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aim and scope of ASECU

ASECU was founded in 1996 as Association of South-Eastern Europe Economic Universities with the general aim of promoting the interests of those economic universities in South-Eastern Europe which are public, recognized or financed by the state of origin.

By decision taken in General Assembly of 2007, it was modified in Association of Economic Universities of South and Eastern Europe and the Black Sea Region. Presently, Universities and Research Centres are included to the active full members of ASECU from Albania, Armenia, Bulgaria, Bosnia-Herzegovina, FYROM, Greece, Montenegro, Poland, Romania, Russia, Slovakia, Serbia, Turkey and Ukraine. Also, as associated members, Universities form Egypt and Lebanon.

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To provide members with the opportunity exchange information, opinions etc. by publishing a relevant scientific journal or by cooperation in elaborating scientific studies in relation to the future development of higher education and research as well as to improve their quality in the field of economic studies and business administration.

To undertake initiatives for the protection of the interests of members and their institutions, so as to be supported by international organizations and in particular by the higher education institutions of the European Union.

To encourage cooperation between universities inside and outside the countries referred to in the Association.

To pursue cooperation in the field of higher education with the consolidation of close relations with other organisations having similar aims, e.g. E.U.A.;

To provide opportunities for harmonising the degrees of faculties and departments of the universities participating in the Association;

To promote cooperation between economic universities, faculties, departments in the field of research for the benefit of the economy, the society, peace and the cultural development of the countries referred to the Association.

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SUSTAINABLE INNOVATION OF TECHNOLOGY AND BUSINESS MODELS: RETHINKING BUSINESS STRATEGY

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Abstract
The article deals with the overall strategic perspectives of business, technology and innovation management models for sustainable development (SD). Radical changes introduced by new technological breakthroughs and innovation in the light of social, economic and ecological impacts and goals urgently call for new business and technology models and solutions. The new goals and principles of SD highly influence the establishment of a fresh business philosophy with new dimensions. In this article we present a framework that describes the essential relations and new business and technology models. The research results presented contribute to the theoretical background for creating more sustainable business and technology solutions in practice.

JEL Classification: O35, L21, O33
Keywords: Sustainable Development, Innovation, Business and Technology Models

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1. Introduction

Concepts of Sustainable Development (SD) were introduced and have largely been investigated in relation to macro perspectives of economy and society. In the world acclaimed Brundtland Report, SD is defined as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987). Since then, the concept has evolved to focus on three basic principles, defined as the Triple Integrated Equation (TIE), requiring an understanding of the complex interplay of environmental, economic and social processes. The rising awareness and urgency to take action towards achieving SD goals is evident and reflected in the increasing number of countries, organisations, and institutions worldwide committed to these goals; all these agencies adopt common principles, objectives, and instruments. In the past two decades, leading international organisations related to sustainable development, e.g. the United Nations Environmental Program (UNEP), the Coalition of Environmentally Responsible Economies (CERES), the World Commission on Environment and Development (WCED), the World Business Council for Sustainable Development (WBCSD), the World Economic Forum (WEF), among others, have substantially contributed to various perspectives and definitions of sustainable development, sustainability and Sustainable Business Development (SBD). According to one such definition, "SBD involves formulating and implementing business strategies, innovations and initiatives to help create a more sustainable world" (Rainey, 2006; p 28).

Yet, it could be concluded that the clear, comprehensive and consistent meaning is still elusive as indicated by evidence from both theory and practice. Discussions and research for appropriate solutions leading to SD at different levels of the economy and society have been conducted and implemented resulting in an intricate pattern. This means that there is an urgent need for a consistent and comprehensive approach so as to overcome partial solutions. When investigating theoretical and practical contributions, it seems that a wide range of instruments, in different domains and at different levels of society and economy, i.e. education, communication, participation, legal acts and regulations, R&D company acitivities, technology and innovation, business domains, still need to be developed. The challenge for SD is to translate goals, objectives and principles into concrete actions, behaviour patterns and attitudes at all levels, whether macro or micro.

In this article, the focus is on investigating sustainable technology and business models at the micro level. Sustainable business development (SBD) is underpinned by sustainable technology and innovation, while managing technological change has a direct impact on the sustainable competitiveness of business operations (Popa, 2014, Levi Jaksic, 2012).

It is argued that organisations and companies are value-generating agents. They are the crucial bearers of value creating activities in the economy and society and this

is where changes towards sustainable solutions are a priority. At the company level, technology is transferred into primary and secondary business operations for creating, delivering and capturing value through impacting the environment, the economy and society (Porter, 1985; Chesbrough, 2006; Levi Jakšić, 2006, 2007, 2015). Companies are generators of crucial determinants for sustainable development (SD), as "business firms are catalysts and agents of social and economic change" (McIntyre, 201; p xix) and, more specifically, "it is indeed at the strategic level that sustainable development can fully uncover its value creation potential for a company" (Sempels & Hoffman, 2013; p 3). In this context, attention is drawn particularly to sustainable business development (SBD) .

Theoretical aspects of sustainable business development, as shown by actual literature reviews, have not been sufficiently investigated (Chesbourough, 2014; Moore, 2014). Examination of examples in practice and case studies, on the other hand, presented in relevant literature and within different lists ranking the most innovative companies, e.g. the FORBES list, the Fast company list, the BRW list, show a rising interest expressed by companies involved in offering an array of innovative technology and business solutions in practice.

The relevance of the subject is based on the necessity for companies to reconcile sustainability aspects, while also satisfying all stakeholders' needs, ensuring profitability and respecting the diversified demands for the fulfillment of social goals (Adams, 2014; Epstein & Roy, 2001). The ultimate goal is overall quality of life improvement.

It is a radically revised framework that needs to be elaborated, particularly from a company perspective; this means that traditional technology, innovation and business models still present in theory and practice need to be reviewed (Ricart, 2014; Chesbrough, 2003; 2014; Levi Jaksic, 2006; 2015).

Relevant research is based on perspectives of conceptual reflection in literature and analysis and synthesis methods, as well as interpretation and appropriate comparisons.

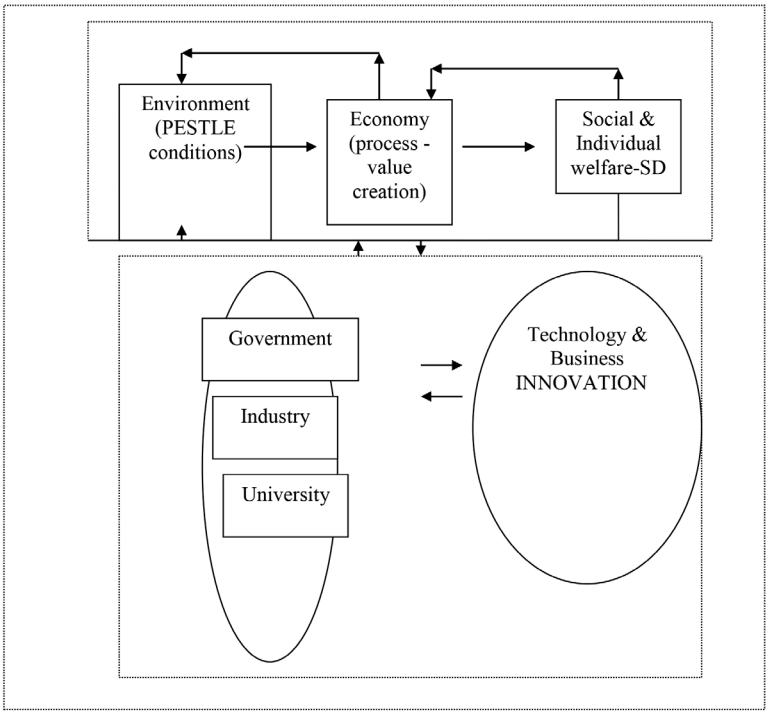
The remainder of the article is organised in the following manner: Section 2 deals with the general model that is based on the three pillars/goals of SD, using a systems approach and represented by an input-process-output model. Section 3 elaborates on the concepts of Sustainable Business Development (SBD) combining external and resource-based views. Technology and businesses are regarded as instigators of problems, while sustainable technology and business innovations are key to solving these problems. Models of sustainable business and technology innovation are presented. Section 4 includes concluding remarks, indicating both limitations and aspects of future research. The paper closes with the presentation of the References used.

2. The general model: technology and business model innovation at the core of sustainable development

Using a systems and process approach, a comprehensive, general model has been developed based on the understanding that "the economy is a means, ecosystems integrity is a condition, and the social dimension is the objective of sustainable development" (Gendron, 2013; p 55).

The complex sustainabiltiy equation is derived from a set of social, economic and environmental equations, known as the Triple Integrated Equation (TIE), corresponding to the three basic pillars of sustainable development. The new strategic management framework of SBD requires "a holistic view of the business environment taking into account social, economic and environmental considerations as well as the more conventional concerns of customers, markets, and competition" (Rainey, 2006; p 9). The new business perspective is brought about by changes to the traditional 'business for profit' strategy and the inclusion of social and environmental principles and goals.

Figure 1. Sustainable development relations: input (environment), process (economy) and output (social and environmental objectives).



Source: Author

The general model (see Fig. 1) considers the three pillars of sustainable development in the context of a systems approach based on an *input-process-output* model. In the general model (see Fig. 1) inputs are factors of the environment – *PESTLE (Political, Economic, Social, Technological, Legal, natural Environment)*, designated as the *social and environmental conditions*, the *economy* is the *process* through which value creation and distribution are achieved, while the fulfillment of *social and environmental goals* are the *output* (based on the consumption of goods and services).

This approach explicitly points out the economic, social and environmental dimensions and factors to be taken into account in all actions performed by the economy and society, as presented by the Triple Helix Model (THM) of Government, Industry and University (Etzkowitz & Leydesdorff, 2000; Levi Jakšić et al, 2014). The tasks of simultaneously fulfilling economic, social and environmental goals are derived from the basic input-process-output model (Fig. 1) and impact all actors within the THM. This means that such goals are affected by demand for sustainability that requires specific tasks leading to changes and innovation in all domains.

Changes in the Industry domain of the THM due to introducing the principles and goals of SD have pointed out the significance of further investigating and innovating business models and strategy. The complexity of business goals to be fulfilled for SBD emphasizes social and environmental, alongside economic and profitability goals. This brings the new concepts of *eco-social business* closer to conventional *business in general* concepts (Schieffer & Lessem, 2009). Although "there is no clear, consensual definition of 'social entrerprise' in the literature" (Bardy & Massaro, 2013; p 140), it is concluded that "sustainability issues are getting more and more important" as sustainable business strategies "not only solve social and economic problems, but also care for the maintenance of resources and bring about resource consumption that benefits the local communities and their environment as well as the revenue interest of their respective national governments" (Bardy & Massaro, 2013; p 143). 'Sustainopreneurship' is a term coined on the basis of earlier conceptual development of social enterprise and entrepreneurship emphasising that entrepreneurship is based on innovation creating new value for economic growth and enabling the fulfillment of individual and social goals represented by a broad set of quality of life objectives. Social entrepreneurship means utilising resources in a transactional way. Resources become tools and are used as much as possible for a specific purpose in both the economic and the social realms. Social entrepreneurship undertakes social activities for a profit, which is subsequently distributed in an effort to create social value (Kardosa, 2012).

Field and Field (2006) argue that social cost components include external costs. It is a cost caused by an enterprise's activity, which burdens society and the environment. Social value is provided by social entrepreneurship by "its business activities which has an impact on society or the environment" (Bagus & Manzilati, 2014; p 14).

The rethinking of business models includes efforts to appraise costs and revenues in a broad social and environmental perspective, while some solutions introduce into sustainable business models Costs and Benefits for Society and the Environment (Sempels & Hoffmann, 2013; p 38).

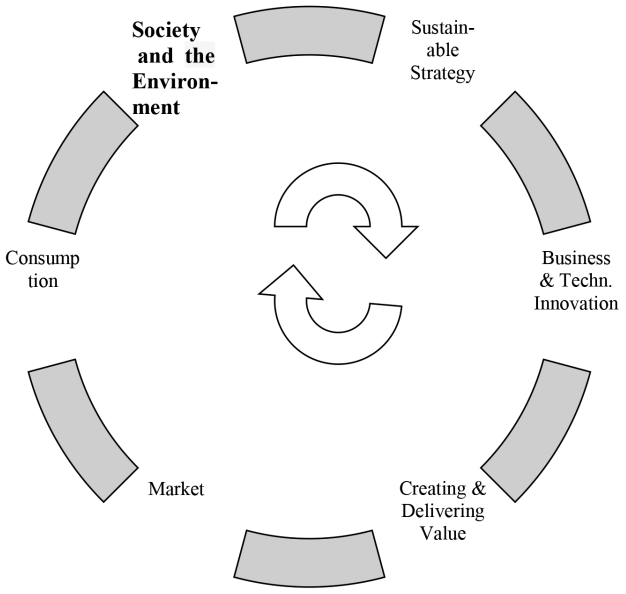
3. Sustainable technology and business innovation model

Within the economy, the *Technology & Business Innovation Models* are at the core of competitive performance (Levi Jakšić et al, 2014). Such models are undergoing radical change and have become the dynamic 'steam engine' for sustainable development, their mission being to create social value while, simultaneously, appreciating the *environment* as a condition and keeping the whole system running, vital and successful. The triple helix actors - government, industry and university - are clearly presented (Fig. 1) as key-vectors of responsibility for innovating technology & business models and for a sustainable development strategy (Levi Jakšić, 2011).

Technology and business innovation drive the economy towards achieving the sustainable development goals set. The technology we use in performing business operations impacts the environment, society and economy, and, consequently, technology and business enterprises are perpetrators of potential damage and cause unwanted effects on economy, society and the environment. At the same time, these actors are key to finding solutions to said problems by developing sustainable technology for sustainable businesses. Hence, where sustainable business strategy is approached through a sustainable business, technology and innovation model, the emphasis is placed on technology and business innovation. (Adams, 2014; Mendelson, 2014; Hall et al, 2010) It is emphasized that the business model encompasses economic, environmental and social issues, and "the business model should be innovated by integrating sustainability in order to build or keep a competitive advantage in an ever changing economy" (Sempels & Hoffman, 2013; p 20).

In the Society and Environment Pull (SEP) Business model (see Fig. 2), a positive circle chain model is presented. This positivity is based on all the links that contribute to the overall strength of the chain. The Society and Environment link, through social and environmental objectives, keeps affecting Sustainable Strategy, leading to Business and Technology Innovation, which further impacts processes of Creating and Delivering Value in the form of goods and services; the latter, in turn, keep reaching customers through the Market, thus influencing Consumption. Society and the Environment, within the closed loop relations presented in the SEP Business Model (Fig. 2), are influenced by all actions and links in the chain. Following the general model (see Fig. 1), Society and the Environment are enhanced, as they are the starting point and they ultimately bear the consequences of the combined result of all actors presented as links in the chain (see Fig. 2).

Figure 2. SEP Business Model.



Source: Author

The comprehensive SEP model combines macro and micro dimensions; it respects the basic relations of achieving sustainability in the macroperspective, while focusing on technology & business innovation as a core factor affecting sustainable development.

Sustainable business competitiveness means achieving a wide range of goals - economic and non-economic - of the firm (Epstein, 2001, Meyer, 2002). It is a concept based on quantitative and qualitative performance indicators, namely, the integration of traditional business performance goals measured by traditional economic indicators (e.g. profitability) applying a set of new, non-economic performance criteria that emphasise the satisfaction of the needs of customers, employees and all other stakeholders. The SBD approach is based on efforts to build sustainable competitiveness while taking into account multiple factors (Meyer, 2002; p 42).

Business model innovation is increasingly becoming a priority for managers in view of creating competitive advantages and achieving superior performance (Velu, 2015). The Triple Integrated Equation (TIE) comprising social, ecological (environmental) and economic functions within the sustainable business development (SBD) concept has incorporated the perespectives of ecology and society to the economic equation already established.

The focus of some studies (Boons & Ludeke-Freund, 2013) on green technology has led to assumptions that our efforts are to be directed towards safe, green technology and that by achieving the goals of environmentally safe technology, issues of sustainable business will have been automatically resolved, too. As a result, focus on green technology and 'pushing' it into the businesses sector appears to be a prevailing concern.

The meaning of SBD exlusive focus on the ecological equation without including economic and social aspects could be perceived as a consequence of the long-term neglect of the natural environment and of actually tackling the very urgent need to take action, against the alarming background of deteriorating soil, water and air quality resullting from irresponsible business operations. Priority for sustainable business strategy means preserving the 'essential' or 'critical' natural capital and "sustainable development is achieved if actions of producers and consumers do not harm air, biodiversity, climate, soil and water, and thus maintain the earth's ecosystem services" (Bardy & Massaro, 2013). Some authors even postulate that the economic and the ecological equation are conflicting, contradictory and opposing each other. These scholars insist that solutions should be sought exclusively through compulsory measures, legal acts and regulations limiting, forbidding and constrainig actions damaging the environment. This could be seen as a reaction to urgent needs only within a short time span. Such a line of thinking might be misleading, since, in practice, we find evidence that 'green' technological and business innovations also make a substantial contribution to economic growth. It is of paramount importance to decouple economic growth from environmental degradation (Machiba, 2013; p 23). In this article we argue for the significance of dealing with the complete TIE of SBD for the long-term, sustainable future.

As result of a relevant literature review and an analysis of the main concepts introduced in this article, we have come to the conclusion that the concepts of sustainable innovation and sustainable business are converging. It is difficult to draw a line, since innovation is perceived as the commercialization of an invention (idea) and refers to the idea being introduced to the market and further transferred. Focus on technology and innovation for the purpose of economic growth and socio-economic development puts pressure on technology innovation towards achieving sustainable socio-economic development. It is stated that

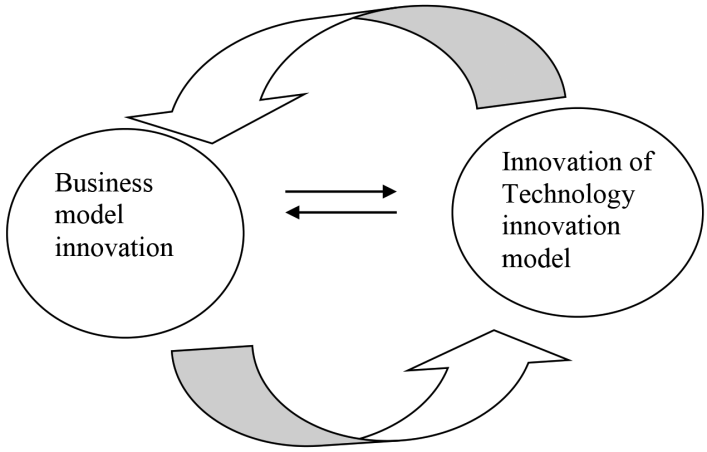
> Research and experimental development (R&D), when appropriately valorized, lead to technological innovation in the form of new products and processes, which contribute to growth, competitiveness and job creation, and which produce other societal benefits. Because of market failures, the private sector, left to its own devices, invests in R&D in sectors not always fully aligned with, and at levels below, the socially desirable, and is unable to fully valorize its research output. (Delanghe & Muldur, 2014).

This means that not all technological solutions are in line with SD goals. The necessity to develop sustainable technological innovation and sustainable business models based on the TIE entails revising and rethinking our traditional technology and innovation models. The 'idea to idea' and complete 'life cycle assessment- LCA' concepts and approaches (Sempels & Hoffmann, 2013; p 78-94) introduced in the early phases of research & development and innovation processes, have led to sustainable business solutions in the complete life cycle perpsective – namely, idea, innovation, market, exploitation, end of life, new ideas for the next innovation cycle. When reviewing relevant literature on the definitions of business models, it is evident that the concepts of technology and business innovation are closely linked: a business model is used as a plan that specifies how a new venture can become profitable. (Boons&Ludeke-Freund, 2013; p 10). A business model is a "market device" (Callon et al, 2007), an intermediary between different innovation actors, such as companies, financiers, research institutions, etc., i.e. actors who shape innovation networks. A business model describes the principles according to which an organisation creates, distributes and captures value (Sempels & Hoffman, 2013; p 35). A business model is a means by which company strategy is established (Sempels & Hoffman, 2013; p 3). An answer to the dilemmas concerning the relations between business models and technology innovation, a dilemma definitely more significant than 'the hen or the egg', can be found in the brief statement by H. Chesbrough (2014) "Innovate the business model, not just the technology"; this is further elaborated as follows: "a better business model often beats a better technology". In this article it is argued that sustainable technology innovation is inseparable from sustainable business, as presented in the Sustainable Push - Pull Model in Figure 3.

In relevant literature, a business model consists of different 'blocks': value proposition, value architecture and economic equation (Sempels & Hoffman, 2013), or value proposition, supply chain, customer interface, financial model (Boons & Ludeke-Freund, 2013).

Sustainable competitive strategy is based on the interaction between the two spheres (see Fig. 3). Sustainable technology pushes sustainable business (SB) and sustainable business pulls sustainable technology innovation (STI). The business and technology relations presented in a push-pull manner (Fig. 3) lead to an understanding which can affect practical solutions. The push-pull model unveils essential relationships between technology and business, leading to continuous innovation in an effort to create an SBD strategy and find solutions in concrete real-life circumstances.

Figure 3. The sustainable model of PUSH-PULL relations between SB and and STI models.



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4. Conclusions

The input-process-output model of SD focuses on the economy as a dynamic process through which new value is created in order to increase overall welfare, satisfaction and benefits for society. The driving force of economy dynamics is the use of technology by businesseses so as to develop operations leading to the generation of new added value in the form of goods and services to be consumed and used so as to further increase social benefits and welfare.

The broad concept of technology management entails incorporating technological issues in all aspects of business development. We develop the SEP model that starts and ends with the societal and environmental conditions, objectives and goals. Furthermore, a sustainable Push–Pull model in regard to the relations between a sustainable business model and Technology Innovation calls for business and technology innovation efforts aimed at reaching SBD.

