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12th Annual International Symposium on
Economic Theory, Policy and Applications
22-25 May 2017, Athens, Greece

Edited by
Gregory T. Papanikos

2017

Abstracts
12th Annual International
Symposium on Economic
Theory, Policy and Applications
22-25 May 2017, Athens, Greece

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Preface

This book includes the abstracts of all the papers presented at the 12th Annual International Symposium on Economic Theory, Policy and Applications, 22-25 May 2017, organized by the Athens Institute for Education and Research (ATINER). In total 18 papers were submitted by 21 presenters, coming from 17 different countries (Canada, China, Germany, Greece, India, Iraq, Italy, Kuwait, Romania, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, UK, and USA). The conference was organized into 10 sessions that included a variety of topic areas such as ecosystems, agriculture, climate change, and air quality. A full conference program can be found beginning on the next page. In accordance with ATINER's Publication Policy, the papers presented during this conference will be considered for inclusion in one of ATINER's many publications.

The purpose of this abstract book is to provide members of ATINER and other academics around the world with a resource through which to discover colleagues and additional research relevant to their own work. This purpose is in congruence with the overall mission of the institute. ATINER was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world could meet to exchange ideas on their research and consider the future developments of their fields of study.

It is our hope that through ATINER's conferences and publications, Athens will become a place where academics and researchers from all over the world regularly meet to discuss the developments of their discipline and present their work. Since 1995, ATINER has organized more than 400 international conferences and has published nearly 200 books. Academically, the institute is organized into seven research divisions and 38 research units. Each research unit organizes at least one annual conference and undertakes various small and large research projects.

For each of these events, the involvement of multiple parties is crucial. I would like to thank all the participants, the members of the organizing and academic committees, and most importantly the administration staff of ATINER for putting this conference and its subsequent publications together.

Gregory T. Papanikos
President

FINAL CONFERENCE PROGRAM
12th Annual International Symposium on Environment, 22-25 May 2017
Athens, Greece

PROGRAM

Conference Venue: Titania Hotel, 52 Panepistimiou Avenue, Athens, Greece

C O N F E R E N C E P R O G R A M

Monday 22 May 2017

08:00-09:00 Registration and Refreshments

09:00-09:30 (Room C-Mezzanine Floor) Welcome and Opening Address

Gregory T. Papanikos, President, ATINER.

09:30-11:00 Session I (Room B - Ground Floor): Labor, Employment & Migration

Chair: John Roufagalas, Head, Economics Research Unit, ATINER & Professor, Troy University – Montgomery, USA.

1. Ujjaini Mukhopadhyay, Assistant Professor, Behala College, India. Effects of Public Expenditure on Primary and Higher Education and FDI on Unskilled Labour.
2. Alina Botezat, Researcher, Romanian Academy - "Gh. Zane" Institute for Economic and Social Research, Romania & Doru Botezat, Lecturer and Postdoctoral Researcher, "Gr. T. Popa" University of Medicine and Pharmacy Iași and Romanian Academy - "Gh. Zane" Institute for Economic and Social Research, Romania. Intergenerational Transfer of the Medical Profession and Emigration Intentions among Romanian Medical Students.
3. Victoria Mousteri, PhD Student, University of Stirling, UK, Michael Daly, Associate Professor, University of Stirling, UK & Liam Delaney, Professor, University of Stirling, UK / UCD Geary Institute, University College Dublin, Ireland. Involuntary Part-time Employment and Mental Health: Evidence from Britain.

11:00-12:30 Session II (Room B - Ground Floor): European Economies

Chair: *Nikola Mirkov, Economist, Swiss National Bank, Switzerland.

1. Bruno Dallago, Professor, University of Trento, Italy. Growing Rifts in the Eurozone.
2. Concepcion Diaz Garcia, Professor, C.E.S. Cardenal Cisneros, Spain & Manuel Leon-Navarro, Professor, C.E.S. Cardenal Cisneros, Spain. The Spillover Effect across the European Union: A New Approach.
3. Gregory T. Papanikos, Honorary Professor of Economics, University of Stirling, U.K. & President, ATINER. Taxing Wealth and only Wealth in an Advanced Economy with an Oversized Informal Economy and Vast Tax Evasion: The Case of Greece.

