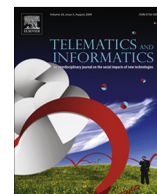




Contents lists available at ScienceDirect

Telematics and Informatics

journal homepage: www.elsevier.com/locate/tele

Digital technology and innovation trajectories in the Mediterranean region: A casualty of or an antidote to the economic crisis?

Panagiotis Kokkinakos, Ourania Markaki, Sotirios Koussouris*, John Psarras

Decision Support Systems Laboratory, National Technical University of Athens, Greece

ARTICLE INFO

Article history:

Received 29 January 2016

Received in revised form 21 July 2016

Accepted 18 August 2016

Available online xxxx

Keywords:

Economic crisis

Financial crisis

Technology

ICT

Digital

Indicator

Innovation

Mediterranean countries

Europe

Index of Real Costs

GDP

ABSTRACT

Weak macroeconomic conditions mean admittedly that government spending on Information and Communication Technologies (ICTs) is reduced and consequently that ICT-related policies are scrutinized for their necessity, efficiency and impact on growth. At the same time, such conditions bring into the spotlight and set priority to measures targeting the ICT sector and promoting ICT-based innovation as a means of pursuing economic recovery. The 2008 financial crisis affected severely several parts of the world and particularly the Mediterranean region, where, even today, several years after the start of this economic turmoil in Europe, finding an effective response to mitigating the consequences of recession is still pertinent. Building on previous literature that recognizes ICT-based innovation as a crisis mitigation enabler, this paper propels discussion on the association among ICT- and innovation-oriented indicators and the economic crisis context in four Mediterranean countries, namely Spain, Greece, Italy and Cyprus. In this respect, it leverages a set of open and credible indicators of both technological and economic character and attempts to reflect on the effects of the crisis on ICT or conversely seen the potential of the latter to enable the affected countries to come out of the crisis.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Since the ancient times Mediterranean countries stood as a center of innovation and science revolution of the by then known world (Finley, 1965). This path to new inventions and technical breakthroughs has been long-lasting, from the ancient ages until the early 80's, as countries in the Mediterranean remained key industry players and paved the way for new findings, driven either by local innovation, or from knowledge imported from their offshore colonies that were established in other close-by or far-away continents. However, digitization and more specifically electronic services and major modern Internet based telecommunications were born elsewhere and uptake in the Mediterranean countries was quite lethargic, converting the region into a technology laggard and leaving behind the innovation leader characteristics it was carrying for centuries, creating a clear difference between the European North and the South territories, largely due reasons deep-rooted in the post-World War II socioeconomic and political conditions established in the modern Mediterranean countries.

* Corresponding author.

E-mail addresses: pkokkinakos@epu.ntua.gr (P. Kokkinakos), omarkaki@epu.ntua.gr (O. Markaki), skous@epu.ntua.gr (S. Koussouris), john@epu.ntua.gr (J. Psarras).

<http://dx.doi.org/10.1016/j.tele.2016.08.024>

0736-5853/© 2016 Elsevier Ltd. All rights reserved.

A remarkable progress has been recorded during the 90's and the 00's, as a significant amount of funds, deriving also from EU oriented initiatives (Aiginger, 2013a) has been invested in new technologies and knowledge transfer, exploiting the abundance of the very capable and skillful human resources of the region and turning it once again into an innovation pole. This process contributed to the acceleration of a virtuous cycle comprising of three sequential steps, that of ICT Investments, Innovation and Economic Growth, which allowed the economies of the region to scale and to breed a new generation of digital natives, operating and designing systems, capable of serving both the public sector and private enterprises as well.

This digitization and innovation bloom was, as history has indicated, too good to last, especially taking into consideration the special nature and conditions that tangle the Mediterranean region for ages. The world economic crisis achieved a very heavy strike in the region, from which it has not yet recovered. In addition social unrest in North Africa and in the East Mediterranean countries following the Arab Spring even worsened the overall situation, as priorities were scattered and the complexity of challenges that needed to be tackled grew exponentially (Altomonte and Ferrara, 2014; Loukis et al., 2015). As a result, budget cuts were realized in all the sectors of the economy, followed by new fund injection needs to fight the emerging domestic, but also the incoming due to refugees' humanitarian challenges.