Rethinking strategy means setting the sustainability TIE as the overall business goal and deriving means for its fulfillment through sustainable business and technology innovation. Although sustainablity encompasses the complex TIE, in practice it is often noted that sustainable business goals are achieved through the mere implementation of green technology. In this article it is argued that the complete effects of SD can be achieved only by combining innovative efforts when trying to reach sustainable technology innovation and sustainable business model innovation in practice. Focus on rethinking new models of sustainable business and technology

innovation in this article addresses a theoretical framework that is of great significance to more widespread SD business solutions. In this article, the SD approach revolves around the three crucial dimensions of TIE in relation to technology, but also related to business model innovation, since it is observed that "while creating and delivering customer value, the business model itself can become a source of competitive advantage by means of business model innovation" (Boons & Ludeke-Freund, 2013; p 10).

The conclusion we have come to is that the concepts of sustainable technology innovation and sustainable business models are closely related, but differentiation arises due to push-pull dynamics. This is a continuous process where both technology and business model innovation in concrete circumstances act as push or pull factors. Sustainable technology innovation can 'push' or 'pull' in search of a sustainable business environment that can be reached through business model innovation, and sustainable business model innovation creates the business environment for 'pulling' or 'pushing' sustainable technology innovation. Future research in the complex nature of such relations will be directed towards a more detailed analysis of the principles, goals and methods involved in sustainable technology and business models.

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GREEK SOVEREIGN DEFAULTS IN RETROSPECT AND PROSPECT[1]

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Abstract
This article focuses on and critically reviews the four Greek sovereign defaults (1827, 1843, 1893 and 1932) and puts them into historical perspective. The argument is that each and every one of the defaults was not an isolated episode in the turbulent economic history of capitalism, but, rather, a manifestation of the internal weaknesses of the Greek economy magnified during the downturn phases of the 1815-1848, 1873-1896, and 1921–1940 long waves. Crucial for understanding the conditions that triggered these defaults were the short-sighted and often opportunistic policies adopted by the Greek governments of the time, which were eager to increase public spending based on borrowed money, thus contributing to a mounting public debt. As a consequence, Greek sovereign defaults of the past are worth studying in an effort to derive useful lessons and draw economic policy conclusions.

JEL Classification: B50, F34, N13, N14, N24
Keywords: Sovereign default, depression periods, long waves, Greek economy

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1. Introduction

This article focuses on a critical review of Greek sovereign defaults that occurred following the 1821-1827 War of Independence against the Ottoman Empire. The main thesis of the paper is that, from the very beginning, the Greek economy was well integrated into the world economic system as this can be inferred by a) its heavy borrowing even before the creation of the official national state, b) the size of the foreign sector of the economy, c) the fluctuations in exchange rates, d) the entrance to monetary unions (such as, for example, the Latin Monetary Union), e) the international character of the country's shipping along with the financial sectors of the economy[2]. By virtue of its small size, relative to its major trading partners, Greece was affected to a greater extent by the ebbs and flows of world economic activity. Generally speaking, during their expansion stage, smaller economies may benefit, but, in cases of world economy's contraction, weak economies may suffer the most, as they become even more default-prone. The four default instances of Greece teach important lessons and also help us think of economic tools that can be utilized to ameliorate, if not prevent such a dismal state of affairs for the public benefit. Furthermore, we will argue that all serious past economic downturns of long waves of economic activity, during the 1815-1848, 1873-1896 and 1920-1940 periods, led the Greek economy to sovereign defaults; nevertheless, these defaults soon activated economic forces and led to the implementation of policies which facilitated the economy's vigorous recovery. This is particularly true in the defaults of 1893 and 1932, which we study more closely. The first two defaults were significant in their own right, but the lack of adequate data makes us focus more on the 1893 and 1932 defaults and their aftermath period. It is important to stress, at this point, that the slowdown in the economic activity in the 1970s and 1980s, that is, during the so-called silent depression, also led the Greek economy to the verge of default. The same is true about the Great Recession that started in 2007 and nearly led the economy to a certain default which was typically avoided, up until the writing of this paper, mainly as a result of the European Union's intervention and financial support.

A typical long wave in economic activity bears the following features, which may explain the higher frequency of debt defaults in down phases, especially when it comes to weaker economies. More particularly, in the upswing phase, the world economic activity is characterized by rising profitability, which encourages investment and builds up increasingly higher volumes of fixed capital stock. The latter, past a certain point, lead to diminishing returns on new investment, thereby discouraging investment spending. Under these circumstances, the financial sector of the economy, in its effort to recover its old loans (the major output of the finance

2. See for instance, Lazaretou (2005), Tsoulfidis (2015), ch. 10 and the literature cited there.

industry) is bound to "sell" new ones along with other financial products. However, new loans require the expansion of economic activity in the real economy, which may become possible through lower real interest rates and softening of lending standards. Under these circumstances, the financial sector of the economy expects to compensate for the lower real interest rates by expanding the amounts of new loans to exceptional highs. This is the time when financial bubbles build-up and when they burst, this indicates the end of the rising phase of the long cycle. Meanwhile, lesser developed and weaker economies would like to massively borrow in the international markets so as to take advantage of the lower real interest rates and, in so doing, to make up for losses in tax revenues and foreign reserves due to the slowdown of economic activity, thereby falling increasingly behind their inelastic and, perhaps, rising non-productive government expenditure. The reasons for such a widening gap between tax revenues and government expenditure might be the usual promises by political elites to their voters concerning standards of living converging with those of consumers in richer countries, thereby increasing consumption expenditure and imports of luxuries. The gap may also include conjectural, but truly serious reasons, such as rising defense expenditure in anticipation (or prevention) of wars or even actual wars and their aftermath. Excessive borrowing, however, leads to rising, and eventually unsustainable, sovereign debt. International lenders, in their incessant effort to acquire profits in cahoots with the local governments, end up producing, in a prisoners' dilemma-like manner, the worst outcome for all, that is, sovereign default. Each of the defaulted countries, of course, leaves its own imprint on the post-industrial revolution economic history of sovereign defaults; the four Greek defaults that we are about to discuss, despite their idiosyncratic characteristics, follow the sequence of events typically associated with weaker economies during long downturns of international economic activity.

The remainder of the paper is structured as follows: Section Two briefly deals with the 1827 and 1843 defaults. Section Three discusses the default of 1893. Section Four deals with the default of 1932. Section Five summarizes and makes some concluding remarks with regard to the situation in the late1980s, as well as the current predicament of the Greek economy.

2. The First Two Defaults, 1827 and 1843

During the Greek War of Independence against the Ottoman Rule (1821-1827), the "interim government" received two international loans of 2.8 million pounds through the London market, in 1824 and 1825, in order to finance the War. In his classical study, Andreades (1904, p.90) wrote that the loans were given at very high discount rates (nearly 55 and 59 percent of the face value of bonds) and only twenty percent of the loans were, in fact, received (G. Dertilis 2006, p.117). Furthermore, Finlay reported that "the first sums, which arrived from England in 1824, were absorbed

by arrears due on private and public debts" and that the remaining funds were distributed among the different fractions of warlords and quickly vanished (Finlay 1861, vol.2, pp. 38-41). The interim Greek government was not in a position to pay back the annuities, due to lack of sufficient public revenues, and declared a default two years later. International interest in the outcome of the Greek Revolution was also concerned about the money lent to the interim Greek government. Not incidentally, only a few months after the default, the allied fleet of England, France and Russia destroyed the Ottoman armada at the naval battle of Navarino (20/10/1827). In the London Protocol of February 1830, the Greek Government agreed to pay back the two loans as a prerequisite condition for the independence of the New Greek State to be recognized by the Allies. Additionally, national lands where offered as a collateral warranty.

The protocol of 1830 was again amended in the London Convention of May 1832, which established the borders of Greece that became a sovereign kingdom. The first-king was the young Bavarian prince Otto, whose arrival was accompanied by a new loan of 60 million golden French francs under the tutelage of three great powers (the UK, France and Russia). Most of the money borrowed, however, was spent for the payments of the old loans and only 2.7 million French francs, out of the 40 million actually received, were invested in providing infrastructure for the new state (G. Dertilis 2006, p. 123). Given the world depression of 1815-1848 (downturn phase of the first Kondratiev long wave) and the dismal economic situation in Greece, especially in the 1840s, and also taking into account that Greece did not receive the third installment of the 60 million loan, it was not surprising that after the failure of the Greek government to meet its obligations for three consecutive years, Otto declared a second sovereign default in September 1843. As a consequence, Greece remained out of the financial markets for the next 35 years (cf. Reinhart and Rogoff 2011, pp. 1678-9). Private foreign debtors pressed their governments to utilize every possible means to make Greece start repaying its international debt obligations. The military occupation of the port of Piraeus, from 1854 to 1857, by French and English naval forces during and after the Crimean War, was followed by the imposition of a Memorandum (of Understanding) containing a detailed list of policy measures forcing Greece to meet its debt obligations. In addition, foreign Governments placed their representatives into key Greek Ministries in order to ensure effective implementation of the agreements. It is important to emphasize that not only Greece, but also a host of other countries, including almost all countries in Latin America, defaulted during the recessionary phase of the first long wave.

The austerity measures taken in July 1843 bear striking similarities to those of the three recent European Stability Mechanism programs in Greece. Thus, one-third of public employees were laid off, while those who kept their jobs were forced to accept a salary cut of 20 percent. Pensions were no longer paid, although the few

pensioners were mainly military people and other public employees. The government also reduced its military expenditure and its public investment. Taxation was increased, especially tariffs on imports. Further measures included pardoning illegal constructions, which could be legalized by paying a certain amount of money and the same measure was applied in cases of occupiers of public lands who, thus, could acquire ownership. Moreover, the government, in order to maximize its tax revenues, decided that people's past tax obligations would be paid only to a fraction of total payments due. The economic situation combined with the absolute rule exercised by the Monarchy led to the creation of a popular front asking for a Constitution, which was granted on September 3, 1843.

Finally, Otto was forced to resign in 1862. He was replaced by the Danish Prince George who was endowed with the Ionian Islands; he was also given a "haircut" of 300,000 French francs on the loan of 1832, as an advance against future royal expenses. Despite these dramatic changes, Greece remained a failed state which stayed outside the international financial markets for quite a long time.

3. The Depression of 1873-1896 and the third Greek sovereign default

During the 1873-1896 period, the world economy underwent a "long depression". This was reflected in falling prices, falling interest rates, and profit rates and also in rising unemployment rates, which were well above the ten percent benchmark in the US economy that signifies the transition from a recession to a depression (Heilbroner 1993). As Hobsbawm (1994) argues, this crisis encompassed the world economy and corresponds to the downturn phase of the second Kondratiev long wave of 1848-1896. The salient feature of this downturn phase was its long duration and the fact that it was not deep enough to create massive business failure and lasting unemployment. If only this was true, the conditions of profitability would have been restored by the devaluation of fixed capital resulting from large-scale innovations and the significant fall in real wages as a result of rising unemployment. The long depression was not as deep as that of 1815-1848, although it was more international; it most likely started in the advanced economies and soon spread to the rest of the capitalist world economies.

A dramatic consequence of the 1873-96 depression was the decline of the volume of international trade, as a result of the imposition of protectionist measures taken by most countries. Except for Britain, Denmark and the Netherlands, which kept their import duties low, no other advanced economy remained faithful to laissez-faire policies after 1879 (Graff et al. 2014, p.75). The Greek exporting sector, for the most part of the depression, was favorably affected, because it was almost exclusively based on a single exporting product (the Corinthian currants) whose international demand was rising for purely conjectural reasons. In particular, the attack of French vines by Phylloxera infection, between 1867 and 1889 (Hobsbawm 1987, p.36). The rest of the

traditional farming sector, as well as the infant Greek industry, were not affected in any serious way for reasons that have to do with the nature of a small rural economy without any strong domestic or international connections. This was not true for the financial sector of the economy, which was continually under pressure to serve the monetary needs of a State running deficits and pumping money into the economy, thus creating inflationary pressures or taxing and impoverishing people. By the end of 1885, Greece was, once again, undertaking war preparations, and, therefore, it ran budget deficits with its monetary policy completely out of control. Thus, though Greece managed to stay on the gold standard for nearly nine months in the year 1885, from the end of that year onwards, the country was forced to run large budget deficits, thereby accumulating a huge public debt (see Figure 1).

Strange as it may seem, the Prime Minister Harilaos Trikoupis, during his seven (non-consecutive) mandates from 1875 to 1895, and despite his liberal beliefs in the classical economic theory of minimal government interference in the economy, ruled that liberalism could only be effective once the country attained a sufficiently high level of economic development. This is the reason why he did not hesitate to apply active government policies and particularly effective demand policies many years prior to the establishment of this principle by Keynes (1936). Trikoupis' idea was that one needs to initiate the conditions that will lead to economic growth first, which, in the absence of a strong private sector, can only come via major Government intervention to provide the necessary support to market forces. Once the market forces become strong enough, the Government's role should return to its usual minimal functions (protection, distributive justice and provision of money). Economic growth required the creation of large-scale infrastructure investment projects (road and railway networks, harbors, land reclamation works and the like) and, also, tax reforms and the reorganization of the state and the army. This unquestionably ambitious program was mainly financed through international loans. Such financing was much easier than one would think mainly for two reasons. Firstly, the Greek government in those years and under Trikoupis' leadership appeared to be more reliable than ever, and, secondly, as a result of the Long Depression of 1873-1896, there was a great deal of dormant international liquid capital in search of profitable opportunities. Thus, the somewhat higher interest rates offered by the Greek government were lucrative enough for Europeans bankers, who were eager to provide the necessary financing to the Greek government.

The idea behind these policies is that investment spending on infrastructure with borrowed money, in conditions of underutilization of capacity, will increase both employment and incomes and, with these, future taxes (Tsoulfidis 2010, ch. 10). So the government will be able to redeem its debt, keeping all the benefits resulting from the use of the infrastructure. It comes as no surprise that, during those years, Greece experienced a slowdown in economic activity coupled with inflationary pressures similar

to those experienced by OECD countries a century later during the silent depression of the 1970s and 1980s. Trikoupis was, we dare say, an "unconscious Keynesian", whose economic policies moderated the negative outcomes of the international Depression. Trikoupis was fully aware of the limits of the model of an exporting, single-sector, agricultural economy with currants being the major exporting product, and he tried to strengthen the industrial sector in an effort to create domestic demand. He, therefore, planned a long-term policy of major reforms and public investment projects in order to sustain economic development. In fact, public investment in 1890 grew to 28% of total public spending, excluding annual debt spending (G. Dertilis 2006, pp. 675-6; Tsoulfidis 2015, ch.8 and the literature cited there). In an effort to finance his ambitious public expenditure plans, mainly concerning modern infrastructure (railroads, harbors and the Corinth canal), Trikoupis completely reformed the taxation system in Greece. In particular, he abolished the tithe on agricultural production because he considered it a feudal relic and increased the general rates on tariffs and indirect taxes. Thus, while before Trikoupis, in 1871, indirect taxation had represented 53.9 percent of total tax revenues, corresponding to 4.8 percent of GDP, twelve years later, indirect taxation increased to 74.3 percent of total tax revenues and 8.7 percent of the Greek GDP (G. Dertilis 2006 pp. 714 and 722; Tsoulfidis 2015, pp. 206-7).[3] At the same time, Trikoupis made valiant efforts to attract entrepreneurs from the Greek Diaspora; in fact, he managed to do that without any pre-requisite conditions. As a result, most Greek entrepreneurs invested in banking and real estate sectors of the Greek economy and, unfortunately, not in manufacturing or other production activities.

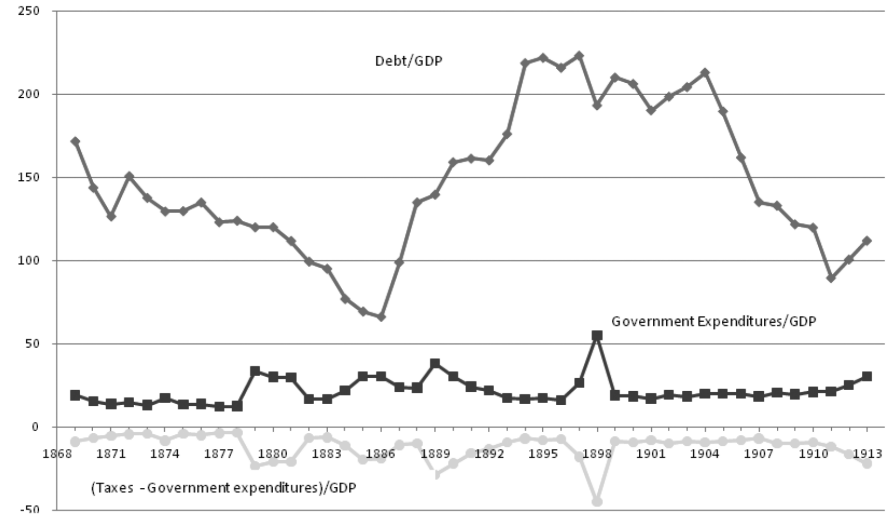
In light of the above, it became a necessity to find foreign financing and Greek political leaders worked very hard to obtain the fourth loan in 1879, which amounted to 60 million French golden francs. Andreades (1904, p. 111) wrote that, in order to receive the loan, Greece was threaten by Chancellor Bismarck not to ratify the Treaty of Berlin (1878) concerning the annexation of Thessaly and part of Epirus to Greece. A prerequisite condition for the ratification of the Treaty was that the German lenders would be repaid for the loan of 1832. Additionally, all individual investors who bought Greek bonds on the secondary market at a pittance (namely, 5 percent of their nominal value) had to be repaid. The Greek administration, as others before and after it, faced the same harsh dilemma: there are only few lenders in the world financial markets and they lend out their money collectively. Thus, when a government is in need of financing, then new loans may be granted if, and only if, all previous loans have been fully served, including whatever interests have accumulated in the meantime. The new loans, by and large, carry higher interest rates than those to other, safe borrowers for obvious reasons. Under these conditions, Greece borrowed

3. See also Lazaretou, 2015 for similar estimates.

639.7 million French francs from abroad, thus increasing the external debt of the country by nearly seven times. Yet, less than 20% of these relatively large amounts of money were finally invested in productive uses, since a great deal of it was used to pay annual obligations of past loans (Tsoulfidis 2015, pp. 204-205).

The ongoing world economic crisis unfolding after 1873 did not leave the Greek economy unaffected as exports of currants collapsed in 1890, together with foreign exchange reserves. The result was that the government had no adequate foreign reserves to redeem its huge annual debt obligations to its lenders. Trikoupis made an international effort to get new loans, but in vain, and in December 1893 he declared the country defaulted, in spite of the fact that the annual primary deficit (taxes minus government expenditure) to GDP), in Figure 1, declined from the previous trough of -28 percent to less than -10 percent in 1893, and the ratio of public debt to GDP came to 175 percent and remained much higher until the year 1905, as shown in Figure 1 below. Hence, the collapse of the leading Greek export-oriented sector of the nineteenth century, the currant, might bear a great deal of the responsibility for the lack of adequate foreign reserves, which could have been used to pay back international loans, thereby triggering sovereign default. It should be pointed out that what forces weaker economies to declare sovereign defaults is external rather than, necessarily, domestic public debt (see also Reinhart and Trebesch, 2015).

Figure 1. Public debt, government expenditure, and primary deficit as a percentage of the GDP, 1869-1913[4]



4. The data for the primary deficit comes from Lazaretou (2015), whereas public debt data comes from Reinhart and Rogoff (2011) and the GDP from Kostelenos *et al.* (2007).

Economic policy measures taken immediately after defaulting included payments of interest to foreign lenders at 30 percent. They excluded domestic bondholders, mainly the Greek banks. In the negotiations with foreign lenders in Paris, in 1896, what is nowadays known as a Private Sector Involvement (PSI) was attempted. The Greek side proposed a "haircut" of interest payments at 40 percent of loans and the capitalization of one part of revenues from the government-owned monopolies, such as tobacco, to foreign lenders. Negotiations failed because of excessive demands by the lenders, who asked their respective governments to apply pressure on the Greek government for full repayment of the country's loans.

It has been argued that the War of 1897 between Greece and the Ottoman Empire was prompted, in one way or another, by the lender countries. The latter did not need to try hard to achieve such a goal, because during those turbulent years and with the question of Crete gaining autonomy from the Ottoman Empire open, many "hyper-patriotic" individuals were acting so as to increase tensions in the borders between the two countries. The reasons for frictions were always there and the 31 days' war found the Ottoman troops on their way to Athens. The Greek government asked the lending countries for help. They were more than willing to offer their "good services" immediately. Hostilities ceased at once, and Greece came out of the war almost without territorial losses, but with a humiliating war indemnity to the Ottoman Empire added to its existing obligations. Finally, Greece received yet another humiliation, namely, the presence of an International Financial Commission (IFC) the members of which were representatives of Britain, France, Germany, Austria, Russia and Italy. The word "commission" is rather a euphemism, because the IFC extended its jurisdiction from the management of all taxation to the way in which the Greek government conducted its monetary policy. Despite these heavy measures, the Greek economy managed to recover quickly. Within the next fourteen years (1898-1911), the real Greek GDP grew annually at 3.8 percent and the Greek drachma became once again a strong currency; in effect, in the year 1910, it attained parity with the French franc, which was the currency of international transactions (Tsoulfidis 2015, p. 234).[5] The IFC formally remained in Greece until after World War II, and, although replaced by the Monetary Committee of 1946, the IFC formally expired in 1977!

5. The annual average growth rate is estimated as the natural logarithm of the ratio of two GDPs divided by the number of years. GDP data in constant 1914 prices is available in Kostelenos *et al.* (2007) also reproduced in SEEMHN (2014).