12:30-14:00 Session III (Room B - Ground Floor): Environment, the Industry and the Economy

Chair: Nicolas Abatzoglou, Head, Environment Research Unit, ATINER & Professor, Department of Chemical & Biotechnological Engineering, Université de Sherbrooke, Canada, Chair Pfizer, PAT in Pharmaceutical Engineering, Director GREEN-TPV and GRTP-C & P.

1. Roland Leduc, Professor, Université de Sherbrooke, Canada, Marion Landry Carter, Graduate Student, Université de Sherbrooke, Canada, Hubert Cabana, Professor, Université de Sherbrooke, Canada & Amina Nait Sidi Ahmed, Professional Engineer, CRB Innovations Inc, Canada. Oxidation Processes for the Decontamination of Wastewaters from a Treated Wood Recycling Industry.
2. *Mohammed Abdulradh, PhD Student, University of Baghdad and Ministry of Agriculture, Iraq, Osamah Kadhim Jbara, University of Baghdad, Iraq, Boubaker Dhehibi, International Center for Agricultural Research in the Dry Areas, Jordan & Kamel Shideed, International Center for Agricultural Research in the Dry Areas, Jordan. Technical and Environmental Efficiency of Wheat Farms in Saline Irrigated Areas of Central Iraq.
3. Deniz Dolgen, Professor, Dokuz Eylul University, Turkey & *Mehmet Necdet Alpaslan, Professor, Dokuz Eylul University, Turkey. An Ecological Approach to Managing Industrial Wastewater Treatment Plant Sludges.

14:00-15:00 Lunch

15:00-16:30 Session IV (Room B - Ground Floor): Essays on Applied and Theoretical Economics Analyses

Chair: *Amitendu Palit, Senior Research Fellow, National University of Singapore, Singapore.

1. John Roufagalas, Professor, Troy University – Montgomery, USA & Alexei G. Orlov, Researcher, Securities and Exchange Commission, USA. Endogenous Growth, Human Capital and the Dynamic Costs of Recessions.
2. Panagiotis Petratos, Professor, Department of Computer Information Systems, California State University, Stanislaus, USA. Egalitarian Equal Opportunity Education.
3. Valia Kasimati, Economist, Bank of Greece. The Impact of Migration flows on Greek Tourism.

16:30-18:30 Session V (Room C-Mezzanine Floor): A Symposium on Ethics, Economics and Environment

Chair: Panagiotis Petratos, Professor, Department of Computer Information Systems, California State University, Stanislaus, USA.

1. Patricia Hanna, Professor and Interim Chair of Linguistics, University of Utah, USA. Neither Love nor Money: What could Save the Environment?
2. Frans P. de Vries, Professor, University of Stirling, U.K. Ethics and Environmental Markets.
3. Timothy M. Young, Professor and Graduate Director, Department of Forestry, Wildlife and Fisheries, Center for Renewable Carbon, The University of Tennessee, USA. Protecting Ethics, Economics, and the Environment in the Era of the Digital Citizen and Exponential Population Growth.
4. Nicolas Abatzoglou, Professor, Department of Chemical & Biotechnological Engineering, Université de Sherbrooke, Canada, Chair Pfizer, PAT in Pharmaceutical Engineering, Director GREEN-TPV and GRTP-C & P. Produce Fuels from Renewable Resources.

For details on the discussion please [click here](#).

21:00-23:00 Greek Night and Dinner (Details during registration)

Tuesday 23 May 2017

07:30-10:30 Session VI (Room B - Ground Floor): An Educational Urban Walk in Modern and Ancient Athens

Chair: Gregory Katsas, Vice President of Academic Affairs, ATINER & Associate Professor, The American College of Greece-Deree College, Greece.

Group Discussion on Ancient and Modern Athens.
Visit to the Most Important Historical and Cultural Monuments of the City (be prepared to walk and talk as in the ancient peripatetic school of Aristotle)
(Note: The simple registration fee of the conference does not cover the cost of this session.
More details during registration).

11:30-13:00 Session VII (Room B - Ground Floor): Special Topics in Economics

Chair: Bruno Dallago, Professor, University of Trento, Italy.

1. *Hakan Hyden, Professor, Lund University, Sweden & Farai Nyika, PhD Student, Stellenbosch University, South Africa. Social Cohesion and the Anticipated Fall of the Welfare State.
2. Rainer Przywara, Professor, Hannover University of Applied Sciences and Arts, Germany. De-Industrialization – Opportunity or Threat?
3. *Amitendu Palit, Senior Research Fellow, National University of Singapore, Singapore. TPP, TTIP & Developing Countries: Implications & Challenges.
4. *Nikola Mirkov, Economist, Swiss National Bank, Switzerland. Fiscal Dominance in High-Frequency Data.