Inevitably, the ICTs and digital services were also affected following the pro-cyclical concept (Arvanitis and Woerter, 2014; Barlevy, 2007), as investments have been substantially reduced. Existing systems and services started failing due to improper maintenance and more importantly due to external operation factors that had to do with personnel capabilities, training, and of course the ICT readiness levels of all stakeholders involved in a process, as the fast paces of technology call for constant renovation of existing systems, in order to achieve a minimum degree of operation and effectiveness. In turn, other sectors of the economy were also affected, as they are counting to a large extent on ICT advancements to remain competitive and excel (Arvanitis and Loukis, 2015; Aiginger, 2013b).

Today, new ways and methods are being explored to identify exit strategies from this combined crisis that still persecutes the Mediterranean region. New structural funds are being designed, as well as bailout plans are drawn, while measures are being discussed to avoid the mistakes of the past that accelerated the amplification of the crisis. Digitization and advanced electronic services are coming once again into the foreground as mediums for optimizing the public and the private sectors' performance, seeking ways to reduce the deficit and bridge the gap created between the Mediterranean region and other EU countries of the north.

In this context, the paper at hand aims to reflect and initiate a discussion as part of this special issue on the association among the percentage of the ICT sector on GDP, percentage of ICT specialists in the labor force, use of internet banking, innovation and the economic crisis that hammered the Mediterranean basin. The authors' claims and the discussion topics that emerge are based on the assumption that the virtuous cycle considered above provides a major pylon that could, if put into movement again, contribute largely to overcome the current challenges of the region.

Along the above lines, the paper at hand is structured as follows. The current section serves as an introduction, while Section 2 provides information on the role of innovation and ICT technologies in mitigating (economic) crises. Consequently, Section 3 exposes the choices made in terms of the criteria and the assumptions used to reflect on the issues raised by this paper, outlining as well a number of related indicators and a sample of countries to be considered, followed by Section 4 that presents the selected indicators' actual trend lines. These form the basis for discussion on the correlation of the economic crisis context and the use of ICT in Section 5. Finally, Section 6 concludes the document.

2. Mitigating the crisis

2.1. The role of innovation

Organizations of every level, as well as economies and financial ecosystems as a whole, have been severely affected by the (still ongoing) crisis. This reality has intensified brainstorming on the necessary actions towards effective crisis management, as well as on the correct initiatives and actions to efficiently and effectively mitigate the crisis itself.

Towards this direction, researchers and practitioners have been publishing various perspectives. Perspectives originating not only in the last few years, but in the past as well; a crisis is often seen as a pressure for systems to change. Schumpeter (Becker and Knudsen, 2002) argued already long ago that crises were seedbeds for innovation and entrepreneurship. The launch of new technologies, reshaping of existing industries, and even birth of new one – setting in motion new rounds of economic growth – have been frequently seen as a result of some kind of crisis (Carayannis EG, 2007; Florida, 2009). By examining the historical timing of innovations, economists G. Mensch and C. Freeman concluded that innovations seem to swarm during crises; nevertheless, they seem to be established only when economic conditions are restored (Florida, 2009).

However, from a different point of view, analysts exist who support that too euphoric expectations about innovation may also, at least partially, contribute to an economic crisis (Dubina et al., 2012). One outstanding example, relating also to digital technologies, is that of the IT crisis of 2000. From February until July 1999, Internet-related businesses shares grew by 475% (Negreponi-Delivanis, 2002); however, recession came into view slightly later, providing one of the most prominent examples of a crisis of the “creativity,” “knowledge,” and “innovation” economy (Dubina et al., 2012).

Download English Version:

<https://daneshyari.com/en/article/4957679>

Download Persian Version:

<https://daneshyari.com/article/4957679>

[Daneshyari.com](https://daneshyari.com)