4. The Great Depression of the 1930s and the fourth Greek Default

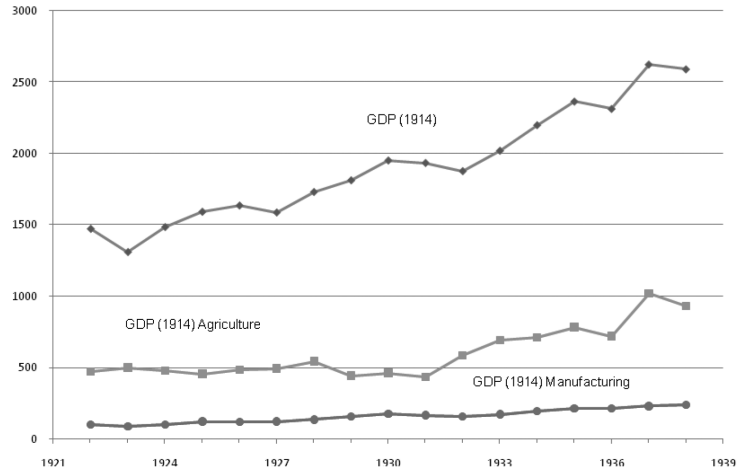
The crisis of the 1930s was an unprecedented overproduction crisis: the global economic system produced far more commodities than it was able to absorb. Public overspending during World War I, huge Europeans' external debts to the US, collapse of international agricultural prices, as well as the crash in the New York Stock Exchange were serious but only secondary effects compared to the failure of the system to cope with rising productivity in the first quarter of the twentieth century (Graff et al. 2014, p. 207). The downturn spiral after 1929 led to the following chain of events: falling prices; rising bankruptcies; falling industrial production; increasing bank default rates; growing unemployment and expanding social misery. Moreover, the hitherto most severe economic crisis on record brought on totalitarian regimes throughout Europe and paved the way for the devastating Second World War (Hobsbawm 1994, pp. 145 ff.).

The consequences of the Great Depression were not equally distributed among capitalist countries: they were much worse in the USA, Austria, Germany and France, where negative growth rates in the real GDP ranged between 20% and 30% from 1929 to 1938. In Great Britain, Belgium and the Netherlands consequences were not as severe and they were of a minor character in Greece, where the growth rate of the real GDP was negative only for the years 1931 (-0.87%) and 1932 (-2.96%); after 1933 it rebounded to positive average growth rates of 5.6% for the remaining years (see Figure 2 below). The crisis reached Greece mainly through the slowdown in international demand for its chief agricultural products, mainly currants and tobacco (which represented almost 10% of the GDP and 70% of the value of the country's exports). Money transfers by Greek emigrants and sailors also decreased dramatically. Our estimates show that in 1930 remittances were 10.1% of the GDP, but dropped to 4.4% in 1932 and even further thereafter with obvious consequences for the country's ability to pay for imports and its external debt. On the whole, however, we conclude that during the crucial depression years of 1929-1932, Greece did not suffer such dramatic consequences in terms of output and employment as other countries in Europe. In particular, its manufacturing production in 1932 was, on average, somewhat higher than that of 1929. However, this is not true, if we consider every single branch of the manufacturing world, nor if one looks at the Greek economy as a whole (Tsoulfidis 2015, 285-6). The good performance of many manufacturing sectors had to do with the government's industrial policy and the low wages, a result of the surplus labor force following the Asia-Minor expedition disaster in 1922 and the arrival of 1.23 million Greek refugees.

In brief, the crisis had an asymmetrical effect on different sectors of the Greek economy. Average agricultural production grew during the 1922-1928 period and experienced a significant fall between 1929 and 1932, i.e. the worst years of the great depression (see Figure 2). Furthermore, even if official statistics underestimate unemployment, at its worse it tripled between 1928 and 1932, but remained rather

low at 8.6 percent (Tsoulfidis 2015, p. 275)[6]. Furthermore, unemployment was intensified for specific reasons, such as the new industrial organization in the textile and tobacco industries, the introduction of new mechanized processes and the replacement of skilled male labor by unskilled female labor. Thus, workers' income decreased, while the average income of city dwellers diminished only slightly (Tsoulfidis 2015, pp. 275-6). In Figure 2 we observe that real GDP remained stagnant in the 1922-1931 period. This is particularly true in the agricultural sector of the economy, the GDP of which reached a trough in 1931, the worst year for agricultural production. On the basis of available data, it becomes clear that during the worst years of the world economic crisis, i.e. 1929-1932, Greece was not affected as severely as many other countries. A few years prior to the collapse of the stock market, there had been systematic efforts to reform the Greek economy through new institutions, such as the establishment of the central Bank of Greece, and, also, through specific policy measures aiming at the protection of domestic production and monetary stability (inflation and exchange rates), which contributed to the expansion of domestic production and, in particular, agricultural, which within the 1931-1937 period doubled its production aspiring to make Greece self-dependent. Taking the full 1929-1938 period into account, agricultural production increased at an annual rate of 8.24 percent, while total economy increased at an annual growth rate of 3.96 percent (Tsoulfidis 2015, p.273).

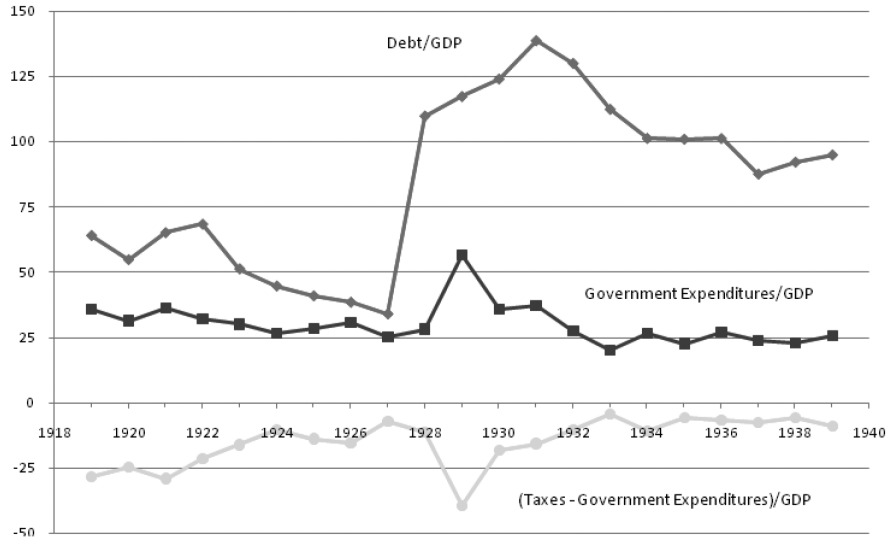
Figure 2. GDP of the Greek Economy, total and sectoral, 1922-1938



6. Extreme caution should be exercised when interpreting such percentage rates. First, because, although the number of the unemployed more than tripled in 1932, as compared to 1928, these were estimated against the civilian population and not against the labor force. Second, the population in Greece was mainly agricultural; as a result, unemployment statistics figures do not convey the exact same meaning they do nowadays.

This kind of policies, in an international climate of credit relaxation, allowed the Venizelos' government to borrow in international markets and to finance its ambitious plan of public infrastructure investment. The main idea was that revenues expected from investment would allow future settlement of the debt accumulating to dangerous proportions. The burden of annual debt obligations is displayed in Figure 3 below along with government expenditure and budget deficit or surplus, both expressed as percentages of the GDP. Debt size plays an important role in the way a country effectively responds to its international obligations. However, in the event of a recession, when the exports of a country sink, foreign exchange reserves available remain too short for settling the debt. Consequently, the government has no other option, but to search for new loans, otherwise, defaulting becomes inevitable (Reinhart and Trebesch, 2015).

Figure 3. Public Debt, Government Expenditure, and Primary Deficit as a percentage of the GDP, 1919-1939



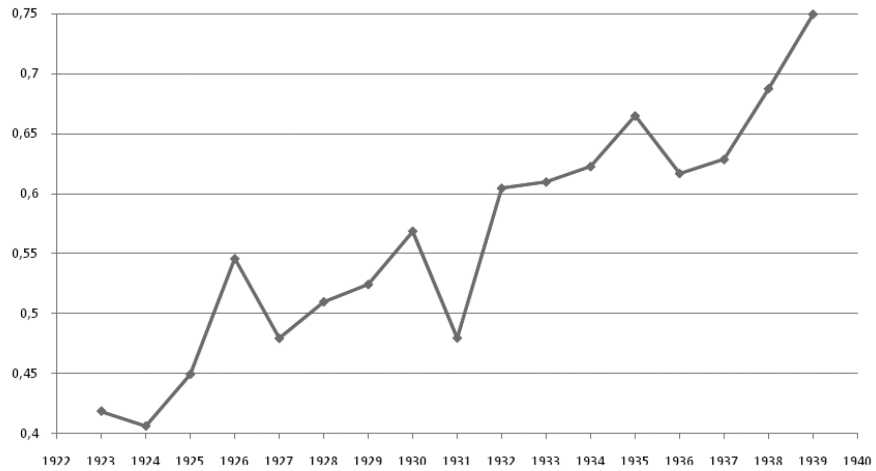
The data for public debt comes from Reinhart and Rogoff (2011) and are quite similar to those reported by Mazower (2002, p. 397), at least for the crucial 1928-1936 period. Data on taxes and government expenditure were taken from Lazaretou (2015). Finally, GDP data come from Kostelenos et al. (2007); as for the year 1936, data on taxes were missing, so primary surplus to GDP ratio was estimated by taking the average of years 1935 and 1937.

The Depression of 1929 literally led to a breakdown of the international financial system and made it impossible for the Greek public debt to be refinanced. Venizelos, in the first three months of 1932, visited Rome, Paris, and London in a futile effort to find the support he needed from the allied governments and the League of Nations to mediate for new loans. In other words, Venizelos remained trapped in his "hard drachma" doctrine keeping the national currency fixed and pegged to the Gold exchange standard with grave consequences exacerbating the depression and the ability to service public debt. After the withdrawal of the British pound from the Gold Standard in 20/9/31, the Bank of Greece endorsed a Sisyphean effort of keeping the level of deposits in foreign exchange more or less stable. Despite the closure of Athens Stock Exchange, and the rise of interest rates from 9 to 12%, the outflow of money, foreign reserves and gold continued. Gold backing of drachma was reduced to less than 27% (from the desired minimum of 40%) within a few weeks in the beginning of 1932. Annual debt obligations rose to 70% of the government budget in April 1932 and no "haircut" was accepted by lenders. Venizelos had to take a number of strong monetary measures including bailing-out Greek creditors, refusing to pay back payments to external creditors, devaluating the drachma by nearly 60%, withdrawing the national currency from the international markets and, finally, announcing sovereign default on 26/4/1932 (Psalidopoulos 1989, pp. 89-90, Lazaretou 2015). That was the fourth bankruptcy of the Greek State and its first in the twentieth century.

Greece reversed the outflow of money and in order to survive, which was followed by a policy of self-dependence encouraging the growth of domestic production. The recovery came quite early, but too late for Venizelos, who lost the elections in November 1932. Devaluation boosted the exports of tobacco and other agricultural goods. Moreover, the bail-in economized a significant amount of funds (about 10% of public spending) which was used for public works. The Opposition Populist Party followed a strong interventionist, nationalistic, and sectarian policy to amplify the social consequences of the crisis and counterbalance political upheavals. Within three years, from 1933 to 1936, such measures failed to prevent three military coups, three general elections, five different Governments and the disappearance of six major political leaders. In 1936, a fascist-like regime was installed to fill the political gap created by the failure of the ruling parties. Notwithstanding his authoritarian political program, Metaxas followed the same interventionist economic and social policy launched by Venizelos' Finance Minister Varvaressos, maintaining some members of the previous political and financial establishment. Industrial protection was intensified: some 567 new factories were built, while the labor movement was crushed and its leaders persecuted. In 1937, Greece's industrial production index (see Lazaretou 2015) stood at 79.1%, higher than in 1928! Agricultural production recovered thanks to 'forgiving' defaulted agricultural debts; it also enjoyed protection from foreign competition. As seen in Figure 3 above, agricultural GDP grew at an

annual rate of 7.8% between 1932 and 1938[7]. By 1935, Greek agricultural GDP met 78% of aggregate domestic demand. Things were also very positive for the exporting sector, which was based on trade clearings with a number of countries and, especially, with Germany, Greece's major trading partner.[8] Figure 4 below shows that the ratio of exports to imports (both estimated at 1930 prices) kept increasing over the years, as a result of rising exports at a rate of 6.59% which by far exceeded the growth rate of imports, which was at least two times lower (2.95%) during the period examined.

Figure 4. Exports to imports ratio, 1923-1939[9]



5. Concluding Remarks

The study of Greek sovereign defaults reveals that they were not isolated episodes in the turbulent economic history of capitalism, but, rather, they took place during the downturn of world economic activity along with the defaults experienced in other countries. As we learn from the economic history of five long waves spanning a period of nearly two and a half centuries, sovereign defaults take place at a higher frequency during the downturns of long economic cycles. For instance, in the recent phase-change of the world economy that started at the end of 2007, we witnessed a number of diverse EU economies coming close to the verge of financial collapse.

7. Our estimates are based on data from Kostelenos et al. (2007) GDP data.
8. Greece exported tobacco and cigarettes to Germany in exchange for agricultural tools and military ammunition. Clearing trading agreements between countries were widespread during the late 1930s.
9. Data series from Lazaretou (2015), also SEEMHN (2014).

This was particularly the case with Spain and Italy, two supposedly large and strong economies, as well as Ireland, Portugal, and Greece, three countries with not so strong economies, which would have certainly defaulted, had there not been financial aid from other EU countries. As a result, the list of defaulted countries is not restricted to "the usual suspects" such as Argentina, Mexico and Balkan countries, but extends to include "countries above any suspicion" such as France, Germany, Russia, and China, among many others. It goes without saying that some countries of Africa, Asia, and Latin America may default without the world economy being necessarily in the depression stage of its long wave.

With this we do not mean to say that sovereign defaults are like natural phenomena created by global depression periods. On the contrary, we simply argue that sovereign defaults reveal the chronic problems and the structural weaknesses of an economy and the wrong economic policies which simply precipitate a country's propensity to default. In the case of the four Greek defaults for the 1824-1939 period, it is worth noting that 70 percent of the loans were used for consumption purposes (including military ones) and of this 70 percent, 16 percent was used for issuance expenses. If we also take into account domestic loans, then the non-productive uses of total loans amount to 91 percent (Koulis 1968, p. 281). It is important to note that all domestic loans in the Post-WWII period were really 'annuled' by hyperinflation. The monetary reforms of November 1945 introduced the new drachma, which was set equal to 50 billion old drachmas. And the 16 billion prewar (public and private) debts literally evaporated because they were worth a fraction of their previous value in terms of the new drachma. Continuous budget surpluses in the 1950s and 1960s achieved the repayment of all the old foreign debts of Greece until the year 1968 or earlier. The total public debt of Greece as a percentage of its GDP ranged from 12.8 in the 1950s to 20.9 percent of the GDP in 1964 (P. Dertilis 1968, p. 219).

This situation changed by the end of the 1970s when public debt started its upward trend and by the end of the 1980s, Greece came very close to defaulting and remained in that critical state for the next few years. However, the conditions had already changed and the world economy entered a new phase of economic growth, the financial aid from the European Economic Community and the austerity measures that followed kept the public debt in a downward trend until 2001, when Greece became a member of the Eurozone. In the years that followed, public debt increased and became unmanageable with the onset of the Great Recession in 2007, which revealed the structural imbalances of the Greek economy and led to the imposition of the first Bailout packet in 2010. Although there was no official sovereign default of Greece following the rich terminology of defaults, we could call the failure of Greece to pay its loan obligations to the IMF in June 2015 an "excusable default". However, as compared with the sovereign defaults of 1893 and 1932, we observe that the economic consequences of the post-2010 years have been by far more significant

in terms of losses in output, income and, worse of all, unprecedented unemployment rates. A sovereign default was officially avoided, as a result of the financial aid from EU countries and the IMF.

Internal economic problems due to everlasting structural inefficiencies of the Greek economy (tax evasion, a deficient pension system, low competitiveness) were created by incompetent political elites seeking to consolidate their power through a 'clientele relationship' with the electorate body. In this paper, we have argued that international fluctuations and crises are crucial factors for the onset of sovereign defaults. Instead of dealing with serious economic problems, aiming at more equitable income distribution through progressive taxation and the channeling of public (and, to a certain extent, private) expenditure towards infrastructure and productive investment in general, political elites resorted to the easy way of borrowing and spending, mainly on public consumption and other unproductive uses, which accumulated huge amounts of debt. Our historical exegesis has exposed the cardinal weakness of a State born in default that has evolved under permanent pressure by its creditors to modernize its institutional framework. Because of the characteristics of Greece described above and the slow evolution of its main economic institutions (land property rights, market regulation, business firms and labor unions, and the monetary and credit system, cf. Zouboulakis 2005), the Greek state is permanently within the risk zone of sovereign default. Although history repeats itself in a different manner, we endorse Hegel's dictum "We learn from history that we do not learn from history". The reason may be found in the secular economic-cum-political trends underpinning the phenomena observed.

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MONETARY POLICY AND MANUFACTURING CAPACITY UTILIZATION: FURTHER EVIDENCE FROM NIGERIA

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Abstract
This study investigates the nexus between monetary policy and manufacturing capacity utilization in Nigeria for the 1980-2014 period, using an error-correction modelling approach. The results reveal that both current and past values of lending rate adversely affect manufacturing performance, but manufacturing responds positively to the current period's banking credit, confirming that policy to enhance access to funds can stimulate investment in manufacturing sub-sector in Nigeria. Real exchange rate shows mixed performance; the current exchange rate has a negative but insignificant effect, whereas the impact of the one-period lagged value was positive and significant at 5%. Broad money supply positively and significantly influences manufacturing. The error-correction term is significant and correctly signed. Further, the variance decomposition shows shock in monetary policy phenomena, explains relatively significant variations in manufacturing performance. This study recommends that monetary authorities should implement policies in line with the structure of the economy to enhance contribution of manufacturing sector to overall economic growth. Effort should be made to enhance the flow of credit to the economy, while adopting effective exchange rate management in a stable macroeconomic environment to boost industrial production.

JEL Classification: E43, E52, L60
Keywords: Monetary Policy, Capacity Utilization, Nigeria

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1. Introduction

In developing countries, the importance attached to the manufacturing sub-sector lies in the perceived close association that exists between manufacturing and growth in real per capita income. This is summed up in the maxim commonly held by researchers in economics and policy makers alike, that the manufacturing sector could be a remarkable catalyst and engine to attaining a non-declining economic growth trajectory (Kaldor, 1957). Some development theorists have shown using time-series and cross-country data that countries with relatively large industrial sector tend to record faster growth and poverty reduction (see Perkins, Radelet and Lindauer, 2006). Thus, the role of the manufacturing sector in electrifying economic progress cannot be overemphasised, and, hence, efforts to boost the sector are often taken seriously by most planners in global economies.

Lately, such perceptions have been corroborated by economic success-stories among countries of East and South-East Asia that tremendously benefited from policies that actively promoted the efficiency of manufacturing enterprises (Timmer and de-Vries, 2008; Lall and Uratu, 2013). Manufacturing activities and production for export is still very limited in most sub-Saharan Africa (SSA) countries, which brings to focus the need for governments of respective countries in the region to design and implement policies that encourages local entrepreneurs to take advantage of their large domestic markets, while also looking to capture a reasonable share of world market.

Nigeria ranks amongst the top producers of natural gas, crude oil, cocoa and many other commodities in Africa, but the nation's manufacturing industries are not producing optimally, despite measures and steps taken by successive governments, both at the State and Federal levels. For instance, the manufacturing capacity utilisation in the 1970s was as high as 78.7%, but declined as low as 43.8% in the 1980s. Between 2000 and 2010, it fluctuated between 36.1% and 55.5% (Obadan and Edo, 2004; CBN, 2010). The sub-optimal utilisation of installed capacity by players in the manufacturing sector has been largely blamed on ease to assess credit facilities, and also due to prevalence of high interest rate, thus affecting the importation of critical raw materials (Mike, 2010). Hence, an understanding of how monetary policy affects the manufacturing sector in Nigeria becomes imperative. The motivation for this paper emanate from findings reported in some influential studies that the impact of monetary policy on output growth is stronger than fiscal policy (Gramlich 1971; Carlson 1978; Saqib and Yesmin 1987; Upadhyaya 1991; Jayaraman 2002; Adefeso and Obolaji 2010).

This study is aware that several factors affect manufacturing activities in Nigeria as documented in extant studies, and these are policy reversals, unguided trade policies, poor institutional infrastructure, reliance on oil for fiscal sustenance, financial risks, amongst others, but the core focus of this paper is to ascertain the extent to which monetary policy influence manufacturing sector. More so, the study also seeks to

identify the most effective monetary policy tool that, if properly administered, would prop-up the performance of the manufacturing sector in the country. This is so because the manufacturing sector is expected to become dominant as the economy transforms from agriculture-based to modern sector-based, driven by industrial production as reflected in the nation's industrialisation drive. Nigeria expects the share of non-hydrocarbon production led by manufacturing to provide over 25% of the forecast national output of US$900 billion by end-2020.

Hence, given the importance of high capacity utilisation in the manufacturing sector to boosting economic growth and welfare, it is necessary to evaluate how the current monetary policy stance affects Nigeria's manufacturing performance. To achieve this objective, this paper is structured into five sections. Following this introduction, section 2 contains review of related literature. Section 3 presents the methodology for the paper, while data analysis and discussion of empirical results are discussed in section 4. Section 5 concludes the paper with some policy recommendations.

2. Literature Review

The term capacity utilisation is often used to describe the extent to which firms use the installed productive capacity of their plants and machineries during the creation of utilities. In essence, it represents the fraction of installed capacity or output that a firm actually produces from its potential output level, in line with prevailing economic fundamentals. Thus, for a firm, capacity utilisation is defined as the firm's optimal output relative to its capacity output (Kim, 1999). Hence, an economic measure of capacity output is characterised by the steady state or long run level of output, given the existing levels of capital and exogenous input prices.

Monetary policy, on the other hand, is a complex process that involves measures designed to regulate and control the volume, cost and availability of money and credit within an economy in order to achieve some specified macroeconomic policy objectives, such as full employment and steady growth in output (Anyanwu, 1993). Similarly, Epstein and Heintz, (2006) maintain that monetary authorities can effectively use monetary policy tools to influence real economic outcomes, like raising employment opportunities, investment and inclusive growth.