13:00-14:00 Lunch

14:00-15:30 Session VIII (Room A - Ground Floor): Technical Topics on Environmental Issues

Chair: *Salim Hiziroglu, Professor, Oklahoma State University, USA.

1. Xiao-Quan Chen, Associate Professor, South-China University of Technology, China, Wen-Hao Shen, Technical Director, South-China University of Technology, China & Shi-Bin Wu, Student, South-China University of Technology, China. Advanced Treatment of Papermaking Wastewater by Photocatalytic Oxidation with Nano-TiO₂ Colloids.
2. *Saif Uddin, Senior Research Scientist, Kuwait Institute for Scientific Research, Kuwait, Abdulaziz Aba, Kuwait Institute for Scientific Research, Kuwait, M. Behbehani, Kuwait Institute for Scientific Research, Kuwait, H. Al-Shammari, Kuwait Institute for Scientific Research, Kuwait & A.N. Al-Ghadban, Kuwait Institute for Scientific Research, Kuwait. Cesium and Plutonium in Gulf Waters.

21:00- 22:30 Dinner (Details during registration)

Wednesday 24 May 2017
Educational Island Tour (Details during registration)
or
Mycenae and Epidaurus Visit (Details during registration)

Thursday 25 May 2017
Delphi Visit (Details during registration)

Mohammed Abdulradh

PhD Student, University of Baghdad and Ministry of Agriculture, Iraq

Osamah Kadhim Jbara

University of Baghdad, Iraq

Boubaker Dhehibi

International Center for Agricultural Research in the Dry Areas, Jordan

&

Kamel Shideed

International Center for Agricultural Research in the Dry Areas, Jordan

Technical and Environmental Efficiency of Wheat Farms in Saline Irrigated Areas of Central Iraq

This study set out to investigate the impact of salinity on technical efficiency (TE) and environmental efficiency (EE) in wheat production in central Iraq, where 360 farmers have been interviewed and soil and water samples were collected and analyzed. This study aims to consider how farmers could re-allocate their resources in efficient and sustainable ways to produce viable agricultural production in the salt-affected areas of Iraq without introducing a new technology. Stochastic frontier analysis (SFA) approach was proposed to estimate both TE and EE in irrigated wheat production farms. The empirical findings showed that, on average, TE was 75% for low saline farms (EC less than 2.5 dSm⁻¹), 58% for moderate saline farms (EC ranging between 2.5 and 7.5 dSm⁻¹), and 32% in the severe saline farms (EC exceed 7.5dSm⁻¹).

While, the mean level of EE was 76%, 64%, and 34% for low, moderate, and high saline farms, respectively. Two main sources of environmental degradation have been considered: Urea, and DAP. The fertilizer (Urea) coefficient indicated that for improving EE by 1%, wheat yield need to be reduce by 6% through using recommended quantities of Urea fertilizer by farmer. Soil salinity level associated negatively with technical and environmental efficiency of farm.

Alina Botezat

Researcher, Romanian Academy - "Gh. Zane" Institute for Economic
and Social Research, Romania

&

Doru Botezat

Lecturer and Postdoctoral Researcher, "Gr. T. Popa" University of
Medicine and Pharmacy Iași and Romanian Academy - "Gh. Zane"
Institute for Economic and Social Research, Romania

Intergenerational Transfer of the Medical Profession and Emigration Intentions among Romanian Medical Students

It has long been documented that there is a tendency for children to follow into their parents' occupations. These intergenerational transfers are particularly common among physicians, pharmacists, and lawyers, providing substantial advantages for those who follow in these careers. Beyond the transmission of valuable occupation-specific knowledge and resources, children may also benefit from the social connections of their parents as well as from inside information that might help them to lower entry barriers into profession, especially in those societies in which opportunistic behaviors are widespread.

While many studies examine the mechanisms generating intergenerational transmission, little is known about the effects on various outcomes. This paper analyzes whether medical students who follow the career of their parents differ, in terms of emigration intentions after graduation, from the children of non-doctors. We used data from an in-class survey carried out among Romanian medical students attending "Gr.T.Popa" University of Medicine and Pharmacy Iasi, whose catchment area is Eastern and North-Eastern Romania, the most affected region by medical exodus.

