touristic areas than these appearing on **table 7**

Table 7. Evolution of gross domestic product (GDP) by department, (%)

	Average 2014/10
Florina	0,0%
Thasos, Kavala*	-0,7%
Kilkis	-3,2%
Preveza*	-3,6%
Trikala	-3,6%
Lakonia	-3,9%
Kozani	-4,0%
Arkadia	-4,1%
Rethymni*	-4,2%
Lasithi*	-4,2%
Grevena	-4,3%
Larisa	-4,3%
Kiklades *	-4,4%
Pella	-4,4%
Chalkidiki*	-4,5%
Kalymnos, Karpathos,	-4,5%
Messinia	-4,8%
Karditsa	-4,8%
Lesvos, Limnos*	-4,8%
Anatoliki Attiki	-4,9%
Serres	-5,0%
Aitoloakarnania	-5,0%
Imathia	-5,0%
Chania*	-5,1%
Magnisia	-5,1%
Drama	-5,2%
Voiotia	-5,2%
Pieria	-5,2%
Kastoria	-5,3%
Kerkyra*	-5,4%
Ioannina	-5,5%
Chios*	-5,5%
Argolida	-5,6%
Fthiotida	-5,7%
Dytiki Attiki	-5,7%
Total Greece	**-5,8%**

Source: Hellenic Statistical Authority, 2017, (author's calculations)

Conclusions

The paper aimed to investigate the crisis effects on the Greek economy using a regional examination focusing on the prefectures of Greece. The main question was whether touristic areas had better results than others during the crisis period. The time period focused on 2010-2016, (after the first agreement of the MoU between Greece and its lenders), but it extended also to the time period before the crisis in order to have a comparative view. The investigation used the annual evolution of some macroeconomic aggregates that are unemployment, the gross domestic product, the bank deposits and fiscal indicators as the declared revenue and the number of tax payers. All these aggregates were applied on a prefectural and national level.

We observed that the crisis affected the whole country on all macroeconomic indicators. We also observed important differentiations within the Greek prefectures for almost all indicators. It appears that areas based on touristic activities had better results compared to the national level but also compared to most of the other departments. This observation indicates the importance of tourism in particular in the Greek economy. Greece benefited from the rise of tourism after 2012; arrivals of foreign tourists reached 27,5 million in 2016, marking an increase of 1,5 million compared to 2015. Part of this rise is due to the lower cost of the tourist product in Greece during the crisis period; it is also due to the political problems of the neighboring and competitive countries of the Mediterranean. This evolution was translated to an improvement of the economic situation in particular to touristic areas, as is evident through this study. Nevertheless tourism remains one of the sectors most influenced by the economic and political environment that has to be considered in any strategic economic policy.

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RECEIVED: 4 September 2017 **ACCEPTED: 7 June 2018**

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