In designing monetary policy, the Central Bank of Nigeria (CBN) reviews developments in the global and domestic economic environments over a period of time, and adopts monetary policy strategy in line with expected macroeconomic outcomes. However, the goals of monetary policy have remained broadly the same over the years. These include attainment of price stability, sound financial system, balance of payments equilibrium, as well as improvement in economic growth trajectories. To attain the goal of price stability, monetary authorities may have to trade-off achieving full-employment objectives (Mortensen, 1970).

Interestingly, the World Bank, (2002) hinted that the existence of high interest rate

in the Nigerian financial system, coupled with extremely insufficient infrastructural facilities and poor institutional framework, would make the Nigerian economy frightfully open to vagaries in global economic environment. The financial sector becomes the primary conduit through which monetary policy affects real economic outcomes, since monetary policy determines the resources available to financial institutions for onward lending to the deficit economic units. To this extent, monetary policy stance by authorities provides a benchmark for other interest rates in the economy, including the lending rate, and thus, becomes a key factor that could influence the level of capacity utilisation in industries.

There is no doubt that inefficiency in the financial system can negatively distort manufacturing sector activities, which could lead to reduction in capacity utilisation. In this regard, Ukoha (2000) investigated the determinants of capacity utilisation in the Nigerian manufacturing industry for the period 1970 to 1998. The study finds manufacturing capacity utilisation to be positively influenced by exchange rate, Federal Government capital expenditure and real per capita income.

Ehinomen and Oladipo, (2012) examined the nexus between exchange rate management and manufacturing sector performance in the Nigerian economy, and their study suggests that exchange rate appreciation, gross domestic product (GDP) and inflation are significant determinants of manufacturing sector productivity. Mojekwu and Iwuji, (2012) findings reveal, amongst others, that adequate power supply enhances capacity utilisation, while inflation and interest rate spread have adverse effect on capacity utilisation. Study by Usman and Adeyemi (2012) shows that the negative effect of interest rate on capacity utilisation is robust to other interest rate variants. In this regard, Obamuyi (2009) postulated that investment-friendly interest rate policies should be formulated and properly implemented to promote economic growth. Gajanan and Malhotra (2007) find that variation in demand leads to variation in capacity utilisation in four selected industries in India. Adenikinju (2008) listed tariffs, poor infrastructure, weak institutions and policy inconsistency among plethora of factors that constrain manufacturing performance in Nigeria. Lending rate was observed to have no significant impact on manufacturing performance in Nigeria, suggesting that players in the productive/real sector respond more to policies that ease credit availability, rather than, cost of funds.

Obadan, (1998) and Edo (2002) in their analysis of the situation of the Nigerian manufacturing sector, opined that capacity utilisation is an important issue that must be properly addressed due to improper export and production structure. Both authors blamed the current situation of low depth of manufacturing on over-dependence on natural resources, low value-added production due to high import-dependence for critical production inputs, as well as prevalence of unviable state-owned enterprises. In sum, Obadan, (1998) hinted that the issue of low, and sometimes dwindling capacity utilisation in Nigeria, is among crucial issues that must be addressed if the quest to be among the top 20 global economies by 2020 is to be achieved.

3. Theoretical Framework and Model Specification

3.1 Theoretical Framework

The theoretical framework for this study is derived from the standard neoclassical theory as put forward by Kydland and Prescott, (1982) and Prescott, (1986). In their formulation, they emphasised the importance of technological shocks for the behaviour of real variables, such as output, consumption, investment and employment. However, there are extensions to that formulation: Greenwood, Hercowitz and Huffman, (1998) employed endogenous capacity utilisation; Cooley and Hansen, (1989) provided a role for money, allowing money supply to respond to the state of the economy in line with model developed by Garvin and Kydland, (1985). Accordingly, as summarised by Finn, (1996), it was assumed that the manufacturing sector produces output from labour and capital services, as indicated in *Equation 1.*

$$Y_t = f(W_t L_t \ , \ K_t U_t) = (W_t L_t)^{\delta} (K_t U_t)^{1-\delta}; \quad 0 > \delta < 1 \tag{1}$$

Where:
Y is output of goods produced; W is endogenous shock to technology; L is labour supply; K is manufacturing sector stock of initial capital; U is utilisation rate of K; KU is service flow from capital; and 'δ' is labour-output share.

The production function represented in *Equation (1)* is assumed to have the usual properties of constant returns to scale, a unitary elasticity of substitution between labour and capital services. It should be noted that variable U is what distinguished *Equation (1)* from the usual standard neoclassical production function, while the manner in which U enters *Equation (1),* allowing for a direct relationship between labour's productivity and utilisation, follows format laid out by Greenwood, Harcowitz and Huffman, (1988).

3.2 Model Specification

Drawing on literature reviewed and theoretical underpinnings, this study present a simple dynamic model within an error-correction modelling (ECM) framework to evaluate the relevance of monetary policy instruments in stimulating broader manufacturing sector performance in terms of efficiency of usage of installed capacity in Nigeria. From the generalised form in *Equation (2)*, the ECM is derived:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \phi_1 x_t + \phi_2 x_{t-1} + \varepsilon \tag{2}$$

From *Equation (2),* subtract y_{t-1} from both sides; adjusting the other autoregressive component *x* yields:

$$\Delta y_t = \alpha_0 + (\alpha_1 - 1) y_{t-1} + \phi_1 x_t + \phi_2 x_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha_0 + (\alpha_1 - 1) y_{t-1} + \phi_1 \Delta x_t + (\phi_1 + \phi_2) x_{t-1} + \varepsilon_t$$

$$\Delta y_t = \phi_1 \Delta x_t - (1 - \alpha_1) \left[y_{t-1} + \left(\frac{\alpha_0}{1 - \alpha_1} \right) + \left(\frac{\phi_1 + \phi_2}{1 - \alpha_1} \right) x_{t-1} \right] + \varepsilon_t$$

$$\Delta y_t = \phi_1 \Delta x_t - \delta \left[y_{t-1} + \left(\frac{\alpha_0}{1 - \alpha_1} \right) + \left(\frac{\phi_1 + \phi_2}{1 - \alpha_1} \right) x_{t-1} \right] + \varepsilon_t$$

Hence, we have *Equation (3)*

$$\Delta y_t = \phi_1 \Delta x_t - \phi_2 \left[ECM \right] + \varepsilon_t \tag{3}$$

***Where**: Δy_t and Δx_t represent the dependent and vector of explanatory variables, respectively, in their first difference. The ECM coefficient reveals the speed of adjustment from a possible short-run distortion to its long-term equilibrium.*

Equation 3 was augmented in line with the focus of the study, which is to ascertain the impact of monetary policy on manufacturing performance in Nigeria. Only instruments of monetary policy were employed as explanatory variables. The ones considered include banking sector credit *(BSC)*, real exchange rate *(REXR)*; lending interest rate *(LINTR)* and broad money supply *(M_2)*. Dependent variable (manufacturing performance) was captured by capacity utilisation. Thus, Equation 4 captures the expansion of the model with monetary policy related variables.

$$\Delta MANU_t = \phi_0 + \phi_1 \Delta BSC_{t-1} + \phi_2 \Delta REXR_{t-1} + \phi_3 \Delta LINTR_{t-1} + \phi_4 \Delta M_{2t} + \phi_5 \Delta ECM_{t-1} \ldots . (4)$$

Transformations such as logarithms can help stabilise the variance of a time series, while differencing can help stabilise the mean of a time series by removing extreme changes in data, thereby eliminating trend and seasonality (Asteriou and Hall, 2007; Hyndman and Athanasopoulos 2013). In this regard, first-difference of the log time-series data was employed for analysis to obtain efficient estimates. Therefore, the estimated parsimonious ECM model in a dynamic specification used in this study is specified in *Equation (5)*.

$$\Delta InMANU_t = \phi_0 + \phi_1 \Delta InBSC_{t-1} + \phi_2 \Delta InREXR_{t-1} + \phi_3 \Delta InLINTR_{t-1} + \phi_4 \Delta InM2_t + \phi_5 \Delta ECM_{t-1} \ldots . (5)$$

Where: MANU is manufacturing performance (measured by capacity utilisation); BSC is banking sector credit; REXR is real exchange rate; LINTR is lending interest rate, and M2 is broad money supply.

We introduced one-period lag into *Equation 5* to aptly depict the fact that monetary policy instruments do not have an immediate impact on desired objectives, but, rather, the influence is realized after a time lag. See studies conducted in both advanced and developing economies suggesting that macroeconomic phenomenon responds to changes in monetary policy with a lag (Friedman 1961; Jorgenson and Stephenson 1967; Dixit and Pindyck 1994; Gruen et al. 1997; Bernanke et al. 1999; Batini and Nelson 2001).

Further to our ECM model employed in conducting the impact analysis, the study generates the variance decomposition and impulse response functions from empirical results, as both analyses capture the dynamic interactions among variables in focus. The difference between impulse response function and variance decomposition is that while the former traces an effect of a shock to one endogeneous variable on to the other variables in the system, the variance decomposition distinguishes the variance of the error forecast for each variable into components that can be attributed to each endogeneous variable in the system (Enders, 1995).

4. Results and Discussion of Findings

4.1 Descriptive Statistics

Table 1a presents the variables used in the estimation and their characteristics. The Jarque-Bera statistic rejects the null hypothesis of normal distribution for banking sector credit and broad money supply. On the other hand, the null hypothesis of normal distribution is accepted for manufacturing capacity utilisation, exchange rate and interest rate. From the correlation matrix in *Table 1b*, MANU shows a fairly strong positive correlation with BSC (57%), REXR (34%), M2 (57%), but a negative correlation with LINTR (-35%). Interest rate shows a positive correlation with banking sector credit (14%), exchange rate (28%), and broad money supply (10%). Similarly, all other variables under consideration broadly exhibit positive correlation with each other.

Table 1a. Summary Statistics

Variables	Mean	Median	Standard Deviation	Jarque-Bera Statistic	Probability	Obs.
MANU	46.2659	42.85000	12.87183	3.789671	0.150343	34
BSC	1437912	405096.4	2552667	54.47128	0.000000	34
REXR	57.4290	21.89000	59.83222	4.546312	0.102987	34
LINTR	17.5603	18.13500	5.391933	0.059370	0.970751	34
M2	2083096	344548.5	3553399	24.69074	0.000004	34

Source: Authors' Computation.

Table 1b. Correlation Matrix

Variables	MANU	BSC	EXR	LINTR	M2
Manufacturing Capacity Utilisation (MANU)	1.0000	0.5694	0.3387	-0.3507	0.5720
Banking Sector Credit (BSC)	0.5694	1.0000	0.7211	0.1356	0.9680
Exchange Rate (EXR)	0.3387	0.7211	1.0000	0.2786	0.7633
Lending Interest Rate (lINTR)	-0.3507	0.1356	0.2786	1.0000	0.0988
Broad Money Supply (M2)	0.5720	0.9680	0.7633	0.0988	1.0000

Source: Authors' Computation.

4.2 Testing for Stationarity

Granger and Newbold, (1977) aver that most time series variables are non-stationary, and utilising such non-stationary variables for empirical analysis might produce spurious results. Thus, the time series properties of the dataset were investigated using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). The results are presented in *Table 2*. The result shows that all variables used in this study are *I(1)* variables, that is, stationary after first difference in both the ADF and PP test procedures.

Table 2. ADF and PP Unit Root Tests

Variables	ADF			Phillips-Perron		Remarks
	Level	1st difference	Remarks	Level	1st Difference	
MANU	-1.9295	-3.7926*	*I(1)*	-1.398	-3.8735*	*I(1)*
BSC	-1.0578	-3.9682***	*I(1)*	-1.559	-4.5980***	*I(1)*
EXR	0.0612	-5.2031***	*I(1)*	0.061	-5.2031***	*I(1)*
lINTR	-2.3666	-8.6403***	*I(1)*	-2.840	-8.6836***	*I(1)*
M2	-1.0875	-4.8319***	*I(1)*	0.078	-4.5435***	*I(1)*

Notes: *** denotes significance at 1%. The null hypothesis is that there is a unit root.

4.3 Testing for Cointegration

Cointegration test is a test meant to ascertain the existence of a stable long-run relationship amongst variables under study which makes the technique important for the purpose of policy-making. This study utilises the methodology developed by Johansen (1988), and Johansen and Juselius (1990). Expectedly, this method should produce asymptotically optimal estimates since it incorporates a parametric correction for serial correlation, and it does not depend on the method of normalisation chosen. The number of lags used in the VAR is based on the evidence provided by the Akaike Information Criteria (AIC).

Following Johansen and Juselius (1990) approach, two likelihood ratio test statistics, the Maximum-Eigen and Trace tests were utilised to determine the number of cointegrating equations. From the results, both maximum-eigen and trace statistics reject the null hypothesis of no cointegration at the 5% level. The maximum-eigen indicates existence of two cointegrating equations, whereas the trace test shows that one long-run meaningful cointegrating relationship exist among the variables. In the face of such conflicts, however, Johansen and Juselius (1990) recommend the use of Trace statistic, since this takes into cognizance all the smallest eigenvalues. In all, the implication is that a linear combination of all five series is stationary and cointegrated. However, this evidence of cointegration does not, in itself, identify dynamic interrelationships. Such short-run dynamics are captured within an error correction modelling (ECM) framework. Essentially, the ECM helps reveal the speed of convergence to long-run equilibrium in the case of shock to any of the variables in the system. Table 3 reports the estimates of Johansen Procedure and Standard Statistics:

Table 3. Johansen's Cointegration Test Results

Null hypothesis	Trace Statistic	Critical Value at 5%	Max-Eigen Statistic	Critical Value at 5%
$\alpha = 0$	95.7015*	60.0614	57.4609*	30.4396
$\alpha \leq 1$	38.2406	40.1749	26.0814*	24.1592
$\alpha \leq 2$	12.1591	24.2759	9.7040	17.7973
$\alpha \leq 3$	2.4550	12.3209	2.4490	11.2248
$\alpha \leq 4$	0.0060	4.1299	0.0060	4.1299

Notes: α represents at most the number of cointegrating equations and * denotes significance at the 5%.

Source: Authors' Computation.

4.4 Dynamic Error Correction Model

Following Engle and Granger (1987), if cointegration exists between, hitherto, non-stationary variables, then an error-correction representation of the kind specified in *equation (5)* above exists. Essentially, the error correction term (ECM) helps measure the speed of adjustment once there is a systemic distortion in the economy. The adjustment time from a short-run distortion have useful imperatives for monetary authorities and economic planners. It indicates how previous period's deviation from long run equilibrium is regained at time t.

The ECM coefficient, which was derived in equation 5 in the previous session, is the error-correction term (that is, the lagged residual of static regression) and it is

expected to be negative, indicating the adjustment time before long-run relationship can be achieved between dependent and explanatory variables; ' Δ ' stands for first difference of the series. ϕ_1 to ϕ_4 are parameter estimates of variables, and t time period. Other variables are as defined above.

We estimated *Equation 5* using the least squares method. Following Enders (1995), OLS will give consistent estimates, provided variables included in the model are stationary. The study also tested the model for stability. This study utilises annual time series data for the period 1980 to 2014. The data were obtained from the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS).

Table 4. Dynamic Error Correction Model

Dependent variable: DMANU
Sample (Adjusted): 1982-2014

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-1.9013	1.0948	-1.7366	0.0971
DBSC	1.8300	8.2500	2.2186	0.0365
$DBSC_{(-1)}$	1.1100	1.2700	0.0873	0.9312
DREXR	-0.0028	0.0691	-0.0413	0.9674
$DREXR_{(-1)}$	0.0757	0.0345	2.1942	0.0457
DLINTR	-0.0068	0.2219	-0.0307	0.9758
$DLINTR_{(-1)}$	-0.5348	0.2348	-2.4132	0.0065
DM2	1.3800	4.9200	2.8063	0.0091
$ECM_{(-1)}$	-0.3441	0.1132	-3.0373	0.0063
R-Squared		0.8102		
Adjusted R-Squared		0.8074		
S.E. of Regression		4.6004		
Durbin-Watson Statistic		1.9582		
S.D. Dependent Var.		5.5281		
F-statistic		2.6094		
Prob. (F-statistic)		0.0373		
Akaike Info Criterion		6.1334		
Schwarz Criterion		6.5538		

Source: Authors' Computation.

Results contained in Table 4 show that the coefficient of the error-correction term for the estimated manufacturing capacity utilisation equation is correctly signed and statistically significant at 1%. The speed of convergence to long-run equilibrium is 34.4%. This implies that about 34.4% short-run distortions are recovered annually. In essence, it takes almost three years for any disequilibrium in the system to be fully corrected. Recovery lag-time is rather long, and our result perhaps confirms the slow growth of the manufacturing sector in Nigeria, often always buffeted by structural and socio-economic factors, including dependence on primary commodities export and weak institutional quality. The adjusted R-squared suggests that about 81% systematic variations in manufacturing capacity utilisation is explained by the four explanatory variables in the model, leaving about 19% unexplained, which can be captured by factors not included in the model, such as fiscal policy, resource dependency, political stability and technology.

The coefficient representing growth in lending interest rate is negative and statistically significant at the 1 percent level for the one-period lag ($DLINTR_{-1}$), however the current value (DLINTR) was not significant. This suggests that uncompetitive interest rate management can adversely influence growth of the manufacturing industry in Nigeria. Broad money supply, extent of monetisation of an economy, is positive and significant at the 1 percent level. Current values of banking credit (DBSC) were significant at the 5 percent level, while the one-period lagged value ($DBSC_{-1}$) not significant, but both were positively signed. This shows that any given effort at increasing availability of credit to players in the real economy does not have significant positive lag-effect on productivity. The performance of real exchange rate was mixed, whereas the current value of real exchange rate (DREXR) was negative and not significant; the coefficient of its one-period lag value ($DREXR_{-1}$) was positive and significant at the 5 percent level, confirming extant findings that exchange rate depreciation can boost overall economy, especially domestic production (Adenikinju, 2008). However, the resulting rise in cost of imports due to depreciation of the domestic exchange rate may raise expenditure on important production inputs, such as raw materials, plants and machineries required, which in turn would negatively affect the manufacturing sector.

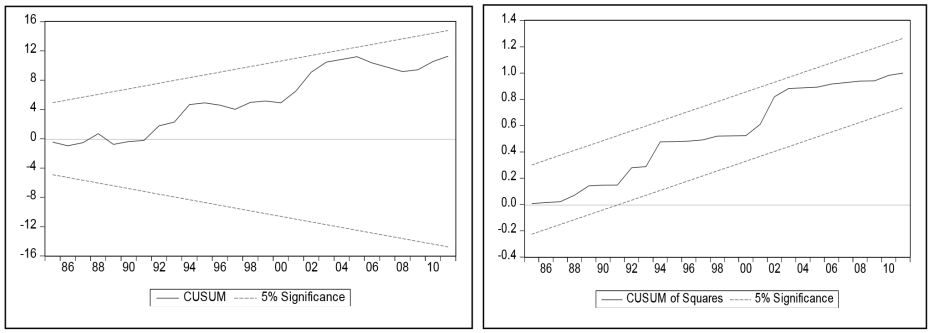
4.5 Stability Test, Variance Decomposition and Impulse Response Function

Following Brown, Durbin and Evans, (1975), this study investigated the short-run stability of the parameters in the manufacturing capacity utilisation model using the plots of the cumulative sum of the residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMsq). The results from the two tests are presented in *Figures 1(A)* and *1(B,)* respectively. Basically, the existence of parameter instability is established if the ploted residual in the CUSUM and CUSUMsq lie outside the bands represented by the two critical (dotted) lines. From the graphs, both CUSUM

and CUSUMsq remain within the 5 percent critical lines, suggesting stability of the model throughout the period under study. Thus, the finding is relatively robust for policy analysis and formulation.

Figure 1. Stability test using CUSUM and CUSUMsq of residuals.

Figure 1(A) Figure 1(B)



In a bid to further examine the short-run dynamic properties of manufacturing capacity utilisation, we computed the variance decomposition and impulse response function. Essentially, variance decomposition provides the proportion of movements in dependent variables due to their own shocks, versus shocks to other variables in the system. Most empirical studies have shown that the highest percentage error variance decomposition of macroeconomic variables often originates from their own past shocks, but expected to decline over the forecast horizon. We computed the variance decomposition over a ten-period in an unrestricted variance autoregressive (VAR) framework.

Results in Table 5 shows that MANU is fully explained by its own variation, accounting for 100% in the first year. Shocks to broad money supply (M2) accounted for most variations in MANU, reaching 37.1% in the tenth year, while innovations in banking sector credit, real exchange rate (REXR) and lending interest rate (INTR) explained only 18.7%, 15.4% and 10.4%, respectively in the tenth year. The variance decomposition of MANU shows that only about 17.9% of its own forecast error variance is explained by itself in the tenth year. Thus, the result provides evidence that shocks induced by monetary phenomena can sufficiently explain a significant proportion of changes in MANU overtime in Nigeria.

Table 6 presents estimates from the impulse response function of manufacturing capacity utilisation against its own stocks and shocks due to other variables in the system which include; banking sector credit, exchange rate, interest rate and broad money supply over a ten-year horizon. The time horizon will enable the capturing of short-term, medium-term and long-term responses. The result shows that manufacturing capacity utilisation (MANU) had a positive correlation with its past values in the first

four years, while the relationship turned negative in the remaining periods up till the tenth year. Similarly, in its response to the shocks of exchange rate and broad money supply (with the exception of second year in the latter case), there was a positive relationship throughout the 10-year horizon. Conversely, in its response to the shocks of banking sector credit (BSC) and interest rate (INTR) (except for first year in the case of BSC and first two years for INTR), there was a long-run negative correlation between them.