The empirical findings interestingly reveal that children from families in which at least one parent is a physician are more likely to plan to migrate after graduation, compared to children whose parents have other professions. This effect is stronger for those with both parents working as doctors and appears to be largely driven by students who were compelled to move out of their hometowns study medicine. We also show that physicians' children who had lower Baccalaureate exam grades express higher levels of intention to leave the country after graduation compared to high performers.

At least two reasons may be proposed on why children of doctors are more likely to plan to migrate. Firstly, they may benefit from their parents' network of relationships which, given the fact that emigration

is a common phenomenon among Romanian medical doctors, most likely extends abroad as well. Secondly, since most of the children of physicians come from geographical districts outside the university medical center, their parents might exert less influence in terms of favoritism, compared to parents who reside and work in close proximity to the university center. Furthermore, given the gaps in the medical infrastructure between center and remote areas in the Romanian health system, those who have lower chances to find a position in the university medical center might find better opportunities through migration.

Xiao-Quan Chen

Associate Professor, South-China University of Technology, China

Wen-Hao Shen

Technical Director, South-China University of Technology, China

&

Shi-Bin Wu

Student, South-China University of Technology, China

Advanced Treatment of Papermaking Wastewater by Photocatalytic Oxidation with Nano-TiO₂ Colloids

The photocatalytic oxidation process of nano-TiO₂ is the most promising of the advanced treatment technologies to the organic wastewater, but there have been still two obstacles in its industrialization, which are how to separate the nano-TiO₂ from the treated wastewater and how to decrease the high cost. The paper reported the nano-TiO₂ colloids being used as photocatalyst to overcome above obstacles, basing on settleability of the colloidal solution by adjusting pH and the re-usage of the separated nano-TiO₂. The laboratory results shown the COD_{Cr} removal rate of the papermaking wastewater achieved 92.7% after 90 min UV light irradiation with 0.5 g/L nano-TiO₂ and 0.1 % H₂O₂, and the COD_{Cr} of the effluent was reduced to 7.6 mg/L. The raw papermaking wastewater was pretreated by flocculation with the ternary complex of 0.015% polyferric sulfate, 0.01% polyaluminium chloride and 0.001% nano-TiO₂ colloid. After five times reusing, the nano-TiO₂ photocatalyst still remained 88.5 % COD_{Cr} removal rate, where the 4.2 % decrement might be due to the wastage of the nano-TiO₂. According to the laboratory researches, a pilot scale equipment with the automatic control system was established and operated with the optimized process parameters so as to remove the 96.7 % COD_{Cr} and 99.7 % chromaticity of the model organic wastewater.

Bruno Dallago

Professor, University of Trento, Italy

Growing Rifts in the Eurozone

The paper analyzes the causes and consequences of the division between resilient and vulnerable countries in the Eurozone and considers the possible solutions to this dangerous stalemate.

While during the crisis the euro proved its resilience and brought sizeable advantages, costs in terms of lost output and unemployment accumulated in various member countries. A fundamental long run problem of the Eurozone is the growing split between vulnerable and resilient countries. Those countries are vulnerable that need policies and reforms to strengthen and adjust their unbalanced and fragile economic situation, but are unable to do so since they are members of the monetary union. Resilient countries do not have similar needs, since their economy is stronger and more balanced.

The split pre-existed the adoption of the euro and the crisis. Vulnerability is due to domestic problems and the bubbles financed by capital inflow and then abrupt reversal. However, it was the institutional and policy incompleteness of the monetary union and the austere management of the crisis that made the split evident and growing, made difficult to fix it and potentially dangerous for vulnerable countries and the monetary union. The problem goes beyond the standard explanation of the need for keeping a hard constraint of national budgets to avoid moral hazard, uncontrolled inflationary pressure, and unwanted transfer of income among member countries. The Eurozone is at a dramatic crossroads: it cannot stay as it is, but there is no agreement on how to change. As the example of Japan highlights, a national currency and sovereign policies, even expansionary ones, are not sufficient to overcome the deep reality of "lost decades".

Concepcion Diaz Garcia

Professor, C.E.S. Cardenal Cisneros, Spain

&

Manuel Leon-Navarro

Professor, C.E.S. Cardenal Cisneros, Spain

The Spillover Effect across the European Union: A New Approach

This paper studies not only the effects of public capital on private sector variables for a single country, but also the spill-over effects for the rest of the EU-15. This is a new approach. There are many papers that study the spillover effects for different areas inside a country, but this paper analyse this effect for different countries inside an economic area. The preliminary results show that a positive public capital shock has different effects on each EU-15 country. There are countries where not effects are reported. There are others where their product and employment increase due to the shock. Finally there are countries where a public capital shock in the rest of the EU-15 has a larger effect on their private variables than a public capital shock inside the own country. In this latest case, there are reasons to justify the Structural Funds and Cohesion Fund policy.

Deniz Dolgen

Professor, Dokuz Eylul University, Turkey

&

Mehmet Necdet Alpaslan

Professor, Dokuz Eylul University, Turkey

An Ecological Approach to Managing Industrial Wastewater Treatment Plant Sludges

Land application of industrial wastewater treatment plant (IWWTP) sludge for farming or vegetation growth is important issue for ecological sustainability and life cycle assessment of wastes. Therefore, the aim of the paper is to investigate the land use potential of the industrial wastewater treatment plant sludge (agro-industry) by defining the sludge characteristics and by determining the sludge application ratio. In this framework, sludge samples produced from vegetable processing, olive oil, and meat processing wastewater treatment plants were used. Characterization study was carried out and parameters limiting reuse potential were determined. The pH, salinity, solids content, moisture content, organic matter, organic carbon, nitrogen, phosphorus, potassium, iron, magnesium, sodium, calcium as well as heavy metals (Cu, Zn, Cd, Cr, Pb, Ni) were measured to determine the physical and chemical properties of the sludge samples. Results shown that, heavy metal concentrations detected in the sludge samples obtained from the selected industries were lower than the tolerance limits set by the national authority.

In order to investigate the metal accumulation on plant leaves and roots, the sludge was amended with soil mixture and applied at various rates to promote the growth of lettuce and cucumber plants. Vegetable processing industry sludge was used for growth of lettuce and cucumber plants. The sludge application caused no significant increase in heavy metal concentrations in the plant leaves, though zinc and iron were found at elevated concentrations. However, despite the zinc and iron accumulation, no toxicity symptoms were observed in the plants. Similar to vegetable processing industry sludge, lower metal uptakes were also measured for olive oil industry sludge. Only the cadmium and lead concentrations in the lettuce plants exceed the maximum permissible metal concentrations. Cadmium generally tends to accumulate in leaves, and therefore is more risky especially for leafy vegetables. Since, increase in the dietary uptake of cadmium is a potential risk to human health, a careful assessment of plant species to be grown, is required prior to land application of sewage sludge.

In conclusion, since sludge contains certain elements that are useful for the agricultural production, it may deserve particular interest for agro industries. Trace element can accumulate in the plant tissue, e.g. leaves, and therefore it should be considered by appropriate low sludge application rates.

Hakan Hyden

Professor, Lund University, Sweden

&

Farai Nyika

PhD Student, Stellenbosch University, South Africa

Social Cohesion and the Anticipated Fall of the Welfare State

There is a tendency in the whole of Europe to lean more to the right politically with increasing numbers of far-right political parties having neo-liberal ideologies. These events are merely symptoms of the threats and failings of the welfare state model and social cohesion. The state is the present mechanism that is and has been holding European society together. This article will focus on the role that the welfare state model plays in maintaining the social cohesion of western societies and how this system is under an anticipated threat.

We identify certain phenomena which are threatening social cohesion in contemporary society. These threats are namely technological development and migration. Inspired by the theory of anticipation, we claim that these threats are growing and will jeopardize the welfare state model, negatively affecting social cohesion. We will try to draw conclusions of different trends in contemporary society which challenge the social cohesion of the post-industrial societies.

Valia Kasimati

Economist, Bank of Greece

The Impact of Migration flows on Greek Tourism

Roland Leduc

Professor, Université de Sherbrooke, Canada

Marion Landry Carter

Graduate Student, Université de Sherbrooke, Canada

Hubert Cabana

Professor, Université de Sherbrooke, Canada

&

Amina Nait Sidi Ahmed

Professional Engineer, CRB Innovations Inc, Canada

Oxidation Processes for the Decontamination of Wastewaters from a Treated Wood Recycling Industry

Treated wood recycling industries face environmental issues as the processes involved generate wastewaters that can be heavily contaminated with various biocides. One such industry, located in Quebec (Canada), generates wastewaters containing mainly phenolic compounds, mostly as pentachlorophenol (PCP), and others to a lesser extent such as polycyclic aromatic hydrocarbons (PAHs).