Table 5. Variance Decomposition of MANU

Period	Variance Decomposition of MANU					
	S.E.	MANU	BSC	EXR	INTR	M2
1	3.316396	100.0000	0.000000	0.000000	0.000000	0.000000
2	4.538589	90.79747	1.308705	1.306300	0.658863	5.928659
3	4.804362	85.69982	1.623337	2.127018	3.424339	7.125489
4	4.961068	80.95117	1.723040	3.448418	6.225554	7.651821
5	5.335945	70.41798	2.176755	4.827444	9.627077	12.95075
6	6.042410	55.70728	4.321470	5.447969	11.19353	23.32975
7	6.993224	42.09101	9.051289	6.344614	11.41151	31.10158
8	8.283525	30.53994	14.30391	7.968561	10.89213	36.29546
9	9.679173	22.85064	17.52114	10.96352	10.57685	38.08785
10	11.11018	17.92289	18.71212	15.73531	10.48893	37.14074

Source: Authors' Computation.

Table 6. Impulse Response of MANU

Period	Response of MANU				
	MANU	BSC	EXR	INTR	M2
1	3.316396	0.000000	0.000000	0.000000	0.000000
2	2.775734	-0.519209	0.518731	0.368399	-1.105094
3	1.038248	-0.324221	0.471035	-0.809126	0.650742
4	0.377775	0.222218	0.598143	-0.861303	0.488449
5	-0.354638	-0.442374	0.725089	-1.099457	1.343167
6	-0.538058	-0.978789	0.783969	-1.160081	2.197836
7	-0.495535	-1.687824	1.055345	-1.222285	2.586973
8	-0.608964	-2.321279	1.537831	-1.375866	3.113598
9	-0.672618	-2.569054	2.191701	-1.560526	3.283040
10	-0.845798	-2.585070	3.025182	-1.743000	3.187780

Source: Authors' Computation.

5. Conclusion and Policy Implications

This study examined the relationship between monetary (policy) phenomena and manufacturing performance (measured by capacity utilisation) in Nigeria within the context of Johansen cointegration and a dynamic error correction modelling framework, applying annual data from 1980 to 2014. Results from the study show that one-period lagged lending interest rate is negative and significant, though current value was not significant. Current level of banking credit has immediate impact on manufacturing performance, confirming that policy to enhance access to funds could be a veritable channel to stimulate real sector investment and economic growth in the country. The mixed findings of exchange rate suggests the need for monetary authorities to adopt effective exchange rate management strategy because any uncertainty in the macroeconomic policy environment affects players in the manufacturing sector, as they become highly reactional to exchange rate dynamics. On the other hand, the extent of monetisation of an economy measured by broad money supply positively and significantly influences manufacturing performance in Nigeria, reviving the need for monetary authorities to adequately monitor supply of money in line with economic structure and fundamentals of the country. In sum, this study has identified one-period lagged lending interest rate, broad money supply and credit to private sector as critical monetary policy instruments that, if properly administered, would enhance manufacturing sector performance in the country. Thus, it can be argued that fluctuations in the nation's manufacturing capacity utilisation can partly be explained by the scope and depth of monetary policy stance in the country. Accordingly, the study recommends that for manufacturing sector to play a leading role in broadening the productive base of the economy, the Nigerian government should re-consider the manufacturing sector as engine for economic growth by de-emphasising counter-productive policies. Others include strengthening the capital market, empowering development finance institutions for effective credit delivery, and adopting appropriate monetary policy measures that will enhance the productivity of the manufacturing sector so that a non-declining economic growth may be achieved in the country.

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MILITARY EXPENDITURE AND ECONOMIC GROWTH IN BRICS AND MIST COUNTRIES: EVIDENCE FROM BOOTSTRAP PANEL GRANGER CAUSALITY ANALYSIS

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Abstract
This paper investigates the causal relationship between military expenditure, economic growth, and real capital stock in BRICS (Brazil, Russia, India, China, and South Africa) and MIST (Mexico, Indonesia, South Korea, and Turkey) countries. For this purpose, the period from 1990 to 2013 is examined using with the bootstrap panel Granger causality method. Results show that there is cross-sectional dependency and country-specific heterogeneity across BRICS and MIST countries. It is also concluded that a positive unidirectional causality from military expenditure to economic growth exists in China. By contrast, there is negative unidirectional causality from military expenditures to economic growth in Turkey. In addition, the feedback hypothesis is confirmed for Russia and the neutrality hypothesis is supported by the data from Brazil, India, Indonesia, South Korea, Mexico and South Africa.

JEL Classification: H56, O11, C33
Keywords: Military expenditure, Economic Growth, Cross-Sectional Dependency, BRICS and MIST Countries

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1. Introduction

Over the past few decades, many studies have investigated the relationship between military expenditure and economic growth. This relationship is determined on the basis of the assumption of an optimum military spending level for countries at different stages of development. Political suggestions are given, accordingly. The analysis of the relationship between military expenditure and economic growth is based on two fundamental views: Focusing on the supply-side approach, the neoclassical view states that economic activities are affected by military spending through factors such as infrastructure originating externalities, technological spin-off, human capital, and so on. By contrast, the Keynesian view focuses on the demand-side approach and argues that military spending affects economic growth through the crowding-out effect and fields such as export, education, and health (Karagol and Palaz, 2004; Yildirim *et al*., 2004; Aye *et al*., 2014).

The BRICS (Brazil, Russia, India, China and South Africa) and MIST (Mexico, Indonesia, South Korea and Turkey) countries are regarded as high-income developing countries. It is known that the military expenditure of most of these countries comprises a large share of total government expenditure. According to SIPRI (Stockholm International Peace and Research) reports, the average military expenditure share of government spending was 4.1% for Brazil, 10.8% for Russia, 10.1% for India, 9.7% for China, 4.7% for South Africa, 2.3% for Mexico, 4.3% for Indonesia, 12.7% for South Korea, and 7.0% for Turkey for the 2000-2014 period. In addition, the total military expenditure of these countries accounts for 26.11% of total world military expenditure. Therefore, military policy can be said to play a vital role for BRICS and MIST countries.

In this study, the relationship between military expenditure and economic growth is analysed for BRICS and MIST countries. These countries were chosen because they are high-income developing countries. The countries included in the analysis are expected to play a leading role in world economy in the forthcoming years and will be beneficial in recommending military policy to developing economies. Due to an insufficient number of studies in which the relationships between military spending and economic growth are analysed via panel data to allow cross-section dependency and heterogeneity, this approach benefits from methods accepted as second generation panel causality test.

The rest of this paper is divided into the following sections; in the second section, the model and data sources to be used are introduced. Information about the methods used in the analysis is given in the third section and the results of the analysis are presented in the fourth section. Finally, conclusions and policy recommendations are given in the fifth section.

2. Literature review

In studies where the relationship between military expenditure and economic growth are analysed, this is done in terms of causality and findings are evaluated accordingly. However, using different econometric methods and data sets in these studies has also led to contradictory results. Obviously, the validities of four different hypotheses are analysed depending on the causality relationship between military spending and economic growth.

The first hypothesis is called "growth hypothesis" and it is based on the "guns and butter" hypothesis put forward by Benoit (1973, 1978) and accepted as an initial approach to the relationship between military spending and economic growth. According to the "growth hypothesis", there is a positive unidirectional causality relationship from military spending to economic growth. Benoit (1973, 1978) argues that military spending will increase total aggregate demand, put idle resources into production, especially in developing countries, increase investments and create new opportunities. Furthermore, Deger (1986) asserted that the positive effects of military spending on economic growth would actualise through the technological spin-off effect and argued that these effects would come true via physical and social infrastructure investments such as roads, transport and R&D. When the "growth hypothesis" is valid, increasing the level of military spending will be a rational policy for countries. The growth hypothesis was confirmed by some studies such as those by Yildirim *et al*. (2005) for Middle East countries, Lee and Chen (2007) for 27 OECD and 62 non-OECD countries, Kollias *et al*. (2007) for EU15 countries and Kollias and Paleologou (2013) for the US. Similarly, Dunne *et al*. (2001), Atesoglu (2002), Karagol (2006), Feridun *et al.* (2011), and Chang *et al*. (2011) also obtained results supporting the growth hypothesis. In addition, the recent study by Chang *et al*. (2015) performed on the EU 15 countries supported the "growth hypothesis" in the long term.

While the second hypothesis is based on the argument known in the literature as "guns or butter", it is a hypothesis called "growth detriment hypothesis", which argues that military spending has negative effects on economic growth. According to this hypothesis, there is a unidirectional causal relationship from military spending to economic growth, but the causality relationship in this hypothesis is negative. Military spending is considered to be generally financed using taxes and current resources transferred from more productive areas, such as education and health, to military spending, which will have a crowding-out effect on private sector investments and negatively affect economic activities (Deger and Smith, 1983; Dunne and Vougas, 1999). If this hypothesis is valid, the rational policy for countries would be to reduce their level of military spending. As a result of their studies, Smith (1980), Cappelen *et al.* (1984), and Batchelor *et al*. (2000) obtained findings supporting that military spending had negative effects on economic growth.

The third hypothesis is known as the "feedback hypothesis" and states that the bidirectional causal relationship between military spending and economic growth is valid. According to this hypothesis, increase (decrease) in military spending will increase (decrease) economic growth, and, in a similar way, economically more (less) developed economies will allocate more (fewer) resources to military spending (Kollias *et al.* 2004). In their studies, Chowdhury (1991), LaCivita and Frederiksen (1991), and Chen *et al*. (2014) supported the "feedback hypothesis". Similarly, Pradhan (2010), who carried out a study on 5 Asian countries, supported the feedback hypothesis for the Philippines and defended that a unidirectional causal relationship from economic growth to military spending is valid for Indonesia, Malaysia, Singapore and Thailand. The fourth and final hypothesis is the "neutrality hypothesis", which states that there is no causal relationship between military spending and economic growth. According to this hypothesis, changes in military spending level do not affect economic activities nor does economic growth affect the determination of the level of military spending (Biswas and Ram, 1986). In the study they performed on China and the G7 countries, Chang *et al*. (2014) stated that the neutrality hypothesis is valid for France and Germany, the feedback hypothesis is valid for Japan and the USA and a unidirectional causal relationship from economic growth to military spending is valid for China.

3. Model and data

Because military spending is accepted as a type of public expenditure, the function obtained by using the Cobb-Douglas production function - assuming constant returns to scale following Barro (1990) and Cuaresma and Reitschuler (2003) and in line with the studies by Karagol and Palaz (2004), Lai *et al*. (2005), Lee and Chen (2007), Chang *et al*. (2014) and Chang *et al.* (2015) - is illustrated by the following equation;

$$Y_{it} = f(MILEX_{it}, K_{it}, L_{it}) \quad (1)$$

where $i = 1..., N$ and $t = 1..., T$, respectively, show the cross-section and the time period, while *Y*, *MILEX*, *K* and *L* represent real output, real military spending, real capital stock and labour force, respectively. Inclusion of military spending into the aggregate production function arises from the crowding-out effects stated by Heo (1999), the Keynesian aggregate demand multiplier stated by Kollias *et al*. (2004) and the spin-off effect stated by Deger (1986), as well as possible effects on real output. The empirical model is set up in terms of labour force through dividing the aggregate production function by labour and taking logarithms as follows:

$$lnGDP_{it} = \beta_0 + \beta_1 lnMIL_{it} + \beta_2 lnCAP_{it} + \varepsilon_{it} \quad (2)$$

where *InGDP* is the logarithmic form of real per capita income, *InMIL* is the logarithmic form of per capita military spending and *InPK* is the per capita real capital stock.

Data cover the years 1990-2013 for BRICS countries (Brazil, Russia, India, China and South Africa) and MIST countries (Mexico, Indonesia, South Korea, Turkey). GDP and CAP data are obtained from the World Development Indicators database and used in 2005 constant US Dollar prices. Finally, the MIL data is obtained from the SIPRI military expenditure database.

4. Methodology

The panel data analysis based on the assumption that there are no dependencies between cross-sections is called "first generation tests"; while analysis based on the assumption that there are dependencies between cross-sections is called "second generation tests". Considering that countries determine their levels of military spending generally based on enemy military spending, allied and neighbouring countries that rely on first generation tests in the analyses examining the effects of military spending on economic growth may come to erroneous conclusions. Therefore in this study, the existence of cross-sectional dependence, particularly between the countries involved in the analyses, is proved with tests before homogeneity tests are performed.

4.1 Cross-section dependency and homogeneity tests

The Lagrange multiplier (LM) test, frequently used in the literature and developed by Breusch and Pagan (1980), is used for the purpose of examining cross-sectional dependence. The LM test is examined through the use of the following equation:

$$y_{it} = \alpha_i + \beta_i x_{it} + \varepsilon_{it} \quad \text{for } i = 1 \ldots, N \text{ and } t = 1 \ldots, T, \tag{3}$$

where *i* and *t,* respectively, state the cross-section dimension and the time period. While the null hypothesis of $H_0: Cov(\varepsilon_{it}, \varepsilon_{jt}) = 0$ states that there is no dependency between cross-sections, the alternative hypothesis of $H_1: Cov(\varepsilon_{it}, \varepsilon_{jt}) \neq 0$ indicates dependency between at least one pair of cross-sections. The calculation of the LM test is as follows:

$$LM = T \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}_{ij}^2 \; \square \; \chi^2_{N(N-1)/2} \tag{4}$$

where $\hat{\rho}_{ij}$ is the sample of pair-wise correlation of the residuals from the ordinary least squares estimation of Equation (3) for each cross section. While the LM test is suitable for panels providing the condition of small N and sufficiently large T, for situations where $T \rightarrow \infty$ and $N \rightarrow \infty$, the scaled LM version developed by Pesaran (2004) is as follows:

$$CD_{LM} = \left(\frac{1}{N(N-1)}\right)^{1/2} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \left(T\hat{\rho}_{ij}^2 - 1\right) \; \square N(0,1) \tag{5}$$

Because the CD_{LM} test tends to lead to dimension failures in case of large N and small T, Pesaran (2004) developed a more comprehendible test. The calculation of the CD test is as follows:

$$CD = \sqrt{\left(\frac{2T}{N(N-1)}\right)} \sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\left(\hat{\rho}_{ij} - 1\right) \square N(0,1) \quad (6)$$

However, the CD test will lack power in certain situations when population average pair-wise correlations are zero (Pesaran *et al*. 2008). Therefore, Pesaran *et al*. (2008), suggest a bias-adjusted test which is a modified version of the LM test. The bias-adjusted LM test is:

$$LM_{adj} = \sqrt{\left(\frac{2}{N(N-1)}\right)} \sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\frac{(T-k)\hat{\rho}_{ij}^2 - \mu_{Tij}}{\sqrt{v_{Tij}^2}} \square N(0,1) \quad (7)$$

where k, μ_{Tij} and v_{Tij}^2 are the number of regressors, exact mean and variance of $(T-k)\hat{\rho}_{ij}^2$ respectively (Pesaran *et al.* 2008).

Another important point that needs to be determined is the homogeneity of the slope. Pesaran and Yamagata (2008) developed the revised version of the Swamy test (which is called $\tilde{\Delta}$ test) in order to determine slope homogeneity in large panels. In this particular case, the revised version of the Swamy (1970) test is calculated as follows:

$$\tilde{S} = \sum_{i=1}^{N}(\hat{\beta}_i - \tilde{\beta}_{WFE})'\frac{x_i' M_T x_i}{\tilde{\sigma}_i^2}(\hat{\beta}_i - \tilde{\beta}_{WFE}) \quad (8)$$

where β_i and $\tilde{\beta}_{WFE}$ are the pooled OLS and the weighted fixed effect pooled estimation of Equation (3), respectively. $\tilde{\sigma}_i^2$ is the estimator of σ_i^2 and M_T as an identity matrix of order T. The modified statistic is:

$$\tilde{\Delta} = \sqrt{N}\left(\frac{N^{-1}\tilde{S} - k}{\sqrt{2k}}\right) \quad (9)$$

where k is the number of explanatory variables, under the null hypothesis, with the condition $(N,T) \rightarrow \infty$, so long as $\sqrt{N}/T \rightarrow \infty$. The small sample properties of the $\tilde{\Delta}$ test can be improved under normally distributed errors by using the following bias-adjusted version:

$$\tilde{\Delta}_{adj} = \sqrt{N}\left(\frac{N^{-1}\tilde{S} - E(\tilde{z}_{it})}{\sqrt{var(\tilde{z}_{it})}}\right) \quad (10)$$

where the mean $E(\tilde{z}_{it}) = k$ and the variance $var(\tilde{z}_{it}) = 2k(T-k-1)/T+1$.

4.2 Panel Causality Test

If there is cross-section dependency and heterogeneity between BRICS and MIST countries, the bootstrap panel causality method developed by Konya (2006) is a suitable causality method. This test allows both cross-section dependency and country specific heterogeneity and the test is based on seemingly unrelated regression (SUR) estimation

of a set of equations, which, therefore, provide the Wald statistics for each country in the panel. (Menyah *et al*. 2014). The critical values of the test are obtained with bootstrap simulation. This approach is also robust to the unit root and cointegration properties of variables; therefore, the testing procedure does not require any pre-testing for panel unit root and cointegration (Kar *et al*. 2011). The system can be written as follows:

$$GDP_{1t} = a_{11} + \sum_{i=1}^{p_1} \beta_{11i} GDP_{1t-i} + \sum_{i=1}^{p_1} \delta_{11i} MIL_{1t-i} + \sum_{i=1}^{p_1} \gamma_{11i} CAP_{1t-i} + \varepsilon_{11t}$$

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$$GDP_{Nt} = a_{1N} + \sum_{i=1}^{p_1} \beta_{1Ni} GDP_{Nt-i} + \sum_{i=1}^{p_1} \delta_{1Ni} MIL_{Nt-i} + \sum_{i=1}^{p_1} \gamma_{1Ni} CAP_{Nt-i} + \varepsilon_{1Nt} \quad (11)$$

$$MIL_{1t} = a_{21} + \sum_{i=1}^{p_2} \beta_{21i} GDP_{1t-i} + \sum_{i=1}^{p_2} \delta_{21i} MIL_{1t-i} + \sum_{i=1}^{p_2} \gamma_{21i} CAP_{1t-i} + \varepsilon_{21t}$$

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$$MIL_{Nt} = a_{2N} + \sum_{i=1}^{p_2} \beta_{2Ni} GDP_{Nt-i} + \sum_{i=1}^{p_2} \delta_{2Ni} MIL_{Nt-i} + \sum_{i=1}^{p_2} \gamma_{2Ni} CAP_{Nt-i} + \varepsilon_{2Nt} \quad (12)$$

$$CAP_{1t} = a_{31} + \sum_{i=1}^{p_3} \beta_{31i} GDP_{1t-i} + \sum_{i=1}^{p_3} \delta_{31i} MIL_{1t-i} + \sum_{i=1}^{p_3} \gamma_{31i} CAP_{1t-i} + \varepsilon_{31t}$$

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$$CAP_{Nt} = a_{3N} + \sum_{i=1}^{p_3} \beta_{3Ni} GDP_{Nt-i} + \sum_{i=1}^{p_3} \delta_{3Ni} MIL_{Nt-i} + \sum_{i=1}^{p_3} \gamma_{3Ni} CAP_{Nt-i} + \varepsilon_{3Nt} \quad (13)$$

where *GDP* is the real gross domestic product per capita, *MIL* the real military expenditures per capita and *CAP* the real gross fixed capital per capita. In addition, *N* indicates the number of countries, *t* the time period and *i* refers to the optimal lag length. Moreover, each equation has different predetermined variables but error terms might be cross-sectionally dependent (Konya, 2006).

In the bootstrap panel causality testing procedure, alternative causal relations can be found. For instance, there is a one-way Granger causality from *MIL* to *GDP* if not all δ_{1i} are zero, but all β_{2i} are zero. Similarly, there is a one-way Granger causality from *GDP* to *MIL* if all δ_{1i} are zero, but not all β_{2i} are zero; there is a two-way Granger causality between *GDP* and *MIL* if neither δ_{1i} nor β_{2i} is zero; there is no causal relation between *GDP* and *MIL* if both δ_{1i} and β_{2i} are zero.

5. Empirical results

The dependency of military spending of ally or rival countries is a situation to be expected. Studies in which the relationship between military spending and economic growth - implementing tests which allow for cross-section dependence and which are accepted as second generation panel data tests - give more reliable results. Cross-section dependence and slope homogeneity test results are seen in Table 1.

Table 1. Cross-Sectional Dependency and Homogeneity Tests

Cross-section dependency tests	Statistic	p-Value
LM	547.088***	0.000
CD_{LM}	60.232***	0.000
CD	23.034***	0.000
LM_{adj}	42.833***	0.000
Homogeneity test		
$\tilde{\Delta}$	64.070***	0.000
$\tilde{\Delta}_{adj}$	71.632***	0.000

Note: *, ** and *** indicate statistical significance at 10, 5 and 1 percent levels, respectively.

According to the results, the null hypothesis, which states that there is no dependency between cross-sections, is rejected at a level of 1%. This shows that a shock in one of the BRICS or MIST countries affects the other countries. The globalisation process and financial integration make countries sensitive to economic shocks from other countries; therefore, cross-section dependency is a situation to be expected. According to the results of Pesaran and Yamagata's (2008) research, we must reject the null hypothesis that represents the slope homogeneity assumption and accept the country-specific heterogeneity assumption as valid.

In testing for panel causality, what is determined first is optimal lags for Eq.11-Eq.13. Estimates are based on using 1 to 4 lags and selecting the combination which minimises the Schwarz Bayesian Criterion. The results of a causal relationship between military expenditure and economic growth are reported in Table 2. In the case of Russia, there is bidirectional causality between military expenditure and economic growth. This means increasing the overall economic growth leads to an increase in the military expenditure of Russia and vice versa. By contrast, there is a positive unidirectional causality from military expenditure to economic growth in China. Therefore, the growth hypothesis can be said to be supported for China. In fact, increasing military expenditure leads to an increase in aggregate demand and positively affects economic activities in China. In the case of Turkey, negative unidirectional causality from military expenditures to economic growth is noted, so the growth detriment hypothesis is confirmed for Turkey. This means that increasing military expenditure may be harmful to economic activities in Turkey. In addition, the neutrality hypothesis is supported for Brazil, India, Indonesia, South Korea, Mexico and South Africa and it implies that a policy to reduce military expenditure will not be detrimental for these countries.