Moreover, these wastewaters have a pH greater than 12. The industry aims at discharging these wastewaters in one among two nearby municipal wastewater collection systems for further treatment in their wastewater treatment facilities.

The objective of the project is to treat this industrial wastewater such as to meet the requirements of the two cities of Sherbrooke and East Angus for discharging it into their sanitary sewers. Basic oxidation processes (UV, H₂O₂ and O₃), and advanced oxidation processes (UV/TiO₂, Fenton, H₂O₂, UV/H₂O₂, O₃, O₃/UV, O₃/H₂O₂ and O₃/UV/H₂O₂) were tested to treat this wastewater.

The criteria studied are the reduction of pH, as well as the reduction of PCP and of chemical oxygen demand (COD). A 3-step optimization procedure was used.

The results have shown that O₃ and O₃/H₂O₂ processes were the most favorable in terms of removal efficiency. These processes allowed to meet the pH and PCP requirements of both cities after 30 minutes of treatment. They also allow a reduction of COD of 30 and 48% respectively after 30 minutes. For both processes, the optimum conditions are an ozone flow rate of 145 mg/L*min, an initial pH of 12.5 and a treatment time of 30 minutes. The optimal concentration of H₂O₂ is 3.75 mg / L for O₃/H₂O₂.

With O₃/H₂O₂, the pH reached 7.75 and the PCP concentration is 0.07 mg/L after 30 minutes of treatment. The 5-day biochemical oxygen

demand at 5 days (BOD5) is also considerably reduced after 30 minutes of treatment.

Nikola Mirkov

Economist, Swiss National Bank, Switzerland

Fiscal Dominance in High-Frequency Data

In a context of elevated probability of sovereign default, interest rates hikes by the central bank could result in depreciation rather than appreciation of the exchange rate and therefore augment rather than lower inflation. This unintended effects arise because higher interest rate differential is insufficient to offset a higher currency risk premium, which is in turn driven by higher probability of default. We build on this intuition advanced by Blanchard (2004) and propose a novel approach to evaluate the presence of fiscal dominance by studying daily data around central bank decisions. We apply the approach to Brazilian data and show that interest rate hikes by the Central Bank of Brazil from 2013 to 2015 resulted in a depreciation of real against the US dollar and that a sizable part of it can be explained by the shock to currency risk premium.

Victoria Mousteri

PhD Student, University of Stirling, UK

Michael Daly

Associate Professor, University of Stirling, UK

&

Liam Delaney

Professor, University of Stirling, UK/UCD Geary Institute, University
College Dublin, Ireland

**Involuntary Part-time Employment and Mental Health:
Evidence from Britain**

Ujjaini Mukhopadhyay
Assistant Professor, Behala College, India

Effects of Public Expenditure on Primary and Higher Education and FDI on Unskilled Labour

Empirical studies have documented rising wage inequality between skilled and unskilled workers in developing countries, particularly in the aftermath of liberalisation. The relative wages of skilled and unskilled workers is determined by their relative demand and supply. While the relative demand for skilled/unskilled labour is determined by the existing technology, production and trade pattern; the relative supply depends on the level of skill formation. If globalization induced changes increase the demand for skilled labour in developing countries with the immediate effect of intensifying the wage inequality, a corresponding enhancement in skill formation is likely to raise supply of skilled labour and reduce the inequality.

However, in developing countries that are largely plagued by fiscal stringencies, competing demands for budgetary funds meant for primary and tertiary education sectors often lead to trade-off between them so that the allocation of government funds on primary and higher education is often asymmetric. Given that along with human capital, changes in physical capital, is also likely to have significant consequences on wages, it is relevant to analyse the effects of foreign capital inflow, which is the main source of increase in capital stock for developing countries.

The present paper endeavours to investigate the effects of differential education expenditure of the government on primary and higher education, and foreign capital inflow on skilled unskilled wage gap and unemployment in the economy. A two sector Harris-Todaro model with unemployment of unskilled labour is set up. It is assumed that efficiencies of unskilled and skilled labour depend on government expenditure on primary and higher education respectively, which are asymmetric due to fiscal stringencies. The comparative static results show that a rise in government expenditure on primary education may reduce skilled-unskilled wage inequality while government expenditure on higher education aggravates the wage inequality. However, both types of expenditure accentuate unemployment. On the other hand, foreign capital inflow aggravates wage inequality but may have favourable effects on unemployment.