In addition, the results of panel bootstrap causality on the relationship between military expenditure and real capital stock are presented in Table 3. In the cases of Brazil, Indonesia and Russia, there is positive unidirectional causality from real capital to military expenditure. This finding implies that the military expenditure of these countries is positively affected by an increase in real capital stock. In addition,

a positive unidirectional causality from military expenditure to real capital stock is noted in China, South Korea, South Africa and Turkey. Therefore, increased military expenditure can be said to lead to an increase in the real capital stock of these countries. On the other hand, there is no causal linkage between real capital stock in India and Mexico.

Table 2. Panel causality between *MIL* and *GDP.*

	H0:MIL does not cause GDP					H0:GDP does not cause MIL				
Countries	Coef.	Wald.stat.	Critical values			Coef.	Wald.stat.	Critical values		
			%10	%5	%1			%10	%5	%1
Brazil	-0.084	4.526	9.473	13.894	24.419	0.646	7.973	8.603	12.589	26.517
China	0.106	18.541**	9.683	13.621	34.862	0.540	17.412	18.846	25.934	40.889
India	0.086	1.609	11.036	16.929	34.801	0.450	7.796	12.688	17.802	30.467
Indonesia	-0.029	0.587	10.543	15.003	26.507	0.833	10.197	10.721	15.745	36.878
S. Korea	0.020	0.562	7.815	10.881	19.112	0.093	2.262	8.263	12.015	23.820
Mexico	0.354	0.456	7.235	11.193	25.441	0.612	4.331	10.214	15.805	31.155
Russia	0.201	32.406***	7.665	11.708	23.873	1.384	86.609***	11.737	16.198	33.632
S. Africa	0.018	1.374	8.968	12.770	22.170	0.037	0.592	8.437	12.975	21.145
Turkey	-0.223	7.519*	6.801	10.543	24.641	-0.215	3.519	7.968	12.170	20.796

Note: *, ** and *** indicate statistical significance at 10, 5 and 1 percent levels, respectively. Critical values are based on 10000 bootstrap replications.

Table 3. Panel causality between *MIL* and *CAP*

	H0:CAP does not cause MIL					H0:MIL does not cause CAP				
Countries	Coef.	Wald.stat.	Critical values			Coef.	Wald.stat.	Critical values		
			%10	%5	%1			%10	%5	%1
Brazil	0.414	9.022*	7.955	11.620	21.163	-0.056	0.201	8.439	11.979	22.157
China	0.331	6.288	18.511	25.381	40.575	0.327	27.645*	20.498	28.046	59.309
India	0.239	6.411	12.082	18.377	33.117	0.089	0.207	9.360	13.762	24.994
Indonesia	0.818	16.063**	8.872	14.375	24.010	-0.028	0.739	9.344	13.753	27.831
S. Korea	0.122	3.976	7.367	11.061	22.742	0.393	13.573**	8.177	11.834	21.714
Mexico	0.197	4.454	11.625	18.969	32.383	-0.298	4.971	7.644	11.634	18.797
Russia	1.194	60.879***	12.748	18.251	31.710	-0.372	3.696	6.874	9.829	19.710
S. Africa	-0.070	2.073	8.545	11.996	24.878	0.243	14.838**	7.352	11.066	21.241
Turkey	-0.026	0.184	7.396	10.829	22.435	0.955	12.174*	9.303	13.479	25.387

Note: *, ** and *** indicate statistical significance at 10, 5 and 1 percent levels, respectively. Critical values are based on 10000 bootstrap replications.

6. Conclusions

This paper examined the causal relationship between military expenditure per capita, real capital stock per capita, and real gross domestic product for BRICS countries (Brazil, Russia, India, China and South Africa) and MIST countries (Mexico, Indonesia, South Korea and Turkey) from 1990 to 2013, utilising the bootstrap panel causality method, which allows for both cross-section dependency and country specific heterogeneity.

Empirical results indicate that positive unidirectional causality from military expenditure to economic growth exists only for China. This means the growth hypothesis is valid for China and increasing military expenditure leads to an increase in economic growth through increasing aggregate demand. By contrast, a negative unidirectional causality from military expenditure to economic growth is noted for Turkey. Therefore, the growth detriment hypothesis is confirmed, and it can be said that increasing military expenditure may be harmful to economic activities in Turkey. In the case of Russia, there is bidirectional causality between economic growth and military expenditure. This means that increasing the military expenditure of Russia leads to an increase in its economic growth, and vice versa. The neutrality hypothesis is supported for Brazil, India, Indonesia, South Korea, Mexico and South Africa; therefore, it is concluded that military expenditure does not play any important role in the economic activities of these countries. Moreover, a positive unidirectional causality from real capital stock to military expenditure is noted in Brazil, Indonesia, and Russia. That having been said, unidirectional causality from military expenditure to real capital stock is confirmed for China, South Korea, South Africa and Turkey.

According to the results obtained, the technological spin-off effect is valid for China and Russia. It can be said that military investments are productive in these countries. On the other hand, the military expenditure of Turkey may have crowding-out effects on the private investments of this country; therefore, reducing military expenditure would be a rational policy for Turkey. Moreover, due to the validity of the neutrality hypothesis, the governments of Brazil, India, Indonesia, South Korea, Mexico and South Africa should change their military policies, redirecting, for instance, military investments to more productive military R&D areas.

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BANK RISK-TAKING AND COMPETITION IN THE ALBANIAN BANKING SECTOR

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Abstract
Exploring the link between competition and bank risk is an important issue for financial stability and for the economy as a whole. We have used bank level data to empirically test the relationship between bank risk and competition in Albania during the 2004-2014 period. Our results confirm the "competition-fragility" view for the total (and foreign) credit risk, where higher market power is associated with lower risk. Furthermore, we have revealed some aspects of the "competition-stability" relationship concerning nonperforming loans in local currency. We are providing evidence that, after the crisis, the relationship between total (plus foreign) credit risk and competition is nonlinear.

JEL Classification: G21, G32, C23
Keywords: Bank Competition, Credit Risk, Financial Stability, Lerner Index

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1. Introduction

The latest financial crisis has emphasised the crucial role competition and bank stability have had on the whole economy, which means that investigating this relationship is an important issue for financial stability [Beck (2008), Beck *et al.* (2012)]. In banking literature the determinants of bank risk-taking have been the object of considerable research efforts [Marcus (1984), Keeley (1990), Allen and Gale (2004), Beck *et al*. (2006), Jimenez, Lopez and Saurina (2007), Berger *et al.* (2009), Turik-Ariss (2009)]; however, the economic theory on the expected effect of increased competition on bank risk remains unclear [Marques-Ibanez, *et al.* (2014)].

Two are the main approaches that explore the relationship between bank competition and stability. The first approach, namely, the '*competition-fragility view'* or the traditional view, argues that more competition in the banking sector is related to increased bank fragility [Marcus (1984) and Keeley (1990), Allen and Gale (2000, 2004)]. Contrary to the first view, the second approach, or the *'competition-stability view'*, claims that higher competition among banks in the loan and deposit market increases and enhances financial stability, predicting a positive relationship between bank competition and bank stability (Boyd and De Nicolò, (2005)). Nevertheless, some authors [Boyd and De Nicolò (2005), Martinez-Miera and Repullo (2008)] predict a non-monotonic relationship between competition and bank risk, when allowing for the existence of bankruptcy cost or imperfectly correlated loan defaults.

Empirical literature also reflects the ambiguous results predicted from the theory. The explanation of mixed results is related with an inappropriate measure for the market power of banks and bank stability. In addition, most theoretical models do not make a distinction between market structure, i.e., concentration and competition, but rather assume a one-to-one mapping for the market structure to competition behaviour of banks (Beck, 2008). Boyd *et al* (2006) declare that another factor that explains differences between the two main theoretical views is that the effect of competition is investigated in two different markets.

The nexus between competition and bank risk has been investigated in many studies concerning advanced economies. In developing countries there has been little research and in the case of Albania there is one study that calculates bank competition, which, however, does not further calculate the link between competition and bank risk or stability. Investigation of the effects of competition in a developing country like Albania is an important issue for financial stability, because banks are the main source of financial intermediation.

The aim of this paper is to empirically test the relationship between bank competition and bank risk in Albania, using robust least square methods, and to investigate whether the latest financial crisis has affected this relationship. Furthermore, we are testing how bank characteristics have impacted the competition-risk-taking channel. Thus, this research work bridges the gap of empirical literature on the link between competition

and bank risk in Albania. For this purpose, we have used bank level data from the Bank of Albania Database for the period of 2004-2014.

Our results confirm the "*competition-fragility*" view for total (and foreign) loan risk, where higher market power is associated with lower risk. Moreover, we have found some elements of the "*competition-stability*" view for the link between competition and risk in the deposit market. We are providing evidence that, after the latest financial crisis, the relationship between bank stability as a whole and competition is nonlinear, thus, confirming Martinez-Miera and Repullo (2008) Model.

The remainder of this paper is organised as follows: The following section presents an overview of the theoretical and empirical literature on the relationship between competition and bank risk-taking. The third section describes the methodology and data, while in the fourth section we present the results and, finally, our conclusions.

2. Literature Review

Bank competition is very important for the financial market due to the impact it has on the efficiency of financial service production, on the quality of financial products and on the degree of innovation in the financial sector (Claessens, 2009). It has been a widely-held belief among policymakers that more competition in the banking sector is associated, *ceteris paribus,* with greater instability (more failures). The 2007-2009 financial crisis brought the connection between competition and bank stability to the fore once again (Marques-Ibanez *et al.* (2014).

Based on the theoretical literature, two are the main approaches that investigate the relationship between bank competition and stability. The first approach is the "*competition-fragility view"*, which argues that more competition in the banking sector is related to increased bank fragility. This approach is based on the *"charter value*" framework of banks, theoretically modelled by Marcus (1984) and Keeley (1990), according to which banks compete for collecting deposits and invest these in a set financial claim at various levels of risk. Consequently, in a more competitive market with increased pressures on profits, banks have stronger incentives to take excessive risk, which causes higher fragility. Otherwise, in an imperfect competition market, banks have greater opportunities to earn profit, so they have fewer incentives to take higher risks, thus enhancing banks stability. Allen and Gale (2004) state that in a more competitive market, banks face higher risks due to higher bank exposure caused from lack of information banks have on their borrowers. The main perception of this "*competition-fragility view"* is that in a more competitive market, banks have incentives to take higher risks, thus resulting in increased bank fragility.

The second approach is the "*competition-stability view"*, according to which competition and stability are positively related. Boyd and De Nicolò (2005) are mainly those who indicate that in a more competitive market, lower lending interest rates reduce the cost of borrowing for entrepreneurs and, this way, increase the

rate of effective investments. The authors have found a diminishing monotonic link between competition and bank risk. Similarly, in a more competitive market, banks will be facing lower credit risk, which would increase their stability. Martinez-Miera (2008) has extended the model of Boyd and De Nicolò (2005) by allowing a more imperfect correlation with loan defaults. Thus, a decrease in loan rates will reduce the performance of non-defaulting loans; in other words, they have found a U-shaped relationship between competition and risk, where economic structure plays an important role in this correlation.

The empirical literature we refer to in this study focuses on the connection between bank competition and bank risk (or stability). Despite the general theoretical framework, empirical results of the impact of bank competition on bank stability vary. There are two main strands of empirical literature that investigate the association between bank competition and bank (financial) stability; one strand is mainly based on a large, cross-country aggregated dataset, while the other is based on country bank level data.

Beck *et al.* (2006), using standard panel log-it models based on a cross-country dataset, have found that a more concentrated banking system is less likely to experience a banking crisis. Additionally, the authors have found that in a more concentrated banking market, banks have distributed the risks better. Schaeck *et al.* (2009), by investigating the relationship between competition and risk in 38 developed countries during 1980-2003, have found that a more competitive banking system is negatively related to systemic crises, thus supporting the "*competition-stability approach"*. Berger *et al.* (2009), by using bank-level data for 23 industrial states, have shown that banks with a higher degree of market power also face lower overall risk exposure, thus supporting the "*competition-fragility view"*. However, the authors provide some elements of the *"competition-stability view"*, where higher market power increases bank risk and this risk may be offset by higher equity capital ratios. Turik-Ariss (2009) has investigated how different degrees of market power have affected cost, profit, efficiency level and overall bank stability in emerging countries. They have shown that higher degree of market power has led to greater bank stability, thus supporting the "*competition-fragility*" view. Beck *et al.* (2012), by investigating the competition-stability relationship in different countries, have found that more intense competition will have higher impact on bank risk-taking incentives in countries which have stricter activity rules, more homogenous market structures, more generous deposit insurance and a more effective system of credit information sharing. By using regional data in 10 European countries over the 2000-2008 period, Liu *et al* have found a reversed U-shaped relationship between regional bank competition and stability, where regional economic conditions are found to play a significant role in determining the stability of European banks.

The second approach of empirical research investigates the relationship between bank competition and risk using bank-level data. Boyd *et al.* (2006), based on US data,

find that a more concentrated bank market (less intense competition) is, *ceteris paribus*, associated with greater risk of bank failure, thus confirming the *"competition-stability view"*. Jimenez *et al.* (2007) have not found any correlation between credit risks and bank competition in Spain; however, they have found that competition has positively affected credit risk, thus supporting the "*competition-fragility theory"*. Fungacova and Well (2009) have discovered that bank competition has affected financial stability of Russian banks, in accordance with the "*competition-fragility view"*. Iskenderoglu and Tomak (2013), when studying the association between competition and stability in the Turkish banking sector, have not found a clear relationship between the two main variables.

As Beck (2008) mentioned, one of the problems associated with such widely varied results is due to inadequate measures for bank stability and competition. The literature has identified that the main measures used to proxy bank stability are Z-score and the nonperforming loan ratio. Z-score is a measure of the distance from insolvency, defined as the sum of capital to assets ratio and return on assets, weighted by the standard deviation of return of assets, (Boyd, De Nicolò and Jalal 2006), where a higher Z-score ratio implies lower probability of bankruptcy and, vice versa, a lower Z-score ratio means higher bank instability. Another bank stability measure used in relevant literature is the non-performing loan ratio, which is an *ex-post* measure of credit rather than of overall risk. In this paper, bank stability is measured through the non-performing loan ratio. The main reason why we are focusing on credit risk is that credit risk is and remains the major risk of banks in Albania (Bank of Albania, 2014). Furthermore, we have used the Z-score index as an alternative measure to check the robustness of our main results.

Regardless of bank stability, measuring bank competition is a more challenging issue. In the literature there are three main groups of variables used to measure competition (Beck 2008). *The first* group includes market structure measures, such as concentration ratios, number of banks or Herfindahl indices. *The second* group consists of such measures as H-statistics, the Lerner index and the Boone indicator. These measures estimate the competitive behaviour of banks by measuring the reaction of output to input prices through imposing some restrictive assumptions of banks cost functions. The *third* group includes those indicators which provide information on the regulatory framework and the stability of the banking system. Given that we want to evaluate the competitive conditions of Albanian banks, we chose to calculate the Lerner index. As Jimenez, Lopez and Saurina (2007) have remarked, the Lerner index is considered to be a more accurate indicator of market power than concentration measures. The Lerner index varies at the bank level and is used as a proxy for current and future profits stemming from pricing power. Therefore, this index fits well with the theoretical concept of charter value, while this index makes it possible to measure the impact of pricing power on assets and funding risk of banks.

The association between competition and stability in the banking sector has been investigated in many studies for the case of advanced economies. However, in developing economies there has been little research [Turik-Ariss (2009), Iskenderoglu and Tomak, (2013)], and in the case of Albania, there is only one study by Note (2006). The author calculated bank competition in Albania based on the Panzar and Rosse methodology and she found that banks in Albania during the 1999-2006 period operated in a monopolistic banking system. Although this study does not explore the relationship between bank competition and stability in Albania it did reveal some evidence on competition in the banking system during that period. Investigation of the competition effect on the bank stability of an emerging country like Albania is an important issue for policymakers, since banks are the main source of financial intermediation (Vives, 2010). Thus, by investigating the relationship between bank competition and bank stability in Albania, this research study bridges the gap of empirical results and provides evidence on the effects of competition on bank risk in a developing country like Albania.

3. Methodology and Data

a. The Empirical Model

Based on the work of Jimenez, Lopez and Saurina (2007), Berger et al (2009), and Beck *et al* (2012), we have specified the link between competition and risk as follows:

$$Risk_{i,t} = \beta_0 + \beta_2 Risk_{i,t-1} + \beta_2 Competition\_id_{i,t} + \beta_3 (Competition_{id})^2_{i,t} + \beta_4 Bussines\_cycle_{i,t} + \sum_{k=1}^{m} \beta_5 Bank\_characteristic_{i,t} \quad (1)$$

Where subscripts *i* and *t* refer to bank and time period. Regressions are estimated using robust least square methods. This method allows a sound estimate of autoregressive parameters and fits the nonlinear trend of the series (Rousseeuw and Yohai, 1984). As we mention in the previous section, our main risk measure is the nonperforming loan as a ratio of total loan[1]. Furthermore, we tested if competition has a different impact on the risk[2] in foreign currency versus the risk of local currency, due to the fact that eurisation is a crucial issue in Albania.

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1. Like Jimenez, Lopez and Saurina (2007), we used the log transformation of NPL measures as follows: $\log\left(NPL_{i,t} / 1 - NPL_{i,t-4}\right)$, to ensure that the dependent variable spans over the interval $]-\infty, +\infty[]-\infty, +\infty[$ (as opposed to between 0 and 1, and it is distributed symmetrically).
2. This is measured as the log transformation of nonperforming loan in foreign (and local) currency ratio.

Like Jimenz, Lopez and Saurina (2007), we have also used the Lerner index[3] as a measure of competition. Compared to other competition measures, the Lerner index represents a good measure of the bank-year market power, which can be computed even with a small number of banks and is a flexible indicator with straightforward interpretation. Furthermore, the Lerner index is computed to measure competition in the loan and deposit market. We also tested the nonlinear relationship between bank risk and competition by including the squared measure of competition.

As a measure of a business cycle we have used the current value of real GDP growth to detect significant credit risk developments along the cycle. Furthermore, we have empirically tested how bank characteristics, like Size (measured as the log of total assets), Credit risk exposure or specialisation, Loan rates (measured as the ratio of total loans to total assets) and bank profitability (ROA[4]), influence this relationship. In order to see how the financial (economic) crisis impacted the correlation between competition and risk, we calculated the model for the period after the financial crisis.

The main coefficients we considered are β_2 and β_3 where a positive and significant value of both coefficients implies a positive relationship between risk (NPL ratio) and competition, thus confirming the "*competition-stability*" view of Boyd and De Nicolò (2005). While a negative and significant value of both β_2 and β_3 parameters suggests that lower competition leads to lower risk, which is supportive of the franchise value paradigm or the "*competition-fragility*" view of Marcus (1984), Keeley (1990), and Allen and Gale (2004). Besides, a significant negative β_2 and a significant positive β_3 suggest a U-shaped relationship between competition and risk, like in the Martinez-Miera and Repullo (2008) Model.

We expect a negative relationship between GDP and risk, so better macroeconomic conditions are related to lower risk. In general, we expect a positive long-term relationship between risk and profitability, but, like Jimenez, and Lopez and Saurina (2007) support, this association can also be negative, due to the fact that higher credit risk is linked with higher losses and lower profitability. There is no clear relationship between a bank size and its risk level; we expect negative or positive correlations depending on how larger banks may diversify the risk or not. Furthermore, there is no general consensus on the impact that the loan-to-asset ratio has on bank risk; therefore, a negative or a positive impact is expected.

3. Dushku (2015) presents in detail the way in which this index is calculated for banks in Albania.
4. ROA is a moving average of three years of return on assets for bank i. E/TA presents the moving average of three years on equity (E) to total assets (TA) for bank i, while σ_ROAi is the standard deviation of return on assets over the period under study.

b. The Data

The main sources of data are balances and income sheet statements of 15 individual banks collected by the Bank of Albania during the 2004-2014 periods, while real GDP data are obtained from the National Institute of Statistics in Albania (Instat).

In Table 5 (Appendix) we present some descriptive statistics of our main variables. The average Nplt ratio for the total banking system is 11.58%, with a high dispersion across banks ranging from 0% to 54%. Average NPL ratio in foreign currency is 8.36% with a maximum of 39.5%, while Npl ratio in local currency is 3.2% with a maximum of 28%. We also calculated the Z-score index, with an average of 11%, a minimum of 2% and a maximum of 26%.

Generally speaking, the Lerner index for deposits has an average of 0.3 with a maximum of 0.97, which reflects the fact that, on average, competition in the deposit market is moderate. Furthermore, the Lerner index of the loan market has an average of 0.53 and a maximum of 0.96, which reflects that competition in this market is lower compared to that of the deposit market.

We show that banks in Albania have an average ROA of 0.07%, with a minimum of -10% and a maximum of 8.5%. Bank lending, measured as the ratio of loan to total assets, is one of the main activities of the banking sector in Albania, with an average of 48% and a maximum of 96%. Therefore, we confirm higher differences in bank lending activity in Albania. Differences are also apparent on the basis of size and the level of capitalization, with a mean of 10.2 % and 14 %, respectively.

4. Results

To ensure robust and unbiased results, we performed some preliminary tests. In addition, we have run unit root tests for the whole banking series of our sample. After performing unit root tests we rejected the null hypotheses for all the series considered in our model (Table 6, Appendix A).

Table 1 shows our main results, where nonperforming loans to total loans (Models 1 and 2) is our proxy for loan risk. Due to the higher level of credit in foreign currency in Albania, we tested whether there are differences in the correlation between risk and competition taking into account the risk involved in foreign and local currency (Models 3 to 6).

Calculated results have shown a negative and significant linear coefficient of the Lerner index in the loan market and a positive quadratic term for both total risk and foreign risk (Model 1 and Model 3). In order to evaluate the type of relationship between the degree of market power and NPL ratios, similar to Berger *et al.* (2009) we calculated the inflection point of each quadratic function and compared this inflection point with data distribution. In Model 1, the inflection point is 0.54 (the sign of quadratic term is positive) and we found that 53% of the data lay below this inflection point. So we confirmed a negative relationship between the degree of

market power and the total loan portfolio risk. The same results were also found for the relationship between foreign credit risk and market power (Model 3). In line with the "*competition-fragility*" view of Marcus (1984), Keeley (1990) and Allen and Gale (2004), our results indicate that more intense competition in the banking sector is associated with riskier loan portfolios.

In Models 2 and 4 we present the results calculated for the correlation between the Lerner index in the deposit market and the credit risk for total and foreign loans. We found a positive and significant coefficient for the Lerner index in both models and a significant quadratic term. In Model 2, the inflection point (the quadratic term sign is negative) is 0.48 and we found that 82 % of all data are below this inflection point, confirming a positive link between market power and risk. Additionally, in Model 4, the inflection point is 0.53 (the quadratic term sign is negative) and that 86 % of the data are below this inflection point, indicating a positive relationship between market power and risk. Therefore, there is a positive link between competition in the deposit market and risk, in line with the *competition-fragility* view.

Table 1. Competition impact on Credit risk

	Npl_ratio		**Npl_ratio_fcurrency**		**Npl_ratio_allcurrency**	
	Robust Least Square		**Robust Least Square**		**Robust Least Square**	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
	Lerner_i_ loan market	Lerner_i_ deposit market	Lerner_i_ loan market	Lerner_i_ deposit market	Lerner_i_ loan market	Lerner_i_ deposit market
Npl_ratio (-4)	0.739*** (0.000)	0.735*** (0.000)	0.638*** (0.000)	0.652*** (0.000)	0.843*** (0.000)	0.859*** (0.000)
Lerner_i_	-2.049** (0.041)	1.029*** (0.005)	-2.864*** (0.017)	1.165*** (0.005)	0.0985 (0.922)	0.257 (0.458)
Lerner_i_ ^2	1.894** (0.0580)	-1.063*** (0.012)	2.640*** (0.029)	-1.089*** (0.024)	0.132 (0.894)	-0.316 (0.447)
Inflection point	*0.54*	*0.48*	*0.54*	*0.53*		
Sing of relationship	- *(negative)*	+ *(positive)*	- *(negative)*	+ *(positive)*		
GDP_G	-5.006*** (0.000)	-4.500*** (0.001)	-7.491*** (0.000)	-7.266*** (0.000)	-1.008 (0.4404)	0.222 (0.8810)
Roa	-0.1930*** (0.000)	-0.2100*** (0.000)	-0.2117*** (0.000)	-0.24020*** (0.000)	-0.0832*** (0.0000)	-0.0784*** (0.0001)
Loan_ratio	-0.1715 (0.1727)	-0.0617 (0.6572)	-0.1161 (0.4310)	-0.0738 (0.6384)	-0.4282*** (0.0008)	-0.0824 (0.5692)
Size	0.1241*** (0.0000)	0.1134*** (0.0000)	0.0970*** (0.0000)	0.08067*** (0.000)	0.0423*** (0.0208)	0.0700 *** (0.0011)
Nr. of observation	538	431	544	427	498	394
Nr. of banks	15	15	15	15	15	15
Adjusted R-squared	0.642	0.67	0.65	0.65	0.61	0.62

Note: Coefficient calculations are based on the robust least squares method, with robust standard errors based on Huber Type 1 correction. *, ** and *** indicate statistical significance at the 10 %, 5%, and 1 % levels, respectively.

Source: Author's Calculations.

Contrary to the above, we did not find any significant results between the competition index and the credit risk, (Table 1, Models 5 and 6) concerning credit risk in local currency (Models 5 and 6).

We found a negative and significant relationship between real GDP growth and all measures of nonperforming loans, which reflects the fact that higher economic growth is associated with a low risk level. We confirmed a negative and significant result between profitability and credit risk in all equations. This result shows that higher levels of nonperforming loans are associated with higher level of losses during a specific year, which negatively affects bank profitability. We also found a positive and significant correlation between bank size and risk, which suggests that larger banks have taken higher credit risks.

To summarise, we found a negative relationship between the market powers measured through the Lerner index in the loan market and total (foreign) loan risk, thus confirming the *'competition-fragility'* view. Hence, increased competition in the banking sector is likely to erode the franchise value of firms and encourage banks to increase their overall risk exposure. Since we found a positive and significant link between competition in the deposit market and risk, thus confirming the *'competition-stability'* view, higher market power is related with riskier loan portfolios.

We have also considered the impact market power or competition index has on the overall bank risk. As argued by Berger *et al.* (2009), we have to consider not only the risk on loan portfolios but the overall bank risk as well. Therefore, in Table 2 we present the impact the level of competitiveness has on the Z-score index, as an inverse proxy for the overall risk.

We found a negative and significant coefficient between the Z-score and the linear term of the Lerner index in the loan market and a positive and significant coefficient for the quadratic term. The inflection point in Model 1 (Table 2) is 0.53 (a positive quadratic term) and we found that 52% of all data are above this level, which implies a positive relationship between the market power and the Z-index. This result suggests a nonlinear link between competition and bank stability, thus confirming the Martinez-Miera and Repullo (2008) Model. However, we did not find any significant correlation between overall bank stability and competition in the deposit market. In both models presented in Table 2, we found a positive but insignificant relationship between the Z score index and macroeconomic conditions, which suggests that better macroeconomic conditions are associated with lower risk or higher bank stability. Moreover, we found a negative relationship between bank exposure and stability, implying that higher credit risk is not correlated with higher overall risk. We confirmed a positive and significant relationship between size and the Z-score, showing that larger banks take higher credit risk, but lower overall risk implying that larger banks are more stable due to the diversification of risk.

Table 2. Competition impact on Z-score

	Log (Z-score)	
	Robust Least Square	
	Model 1	Model 2
	Lerner_i_ loan market	Lerner_i_ deposit market
Log(Z_score(-4)	0.9421*** (0.000)	0.9356*** (0.000)
Lerner_i_	-0.5843*** (0.0004)	0.0344 (0.6740)
Lerner_i_^2	0.5624*** (0.0010)	0.02858 (0.7669)
Inflection point	*0.53*	
Sing of relationship	*+ (positive)*	
GDP_G	0.1163 (0.5621)	0.0915 (0.6650)
Loan_ratio	-0.3082*** (0.0000)	-0.3715 (0.0000)
Size	0.0378 (0.0000)	0.0284 (0.000)
Nr. of observation	596	464
Nr. of banks	15	15
Adjusted R-squared)	0.77	0.76

Note: Z_score is an inverse indicator of a bank's fragility; a higher value indicates greater bank stability. Coefficients calculated are based on the robust least squares method, with robust standard errors based on Huber Type 1 correction. *, ** and *** indicate statistical significance at the 10 %, 5%, and 1 % levels, respectively.

Source: Author's Calculations.

We have also tested whether the link between competition and risk changed after the last financial crisis. In order to examine this impact we calculated our model from 2007q4 until 2014q4 and we compared these with previous results (Table 3).

After the crisis we did not find a significant correlation between the Lerner index in the loan market and non-performing loans. Besides, we provide evidence of nonlinear link between competition in the deposit market and the risk measured through nonperforming loan ratios (Models 2 and 4, Table 3). We also checked how the relationship between overall bank stability and competition changed after the latest financial crisis. Results calculated are presented in Models 7 and 8 (Table 3) and show a negative and significant coefficient of the Lerner term and a positive and significant quadratic term.

The inflection point is -0.2 and we found that 99 % of the data lie above the quadratic term, which suggests a positive association between market power and bank stability, thus confirming Martinez-Miera and Repullo (2008) Model for a nonlinear link between market power and risk.

Table 3. Impact of financial crisis on bank credit risk and overall bank stability

	Npl_ratio		**Npl_ratio_fcurrency**		**NPl_ratio_allcurrency**		**Log (Z-score)**	
	Robust Least Square		**Robust Least Square**		**Robust Least Square**		**Robust Least Square**	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Lerner_i_loan market	Lerner_i_deposit market	Lerner_i_loan market	Lerner_i_deposit market	Lerner_i_loan market	Lerner_i_deposit market	Lerner_i_loan market	Lerner_i_deposit market
Lag_dependent variable	0.754*** (0.000)	0.754*** (0.000)	0.710*** (0.000)	0.698*** (0.000)	0.791*** (0.000)	0.801*** (0.000)	0.957*** (0.000)	0.946*** (0.000)
Lerner_i_	-1.677 (0.116)	0.690** (0.038)	-1.117 (0.388)	0.882** (0.030)	0.886 (0.388)	-0.059 (0.852)	-0.891*** (0.000)	0.012 (0.899)
Lerner_i_^2	1.289 (0.228)	-0.563 (0.145)	0.557 (0.667)	-0.619 (0.184)	-0.508 (0.619)	0.056 (0.878)	1.0127*** (0.000)	0.0291 (0.783)
Inflection point		*0.61*		*0.71*			*-0.2*	
Sing of relationship		+ ***(positive)***		+ ***(positive)***			+ ***(positive)***	
GDP_G	-2.258* (0.095)	-0.295 (0.842)	-3.772** (0.019)	-15.25*** (0.000)	0.552 (0.619)	1.1269 (0.388)	0.186 (0.5596)	-0.282 (0.346)
Loan_ratio	-0.093 (0.473)	-0.009 (0.965)	-0,062 (0.692)	-2.30 (0.181)	-0.587*** (0.000)	-0.424*** (0.004)	-0.321 *** (0.000)	-0.390*** (0.000)
Size	0.128*** (0.000)	0.119*** (0.000)	0.098*** (0.000)	0.072*** (0.004)	0.049*** (0.005)	0.72 *** (0.000)	0.039 *** (0.000)	0.0305*** (0.000)
ROA	-0.157*** (0.000)	-0.169*** (0.000)	-0.135*** (0.000)	-0.182*** (0.000)	-0.074*** (0.000)	-0.069*** (0.000)		
No. of observations	395	312	395	312	382	301	356	336
No. of banks	15	15	15	15	15	15	15	15
R-squared	0.65	0.67	0.63	0.67	0.65	0.65	0.78	0.76

Note: Coefficients calculated are based on the robust least squares method, with robust standard errors based on Huber Type 1 correction. *, ** and *** indicate statistical significance at the 10 %, 5%, and 1 % levels, respectively.

Source: Author's Calculations.

Furthermore, we found a negative and significant impact of business cycle indicators and all measures of risk and different results about credit risk exposure. We found a negative and significant relationship between risk and return in all models and a positive link between size and bank stability. Therefore, after the crisis the largest banks enjoyed lower overall risk.

5. Conclusions

Based on the theoretical literature, there are two main approaches exploring the relationship between bank competition and stability. The first approach is the '*competition-fragility'* view, which argues that more intense competition in the banking sector is correlated to increased bank fragility, because banks have incentives to take higher risk [(Marcus 1984), (Keeley 1990), (Allen and Douglas 2004)].

On the other hand, the second approach, i.e. the *'competition-stability'* view of Boyd and De Nicolò (2005), suggests a positive relationship between competition and risk. Additionally, Martinez-Miera and Repullo (2008) also found an inverted-U relationship between competition and risk. Regardless of the theoretical consensus, empirical results on the impact of bank competition on banks stability are still controversial and rather complex depending on how we calculate competition and bank risk.

In this study we tested the link between competition and risk (credit and overall risk) in the Albanian banking sector using the robust least square method during the 2004-2014 period. Moreover, we have tested how the financial crisis has changed this relationship. Our results confirm the '*competition-fragility'* view on total (and foreign) loan risk, where higher market power is associated with lower risk and we found some elements of the '*competition-stability'* view regarding the correlation between competition in the deposit market and risk. We provide evidence that, after the crisis, the relationship between overall bank stability and competition is nonlinear, thus confirming Martinez-Miera and Repullo (2008) Model.

Finally, we found that banks with higher credit risk exposure face higher risks, but larger banks, despite the fact that they have taken higher loan risks, benefited from greater bank stability. We have found a negative and significant correlation between overall (credit) risk and profitability and a negative and significant impact of real GDP on all measures of risk.

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Appendix A

Table 4. Descriptive statistic

Variables	Mean	Median	Max	Min	Std. Dev.	Observations
Nplt_ratio (%)	11.58	7.90	54.00	0.00	11.89	602
Nplt_r_allcurrency (%)	3.21	1.71	27.75	0.00	4.14	602
Nplt_r_fcurrency(%)	8.36	4.73	39.51	0.00	9.32	602
Z_score (%)	10.82	9.74	26.01	1.83	6.29	602
Lerner_i_dep	0.30	0.25	0.97	0.00	0.22	602
Lerner_i_loans	0.53	0.53	0.96	0.10	0.13	602
Size	10.22	10.48	12.69	7.23	1.36	602
Roa(%)	0.07	0.33	8.47	-9.94	1.44	602
Loan_ratio(%)	47.67	45.06	96.16	0.22	19.65	602
Gdp_g (%)	3.90	3.47	7.27	0.44	2.10	602

Source: Bank of Albania, Instat, IMF, Authors calculation (2015).

Table 5. Correlation coefficients

	Nplt_ratio	Nplt_r_ allcurrency	Nplt_r_ fcurrency	Z_score	Lerner_i_ dep	Lerner_i_ loans	Size	Roa	Loan_ ratio	Gdp_g
Nplt_ratio	1.00									
Nplt_r_ allcurrency	0.74(0.00)	1.00								
Nplt_r_ fcurrency	0.95 (0.00)	0.50 (0.00)	1.00							
Z_score	-0.23 (0.00)	-0.08 (0.11)	-0.26 (0.00)	1.00						
Lerner_i_ dep	0.12 (0.01)	-0.01 (0.86)	0.16 (0.00)	-0.01(0.89)	1.00					
Lerner_i_ loans	0.18 (0.00)	0.21 (0.00)	0.13 (0.01)	-0.03 (0.51)	-0.10 (0.05)	1.00				
Size	0.18 (0.00)	0.21 (0.00)	0.13 (0.01)	0.02 (0.62)	0.10 (0.04)	0.10 (0.03)	1.00			
Roa	-0.31 (0.00)	-0.14 (0.00)	-0.33 (0.00)	0.16 (0.00)	0.05 (0.31)	0.06 (0.24)	0.31 (0.00)	1.00		
Loan_ ratio	0.17 (0.00)	-0.02 (0.73)	0.23 (0.00)	-0.66 (0.00)	0.01 (0.77)	-0.10 (0.03)	0.10 (0.04)	-0.18 (0.00)	1.00	
Gdp_g	-0.66 (0.00)	-0.51 (0.00)	-0.62 (0.00)	0.11 (0.03)	0.03 (0.54)	-0.27 (0.00)	-0.32 (0.00)	0.21 (0.00)	-0.21 (0.00)	1.0

Note: p-values are in bracket.
Source: Authors'Calculations.

Table 6. Unit root test

	Fisher-type based on ADF test Ho: all panel contain a unit root	Fisher-type based on PP test Ho: all panel contain a unit root	Im-Pasaran-Shin test Ho: all panel contain a unit root
Log_tr (Nplt_ratio)	66.34*** (0.000)	97.6*** (0.000)	-3.34*** (0.000)
Log_tr (Nplt_r_ Allcurrency)	68.92*** (0.000)	121.77*** (0.000)	-3.18*** (0.000)
Nplt_r_ Fcurrency	64.93*** (0.000)	101.66*** (0.000)	-3.41*** (0.000)
Z_score	54.58*** (0.000)	48.41 (0.42)	-2.11*** (0.000)
Lerner_i_ Dep	81.97*** (0.000)	127.140*** (0.000)	-4.95*** (0.000)
Lerner_i_ Loans	44.23*** (0.0454)	56.67*** (0.0023)	-1.8*** (0.0358)
Size	68.85*** (0.000)	84.22*** (0.000)	-3.08*** (0.000)
Roa	80.72*** (0.000)	96.01*** (0.000)	-5.18*** (0.000)

Note: p-values are in bracket.
Source: Authors' Calculations.

SEEJE

Book Review

The Politics of Persuasion. Should lobbying be regulated in the EU?

authored by Urs Steiner Brandt & Gert Tinggaard Svendsen
published by Edward Elgar, Cheltenham UK, Northhampton USA, 2016, pp. 176
ISBN: 978 1 78254 669 6

reviewed by Grigoris Zarotiadis*

Postmodern, neo-liberalised capitalism challenges many of the "infallible truths" of civil history, one of which is democracy, which forms one of the two main pillars of the bourgeois moral and political background, the other one being "freedom". Besides any distortions in the contemporary, representative, political systems of developed countries (many more falsifications could be highlighted with respect to the issue of "freedom/liberty"),[1] we are currently witnessing a dispute of the rationale of democratic legitimacy and its gradual substitution by more "conveniently efficient" forms of justifying socio-political power.

The vision of a democratic, socially just and environmentally balanced Europe, the modern cradle of humanitarianism and peace, a vision that moved European people and spread the mood for European integration through enlargement of the EU, is fading away. As technocracy gradually replaces democracy and while we are witnessing a neo-fascist socio-political retrogression along with the gradual intensification of the international systemic crisis, it becomes all the more necessary to reorient the progressive vision for cooperation and prosperity.

The book by Urs Steiner Brandt and Gert Tinggaard Svendsen contributes to this discussion by emphasising a pertinent, yet highly focused topic, namely, lobbies and their political power in the EU. The authors combine analytical tools and quantitative methods of standard economic analysis with a "second-best" advocacy that leads them to social-liberal, highly realistic suggestions void of radicalism.

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1. For a relevant analysis, see G. Zarotiadis, "Liberty or Freedom: Lost in translation?", Intercultural Translation Intersemiotic, Vol 3, No 2 (2014).

Their 'make-it-work-if-you-can't-change-it' line of arguments becomes immediately obvious through the overall research question, as this is defined by the authors themselves: "*whether lobbying should be regulated or not in the EU*" (ps. 2 and 9). The introductory chapter clarifies the fundamental parameters of the authors' view, which is quite useful for the reader. From the very first lines of the book it becomes clear the authors accept the classic principle that (individual) decisions freely taken lead to (socioeconomic) optima. Secondly, when defining the main subject of their analysis, they start from Svendsen's view that "*lobbying is not necessarily a bad thing*",[2] but it becomes economically harmful when it "*seeks redistribution in one's own favour at the expense of one's fellow citizens*".[3] This becomes even more hazardous in the case of asymmetric incentives and organisational capabilities among various social groups – the book demonstrates such types of asymmetry between producers and consumers. Clarifications in the first pages of the book also reveal the main contradiction of social liberalism. Brandt and Svendsen properly anticipate the specific nature of lobbying in the EU: "*the EU interest politics have been named an 'elite pluralist environment'*[4]". Contrary to corporatist models, where the underlying norms and legislation ensure that all affected interests participate in the decision-making process, in the unregulated lobbying environment of Brussels, small interest groups with asymmetrically higher incentives and "abilities" for grouping are being favoured. This well-documented 'blemish' of European interest politics becomes even more serious if we consider it in an institutional environment of democratic deficit, "*since the power is rooted in bureaucracy (the Commission) rather than the parliament*".[5] Nevertheless, although they anticipate the erroneous nature of the (modern) bourgeois institutional context that endogenously generates asymmetries and imperfectness, the authors still seek for interventions that will regulate the creation of (market) power concentrations, in the name of a vague, miss-specified free market-trade context.

This particular way of addressing the principal dilemma of individual *vs.* collective action is combined with the second deterministic specificity of social liberalism, which also becomes apparent from the very first pages of the book: the authors focus exclusively on conflicting interests in the sphere of commodity circulation, rather than on those that appear in the production process itself. In other words, although

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2. G.T. Svendsen, "Lobbies, professional" in G.T. Kurian (ed.) The Encyclopedia of Political Science, Vol. 3, Washington DC: Congressional Quarterly Press (2010).
3. This Pareto-type definition of harmfulness can also be found in J.M. Buchanan and G. Tullock, "The Calculus of Consent", Ann Arbor, MI: University of Michigan Press (1962), and in R. Possner, "The social costs of monopoly and regulation", Journal of Political Economy, 83, 807-27, (1975).
4. Page 7 of the book – see, also, D. Coen, "Empirical and theoretical studies in EU lobbying", Journal of European Public Policy, 14, 333-45 (2007).
5. Page 7 of the book – see also S. George and I. Bache, "Politics in the European Union", Oxford: Oxford University Press.

they insist on the desired symmetry between the (collective) interest of producers and consumers, they avoid any reference to the conflicting interests of factors involved in production.[6]

The structure of the book is quite straightforward: following the introductory chapter, the authors discuss in detail the unpleasant mixture of power centralisation and lack of lobbying-regulations in the EU revealing links leading to the emergence of corruption issues as well. Next, they proceed with three case studies of key importance – the framework for trade in greenhouse gases, lobbying in "green industries" (organic farms and wind turbines) and, finally, the case of countervailing the lobbying of brown and green power plants. These studies help authors illustrate specific types of systemic flaws, namely, the case of institutional cheating, that of wasting resources and, last but not least, the case of inducing earlier (rather than optimal) switch points in time. Finally, Chapter 7 discusses the "lobbying of lobbies" issue, presenting examples of aligning already organised lobbying groups, while Chapter 8 concludes on the major question of the book, "*whether lobbying should be regulated or not to make the European Dream come true*" (page 9 of the book).

This publication efficiently enriches relevant literature. It combines the theoretical arguments reviewed and empirical evidence with innovative aspects of the authors' analysis for a reasonable contribution towards the inevitable discussion about the institutional and systemic transformation of Europe. Although they reveal a clear ideological identity, which, in any case, is hard to escape whenever one deals with socioeconomic issues, the authors insist on using rationalised arguments along with actual cases of bureaucratic corruption, thus bringing to light the imperfections of European reality (pages 30-36).

Nevertheless, exposing and critically asserting the subjective aspects of their writing, instead of detracting from it, highlights the actual significance of Brandt's and Svendsen's scientific as well as politically applicable contributions.

Unquestionably, the EU (not to mention the rest of post-modern western capitalism) is at a crossroads. From the authors' socio-liberal point of view, the dilemma is to go down the road of protectionism and planned economy or the road towards free trade (see page 130 of the book). Yet, is it not a paradox to recognise that it is the very function of the free trade itself that has led to a number of complex policies, while at the same time proclaiming that this political complexity is closer to the model of a planned rather than a free economy?