The results indicate that while enhanced public investment in higher education is instrumental for skill formation in the country, it

might have adverse effects on the relative position of unskilled labour. Foreign capital inflow should accompany enhanced public expenditure on primary education so as to obtain favourable effects on skilled unskilled wage inequality and unemployment.

Amitendu Palit

Senior Research Fellow, National University of Singapore, Singapore

TPP, TTIP & Developing Countries: Implications & Challenges

Mega-RTAs imply a variety of new challenges for excluded countries. While some of these challenges arise from the economic impacts of growth of geographies characterised by new discriminatory preferential access and include trade diversion and market access loss, some others are produced by long-term implications of the mega-RTAs on global trade governance. The latter are more long-term and generic and pertain to the future role and contribution of developing countries in global trade rule-making. The TPP and TTIP has generated several challenges of both varieties due to their large economic sizes, regulatory ambition and geo-strategic significance. The scale of these challenges is large for excluded countries, particularly developing countries. The latter include large populous emerging market economies like China and India, as well as countries figuring at various rungs of economic prosperity, including least-developed countries from Africa and Asia, many of which depend heavily on TPP and TTIP member markets for exports. This paper will examine some of the major challenges for excluded developing countries, both for the relatively more and the least developed, in the context of their economic circumstances, role and interests in global trade, participation in regionalisation and the capacity to negotiate major global and regional trade issues.

Gregory T. Papanikos

Honorary Professor of Economics, University of Stirling, U.K. &
President, ATINER, Greece

**Taxing Wealth and only Wealth in an Advanced Economy
with an Oversized Informal Economy and Vast Tax
Evasion: The Case of Greece**

12th Annual International Symposium on Economic Theory, Policy and Applications, 22-25 May
2017, Athens, Greece: Abstract Book

Panagiotis Petratos

Professor, Department of Computer Information Systems, California
State University, Stanislaus, USA

Egalitarian Equal Opportunity Education

Rainer Przywara

Professor, Hannover University of Applied Sciences and Arts, Germany

De-Industrialization - Opportunity or Threat?

This research aimed at modelling and evaluating the socio-economic change denominated as 'de-industrialization', brought about by political and economic developments between 1973 and 2008, and guidelines derived from identified best practices for policies assuring sustainable economic development, both in mature and emerging countries.

In a cross-national comparative study with case elements, the socio-economic development of 12 mature and 25 emerging countries was compared within a cross-sectional design format involving a novel macro-economic model of industrialization and de-industrialization processes. The national findings are interpreted connectively, relating the findings either to international trends, common grounds or national peculiarities. National culture and the varieties of capitalism (Hall & Soskice, 2001) are put in relation to macro-economic data.

From the investigation of structural shifts it became clear that economic success can be assured by different economic means, i.e. an emphasis on different industrial or service sectors, in the course of international division of labour. Manufacturing, especially high-technology manufacturing, is one of the options to achieve economic success that several states pursued. In the investigated globalized period (1993-2008), Austria and Germany, Finland and Sweden were the most successful of these states. Focusing on manufacturing requires a sound know-how base which can be considered as a core competency. Furthermore, a continuous ambition to innovate products and processes is necessary to assure state-of-the-art products and a high productivity. Especially in the globalized economy of recent decades, characterized by merciless competition through open-market policies and neo-liberal politics, long-known economic success stories in manufacturing like those of Spain, Italy, France and Japan became jeopardized and their habitual policies scrutinized. Their mainly state-led policies sufficed for developing a strong manufacturing sector after World War II and being successful through the 1970s and 1980s, but in the globalized era, they were apparently more and more insufficient for sectoral and overall economic success.

Productivity was identified as the key driver and indicator of success in the manufacturing sector. Industrial policies need to aim at high productivity since competition today is on a global platform.

Countries not being able to keep up with the speed are running the risk of trade losses and in that turn economic shortfalls. Short-term 'social' policies, i.e. those of retaining jobs instead of raising productivity, under these circumstances have little chances to lead to satisfactory results in the mid or long term as examples from Latin America, but also Spain and France prove.

On the other hand, oversteered neo-liberal policies can lead to very critical economic situations, especially if applied dogmatically at the wrong time and the wrong place, as the example of Finland around 1990 showed impressively. Such policies do not fit well with high-tech manufacturing, which depends on institutions for training and education to be ready to create the incremental innovations that assure market success. According to the VoC theory, such innovations are attributed to CMEs. If the delicate interplay of institutions is interrupted by harsh interventions, the comparative institutional advantage of an economy will suffer.

Private micro-economic units will not be able to organize adequate institutions to assure their human resources and an efficient state administration. From high market pressure and limited resources for the individual firm, market failure will result, i.e. the privatization of public goods will not work. Examples are the education sector and also basic research which need to be organized on a broad basis which individual firms will not provide. To put it more poignantly: Neo-liberalism will dig its own grave if taken too far, especially in CMEs.

On the other hand, as the results of socialism, but also western dirigisme show, governments and their administrations are poor entrepreneurs. They are lacking creativity and drive to be innovative, so in a globalized economy, there is hardly a possibility for state-owned conglomerates to succeed in the top tier of global manufacturing.

While the latter is without any doubt correct for mature economies, see the failed attempt to grow 'national champions' in the UK, it has to be noted that catch-up industrialization can be and has been successfully organized by or with strong support of government in many states like France, Japan, Korea, recently in China. By state support, their infant industries could be taken over the first steps to marketability of their products.

But when reaching a certain stage of maturity, simply copying available know-how does not lead to further progress. Thus, especially late-moving states have to learn that old apodictic certainty has to be given up at a certain point if progress shall not come to a halt at that stage of development.

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Endogenous Growth, Human Capital and the Dynamic Costs of Recessions

This paper constructs, analyzes and simulates a novel endogenous growth model, in which unbounded growth is possible without the need to assume increasing returns to scale. Endogenous technology and human capital accumulation serve as the “twin engines of growth”. Simulations are used to derive growth rates consistent with long-term experience of developed countries, to understand better the differences between steady-state and unbounded growth, and to provide an estimate of the long-run (or dynamic) costs of capacity utilization shocks that produce business-cycle-like behavior. Conservative calculations show that the costs of the capacity shocks can be large – about 1.5% of the present value of output over a 100-period horizon. The theoretical model also suggests that differences in the technology production and human capital accumulation functions, possibly due to differing institutions, may help explain diverse growth experiences.

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Cesium and Plutonium in Gulf Waters

The Arabian/Persian Gulf area is a semi enclosed marine water body that is an extension of the Indian Ocean. There is paucity of data on anthropogenic radionuclide from the Indian Ocean region in general (IAEA 2005) and from Gulf in particular. The commissioning of the Bushehr Nuclear Power Plant (BNPP) across the Gulf and others, being built in the United Arab Emirates (UAE) and Saudi Arabia along the Arabian Gulf catchment to meet the increasing energy requirements, necessitates establishment of the baseline levels of anthropogenic radionuclides in seawater to assess marine radionuclide concentration due to normal and fugitive wastewater release and accidental releases, if any.

Previous studies showed that most of the Technologically Enhanced Naturally Occurring Radioactive Material (TENORMs) are low in concentration (Uddin et al. 2015), providing an opportunity to use them as indicators for detecting any systematic or accidental release into the marine environment. The anthropogenic radionuclide ^{137}Cs , ^{238}Pu and $^{239+240}\text{Pu}$ are important for assessing radiological contamination in the marine environment due to the substantial inventories and the ecological risk they may pose.

This paper presents the baseline for these radioisotopes in Northern Gulf. The seawater samples were collected from eight stations. Water samples were collected at a depth of 1 m below the sea surface using 5-L Niskin bottles. From each location 100 L of seawater was collected. Plutonium sample were prepared using an anion exchange resin. Analytical grade Dowex 1X4 with 200-mesh bead size was used. Plutonium alpha sources were prepared by filtration on micro pore filter. Filters were counted for 4.5×10^5 seconds using alpha

spectrometry system equipped with large size PIPS detector (450 mm²). Each samples was spiked with 100 µl (47.66 mBq) of ²³⁶Pu to assess the recovery. Blank and spiked samples were prepared and analyzed along with the test sample for quality control purposes. The ²³⁹⁺²⁴⁰Pu concentration in Kuwait waters was in range of 0.011-0.018 mBq L⁻¹ where as the ²³⁸Pu range between 0.091-0.170 mBq L⁻¹. The ¹³⁷Cs range between 0.35-0.90 mBq L⁻¹, which is lower than the concentrations found earlier. The lower concentration is due to the natural decay and effective residence time, suggesting there are no fresh sources. The plutonium concentration are similar to those observed in Mediterranean, East china sea and Northern Indian Ocean.