6. In the few cases where the authors refer to the interests of production factors – for instance in pages 17-18 of the book – they obviously downplay the nature and meaning of trade unions and workers' organisations and assert them as merely being another lobbying group of producers.

As is often the case in socio-liberal approaches, mutually exclusive positions exist in several propositions: Brandt and Svendsen dynamically argue for the necessity of lobbying regulation as a decisive initial step towards peaceful and prosperous European integration, which at the same time, according to their statement, should be a process for establishing an unregulated, economically efficient, free-trade environment.

Obviously, I should not overlook my own ideologically induced subjectivity, as this would be refuting the rationale of this review. Given that, however, I recognise the thoroughness of Brandt's and Svendsen's analysis and I support the usefulness of their very specific proposals, even if they (slightly or fully) differ from what some of us might consider appropriate and adequate. Institutional and systemic evolution is probably as necessary as ever, and so is the creative juxtaposition of alternative, progressive thinking. This is the most appropriate way to achieve what the authors' last phrase wishes - "*a beautiful European Dream may come true*" (page 136) – but, even more, to determine who the beneficiaries of this "dream" are going to be.

> *It is not the decentralization of decision-making power as such that makes the economy more efficient… rather the resulting reduction in economically harmful lobbying is the key… The Commission has first the exclusive right to initiate all legislation and second is capable of Europeanizing a sector with the help of powerful national interest groups… As a consequence, the democratic deficit is worsened by non-democratic political influence…*

SEEJE

Book Review

The Politics of Public-Private Partnerships in Western Europe. Comparative Perspectives

by Thomas Krumm
published by Edward Elgar, Cheltenham, UK, Northhampton, MA, USA, 2016, pp. 256
ISBN: 978 1 78254925 3 (cased)
ISBN: 978 1 78254926 0 (eBook)

reviewed by Tom Willems*

Public-private partnerships (PPPs) combine the resources of governments with those of private business actors in order to deliver societal goals or services, and share risks and costs. PPPs are popular around the globe to deliver infrastructure projects. Based on data from *Public Works Financing*, the Canadian scholar Matti Siemiatycki (Toronto University) has shown that over 1300 transport infrastructure projects are delivered via PPPs in more than 90 countries, worth a total of 500 billion US dollars. PPPs have also become an important and well-embedded procurement method for long-term public infrastructure projects in Europe. In addition, PPPs are also relevant beyond the world of infrastructure projects and contracts, because they can be seen as illustrations of the manner in which public governance functions nowadays: more private, more horizontal, more complex, and, at least in theory, driven by common goals or objectives. Despite growing scholarly literature on PPPs, comparative research on PPP policies is rather scarce. In this new book entitled '*The politics of Public-Private Partnerships in Western Europe*' Thomas Krumm attempts to bridge this gap. He systematically examines the many factors influence the level of PPP activity in Western Europe. By looking at socio-economical, institutional and political factors across a sample of 14 European countries, this book brings some much needed empirical rigorousness into the debate. In this sense the book is a worthwhile complement to the previous volumes on PPPs edited by leading scholars Graeme Hodge (Monash University) and Carsten Greve (Copenhagen Business School) (2010 and 2013). While they mostly present single-country studies, Thomas Krumm takes the next comparative step.

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The book has three main parts. He first focuses, with good reason, on PPPs as a political issue. There has been much scholarly attention devoted to PPPs from such diverse disciplines as economics, law, management and engineering, but there are not so many social scientists studying PPPs. Yet, infrastructure policy and debates on PPPs are inherently political. A PPP is more than just a neutral or technical tool. It is about long-term choices on the manner in which basic public services are delivered. Thomas Krumm also writes about the impact of the 2008 global financial crisis. Although this section provides some necessary context to properly deal with the issue of PPPs, the sheer complexity of the aftermath of this financial crisis calls for a more in-depth analysis (and probably another book). In the second part, the author empirically tests, in the sample of European countries, various factors like partisanship, veto players, structure of interest groups and public finance (deficit, debt, etc.). Although this quantitative approach sheds some extra light on the scale of PPP activity, it remains hard to gain a real understanding of the mechanisms at play. The variables tested explain only a small part of the complete story (as acknowledged by the author himself), and are broad and vague concepts difficult to measure. The third part of the book uses comparative country case studies to get a deeper insight into the PPP phenomenon. The pairwise case selection of countries is a refreshing approach, and this qualitative presentation helps to understand what is going on in terms of PPP activities in Western Europe. This detailed storytelling of PPP activities in various European countries is, in my opinion, more convincing than the previous part. It is in describing the complex reality of PPP policies in each country in a straightforward and uniform way that the main contribution of this book lies. Although there are some sound global reviews on PPPs (see, for instance, the recent book by Akintola Akintoye and Mathias Beck 2016), they are always edited volumes with scholars writing about PPP projects in their respective countries. Thomas Krumm writes about 14 European countries with equal detail and substance. This is quite an achievement, and has the obvious advantage of clarity. The very rich description of country case studies in terms of PPP policies is what makes this book worth reading and buying. This book offers a welcome bird's eye view on PPP activities and policies in Europe.

The conclusions of the book, however, fall somewhat short in terms of actually grasping the diverse mechanisms at play in the case of PPPs. The author lays many interesting elements on the table, but does not completely succeed in 'solving' the puzzle. Again, it is in describing the complex reality where the main contribution of this book lies, rather than in testing it. Furthermore, given the embryonic status of PPP research in terms of empirical analyses, it is probably too early for such attempts. Rigorous testing requires a more detailed and solid theoretical framework on the politics of PPPs. It seems to me that the author himself implicitly acknowledges this lack of conceptual strength, too, by leaning (too) heavily on Colin Crouch's notion of 'privatised Keynesianism'. Although this approach is indeed very promising, it needs to be further developed. In fact, this important book is the first much needed step in this direction.

SEEJE

Book Review

Exploring Inequality in Europe. Diverging Income and Employment Opportunities in the Crisis.

edited by Martin Heidenreich

published by Edward Elgar, Cheltenham, UK, Northhampton, MA, USA, 2016, pp. 250
ISBN: 978 1 78347 665 7 (cased)
ISBN: 978 1 78347 666 4 (eBook)

reviewed by Michael Chletsos*

Income and social inequalities constitute a serious problem of the last few years. Although the goal of the welfare state is to decrease poverty and income inequalities, reality is quite different. In EU-15 poverty rates increased slightly from 15.8% in 2005 to 17% in 2014, while severe material deprivation rates increased from 5.3% in 2005 to 7.2% in 2015. The income quintile share ratio (S80/S20) reached the level of 5.2 in 2014 as opposed to 4.5. in 2000. All indices show a slight deterioration of living conditions of the citizens in EU-15. The fight against poverty and the reduction of income inequalities constitute the main priorities of European social policy. The book points out the new structure of income inequalities and how this structure has been affected by the recent economic crisis. One of the main findings of the book is that we are witnessing an Europeanization of social inequalities. During the last economic crisis two processes have taken place. The first one is the horizontal Europeanization and the second the sovereign debt crisis. It is considered that the Europeanization of social inequalities reflects the increasing transnational perception of social inequalities. According to Heidenreich, editor of the book and author of three of its chapters) a major result of the analysis is the so-called "double dualization thesis", according to which the living conditions of Europeans are divided along territorial and social or socio-demographic lines. The book concludes that there is a rearrangement of social inequalities in the EU and this is shown by five distinct trends, namely: a) polarisation of European labour markets; b) restructuring of the European centre – peripheral relations due to the relative decline of Southern Europe and the continuing convergence of Eastern and Western Europe; c) increasing

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national employment, income and health inequalities; d) subjective Europeanization of inequalities, and e) the impact of the EU on social inequalities.

Chapter two discusses three different Europeanization concepts (inter–supra and transnational) with regard to income inequality. The main assumption made in this chapter is that social relations and industrial structures challenged by the Europeanization of markets can be analysed within the boundaries of a nation state. Empirical results based on the use of micro data show an increase in intra–national inequality and a decline in income inequality among EU member states. The cause of increased inequalities, particularly in the Mediterranean countries, is deteriorating economic and living conditions in these countries. Explanatory factors of the structure of regional and national patterns of income inequality are European economic integration and individual (race, sex, education) and national (industry, unemployment and welfare state) characteristics.

Chapter three analyses the factors which affect poverty rates at individual and national levels. The main question raised in this chapter is whether the influence of institutional and personal factors on persistent poverty has changed during the years of the recent crisis. Personal factors (socio-demographic characteristics) are considered as the influential factors at the national level. Welfare state regulations determine the risk of becoming and remaining poor. The findings of this chapter show that individual factors have a similar effect on both the temporarily and the permanently poor. Non-poor people are affected more by the level of income inequality, while divisions between poverty rates are not influenced. Public policies aiming at curtailing social expenditure hit harder the persistently poor.

Chapter four examines the extent to which the risk of becoming and remaining unemployed is the result of an existing dualization between labour market insiders and outsiders, high and low–skilled employees and occupations, and marginalisation of specific social groups defined on the basis of their personal characteristics. The main conclusions of this chapter are the following: a) European labour markets are strongly and durably segmented; b) social distribution of the short– and long–term unemployed differs for many groups, and c) the crisis has affected certain social groups more than others. What has been noted during the last few years is that the crisis is responsible for the increasing short–term unemployment risk and has caused the return of prior forms of labour market segmentation.

Chapter five analyses the role and the circumstances of women in the labour market during the financial, sovereign debt and economic crisis. Three different hypotheses are analysed. The first one (H1), which wonders if the austerity policies that followed the Great recession and the Eurozone crisis have stabilised the conventional bread-winner model and caused the return of women to their traditional roles, has been refuted by empirical findings. The second hypothesis (H2), which has been confirmed by empirical results, investigates whether the trend towards inclusive employment

regimes will be reflected in high female employment and low unemployment rates. It is also found that women in Southern Europe are forced to take up a job because of increased male unemployment rates and, thus, they have contributed to the erosion of traditional gender relations. The third hypothesis (H3) refers to the expected dualization of employment opportunities for women, due to their increasing inclusion in the labour market. Empirical findings indicate a strong dualization between high and low skilled women with regard to their vocations. Highly–skilled women have flexible employment conditions and are employed in educational, administrative and social services receiving high wages, while younger and less–skilled women are employed in the trade, hotel or food processing sectors and accept lower pay.

Chapter six answers the question of whether the probability of being temporarily employed in Europe is becoming more and more dependent on individual characteristics and individual labour market chances rather than on national welfare and labour market regimes. Personal characteristics reinforce the dualization between labour market insiders and outsiders and can explain the probability of being temporarily employed. Another question answered in this chapter is whether and to what extent Europeanization processes affect labour market segmentation and social inequalities. An index of this impact is de-territorialization, i.e., the dependence of an individual's welfare on their socio-economic characteristics and their successful market participation. Empirical results show that and individual's risk of being temporarily employed has become more dependent on an employee's age. The level of educational attainment also explains the individual risk of being employed on a fixed-term contract. Another important finding presented in this chapter is that the impact of national institutional factors on the risk of being dependent on individual characteristics decreased in the years prior to the crisis. This relation has reversed since the onset of the crisis, which could be explained by the particularities of national labour markets.

Chapter seven seeks to investigate the extent to which the health status of poor persons has worsened during the crisis in the European periphery. Furthermore, the purpose of this chapter is to analyse the development of physical, psycho-social and medical health determinants responsible for poor health among people with a low income. Health outcomes are worse for both poor and non-poor people. Austerity policies aiming at reducing health expenditure mainly affect the non-poor. The explanation is that the government supports only poor people, while other social groups lose their income due to the economic crisis and, therefore, lose their medical insurance, yet remain without any state support. European countries (Spain, Greece, Cyprus, Ireland and Portugal) subject to Economic Adjustment Programmes are faced with increasing difficulties in providing health services to the entire population and they are experiencing a more dramatic change in the social determinants of health.

Chapter eight investigates the potential impact of Europeanization on the lives

of Europeans citizens. The main question to be answered in this chapter is whether cross-border networks, social relations and transnational patterns of communication in Europe improve life satisfaction among European citizens. Life satisfaction depends on a set of opportunities to work, travel and study beyond national borders. Empirical analysis showed a positive correlation between life satisfaction and horizontal Europeanization. This relation remains stable when the author controls other national characteristics.

Chapter nine analyses and explains whether bailout funds have an economic and social dimension. The two main questions answered in this chapter are whether social problems have been defined as politically relevant issues in the European crisis management and how these challenges have been treated within the framework of bailout funds. Based on different scenarios about the attitude of the EU towards social problems of the countries under Austerity Adjustment Programmes, the author concludes that such social problems have been receiving attention at the European level, but they are still not considered as systematically important. Another important conclusion of the analysis presented in this chapter is that the European Union has succeeded in avoiding a catastrophic breakdown and that it is expected the EU will move towards being a more stable Union in the future.

The importance of the book "Exploring Inequality in Europe" is twofold: firstly, the topic discussed and analysed in the book is among the most debatable topics of social sciences. The goal of the welfare state is to eliminate poverty and income inequality, i.e., unequal income distribution. The process of European countries towards a common market area was accompanied by structural economic and social changes in these countries. In-depth analysis of income inequalities allows the readers to better understand current income distribution in the EU and the profile of those more likely to be poor and ranking lowest at this income distribution. The second benefit from reading this book is learning what has been happening with income distribution among EU countries. The recent economic crisis and the application of austerity economic policies by countries subject to Economic Adjustment Programmes has affected the distribution of income and shown significant trends of economic convergence in EU countries.

call for papers

13th INTERNATIONAL CONFERENCE
of the *Association of Economic Universities*
of South and Eastern Europe and the Black Sea Region (*ASECU*)

Organized by

University "Alexander Moisiu", Durres, Albania

"SOCIAL AND ECONOMIC CHALLENGES IN EUROPE 2016 – 2020"

May 19 - 20, 2017
Durres, Albania

General information

Conference aim

The aim of the conference is to address issues affecting the economic and social development of Europe as a region which nearly a decade has been affected by the economic and financial crisis, as well as a high level of unemployment, especially for the younger age groups. Strengthening the economic stability of the region, monetary and fiscal policies, the employment, competitiveness of markets etc, will be the key issues to be addressed through the presentations and discussions.
The conference will serve as a regional forum where the participants will have the opportunity to exchange experiences on developments, reforms and the dynamics of financial and economic crisis facing the countries of South Eastern Europe and beyond. Also, the conference aims to build bridges and encourage cooperation between faculties with economic profile in South- Eastern Europe, considering the importance they have in the preparation of students who will be employed in the fields of business and economics in the future.
Apart from the organization of panels with specific topics and important on development in the region transitional economies, the conference aims to bring concrete proposals for policy and decision-making authorities, as well as the business community.

The conference official language is English.

Conference Topics

First session : Market competitiveness, economic policies and reforms

Topics:

- Consumers, producers and efficiency of markets
- Governmental taxation policies and incentives
- Businesses and market competitiveness
- International trade in European countries
- Employment and social welfare issues
- The capital markets in Europe
- Income distribution
- Economic and financial reforms toward European economic crisis
- Legislation framework in the economic sector and employment

Second Session: Macroeconomic policies in European area

- Monetary policies
- Financial markets and economy
- Governmental fiscal policies
- Exchange rate systems
- Investments and the economy
- The banking systems
- International trade
- GDP-s, Deficits and Debts
- Economic growth analyses

Third session: Innovation contribution towards social challenges

- Contribution of entrepreneurship to addressing social exclusion and inequalities
- ICT-s and their impact in employment
- The role of states in the social welfare of societies
- Economic development and environmental challenges
- Legislation framework and incentives
- Market opportunities for new enterprises
- New Demographic challenges in Europe

The conference is not restricted to the suggested themes. All participants are welcome to suggest other ideas in relation to the main theme of the conference.

Important dates

January	**25th, 2017**	Deadline for submission of abstracts
February	**8th, 2017**	Notification for abstracts acceptance
March	**30th, 2017**	Deadline for submission of full-papers and application forms
April	**15th, 2017**	Notification for full-paper acceptance
April	**30th, 2017**	Deadline for registration and payment
May	**3rd , 2017**	Announcement of the detailed conference program

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Guidelines for Abstract Submission (All submissions are refereed)

Submissions of abstracts have to meet the following criteria:

- Previously published papers will not be accepted for submission.
- Title of the contribution written in English (type size - 14, font - Times New Roman, bold)
- The title page must include, degree, names affiliations, complete e-mail addresses for all the authors;
- Abstracts, written in English, should be no longer than 10-18 lines (format: normal, type size - 12, font - Times New Roman, Spacing: Before: 0, After: 0, Line Spacing: 1.5, Alignment: Justified, Indentation: Left: 0, Right: 0, Special: 0).
- JEL classification and up to 6 keywords should be used.
- Abstracts should include Objectives, Data and Methods, Results, and Conclusions.

More information about abstract submission are given at ***Abstract Submission*** at the asecu2017. uamd.edu.al.

Abstract submissions should be in Microsoft Word format and send via e-mail to asecu2017@gmail.com. When submitting your paper please write in the **subject** line: **ASECU conf. (*name of the leading author*)**;

Guidelines for Full-paper Submission

- Submit papers of no more than 8-10 pages (including tables, figures, graphs and math formulas) in length including results, figures and references. It is necessary to write the extended abstract and paper according to the instructions.

Requirements for the paper-formatting:

- Use A4 Format, margins: top 25 mm; bottom 25 mm; left 25 mm; right 25 mm; Line spacing – 1.5; Between paragraphs one line space; paragraph justify. The text should be written in Word 2003 or in Word 2007 (Windows), font -Times New Roman, size 11pt;
- The name(s) of the presenting author(s) and other co-author(s), degree, affiliation(s), complete post mail and Email addresses, title of the papers should be provided in the first mandatory page (presentation page).

- More information about full paper submission are given at ***Full Paper Submission*** at: asecu2017.uamd.edu.al.

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All the presented papers will be included at the Proceedings of the Conference, which will be issued, with an ISBN in hard copy and electronic form. The authors will have a certain time after the conference for submitting the revised version of their papers.

The Editorial Board of **South Eastern Europe Journal of Economics (SEEJE),** the official journal of ASECU, after having the agreement of the authors, plans to publish selected conference papers following a blind refereeing process. For more information at http://www.asecu.gr/Seeje/.

Paper presented at the Conference ASECU 2017 will have also the opportunity to be published at the International official Journal of "Aleksandër Moisiu" University, Interdisciplinary Journal of Research and Development (IJRD) without additional charges. Further details for the journal http:// http://www.uamd.edu.al/new/?page_id=4406.

Conference fee and hotel accommodation

The conference fee amounts to **50 €** per participant (only for ASECU Members) and **70 € (for non ASECU Members)**

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Each participant should cover travel costs to and from Durrës, and should directly book accommodation in Durrës.

Accomodation:

The following hotels are recommended by the Organizing Committee (list of hotels close to conference venue):

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Aragosta is 4 star hotel located in the beautiful city of Durrës.Thanks to the position in which Aragosta Hotel is located, enables to all the public and guests rooms, a wonderful and relaxing sea-view. It is located next to the conference venue (University "Aleksandër Moisiu", Durrës), about 2 minutes walking distance.

Address: Rruga Taulantia 71, Durrës 2000, E-mail: reception@aragosta.al
Tel: +355 52 226477 Mob: +355 68 2058070 http://www.aragosta.al

Hotel "2 Kitarat"

Hotel Boutique & Spa 2 Kitarrat offers a spa and wellness centre, as well as a bar and a restaurant. Free Wi-Fi access is available throughout the property. It is located about 5 minutes walking distance from the conference venue.

Address: Rr.Taulantia, L.1 Durrës, Albania, Tel/fax: +35552909070/071, Mob:+355689093475, E-mail:info@2kitarrat.com, http://www.hotel2guitars.com

Hotel "Arvi"

Hotel ARVI, is located in one of the most beautiful areas of Durrës, with a panoramic view from each room. The hotel is near the Port of Durrës, along Taulantia sidewalk. The hotel is within walking distance from the city's administrative, business and cultural institutions. It is located about 15 minutes walking distance from the conference venue.

Address: L.1 Rr. Taulantia. 2000 Durrës, Albania TEL. +355 52 230403 ; FAX. +355 52 226079, info@hotelarvi.com ; www.hotelarvi.com

guide for authors

The articles should be written as follows:
(1) Papers must be in English.

(2) Papers for publication (two copies) should be sent to:

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South-Eastern Europe Journal of Economics
ASECU, University of Macedonia, 156, Egnatia Str., 546 36 Thessaloniki, Greece

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(5) The first page of the manuscript should contain the following information: (i) the title; (ii) the name(s) and institutional affiliation(s) of the author(s); (iii) an abstract of not more than 100 words. A footnote on the same sheet should give the name, address, and telephone and fax numbers of the corresponding author [as well as an e-mail address].

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The classification system used in JEL can be found at:
http://www.aeaweb.org/journals/jel_class_system.html.

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(8) Footnotes should be kept to a minimum and numbered consecutively throughout the text with superscript Arabic numerals.

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(10) References to publications should be as follows: 'Smith (1992) reported that...' or 'This problem has been studied previously (e.g., Smith et al., 1969)'. The author should make sure that there is a strict one-to-one correspondence between the names and years in the text and those on the list. The list of references should appear at the end of the main text (after any appendices, but before tables and captions for figures). It should be double spaced and listed in alphabetical order by author's name. References should appear as follows:

For monographs
Sen, A., 1970, *Collective Choice and Social Welfare*, San Francisco: Holden Day.

For contributions to collective works
Kornai, J., 1991, Stabilization and Economic Transition in Hungary: The Next Two Years, in J. de Melo and A. Sapir (eds.), *Trade Theory and Economic Reform: North, South and East*, Oxford: Basil Blackwell, 307-326.

For periodicals
Magdalinos, M., 1990, "The Classical Principles of Testing Using Instrumental Variables Estimates", *Journal of Econometrics,* 44, 241-279.

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