

出國報告（出國類別：國際會議）

**參加「2014 1st Journal Conference
on Trade, Economics and Finance」國
際研討會**

服務機關：國立高雄應用科技大學財富與稅務管理系

姓名職稱：姚名鴻 副教授

派赴國家：香港

出國期間：103 年 2 月 14 日至 103 年 2 月 17 日

會議期間：103 年 2 月 15 日至 103 年 2 月 16 日

報告日期：103 年 2 月 28 日

摘要：

2014年的 2014 1st Journal Conference on Trade, Economics and Finance (JCTEF 2014 1st) 國際研討會由新加坡的 International Economics Development and Research Center (IEDRC) 組織主辦，地點在香港城景國際酒店，會議時間為2014年2月15-16日，總計2天。

申請人的行程為台灣時間2月14日上午由高雄國際機場出發，於香港當地時間中午抵達，隨即安排住宿。15日先行前往確認開會地點、完成註冊與報到手續，並領取大會議程及論文摘要集等會議資料，隨即進行非正式招待會及2天的議程。

本次研討會報告人發表一篇論文，於2月16日下午進行，題目是“Testing Optimal Seigniorage Theory in Taiwan, 1965-2012”，論文共同作者為國立中正大學經濟學朱琇妍助理教授。論文主要利用台灣1965至2012年的時間序列資料，探討我國政府在此期間的租稅政策及貨幣政策是否符合稅收平滑化假說及收入平滑化假說。研究結果對台灣未來總體經濟政策可作出建議。

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壹、 目的

本次出國目的在參加 2014 1st Journal Conference on Trade, Economics and Finance (JCTEF 2014 1st) 國際研討會。會議由新加坡的International Economics Development and Research Center (IEDRC) 組織主辦，地點在香港的城景國際酒店 (The Cityview)，會議時間為 2014 年 2 月 15-16 日，總計 2 天。

本次研討會與會人士相當多，總計來自世界各國的專家學者共約 100 餘人。本次研討會論文主題著重於討論總體經濟、國際貿易與金融議題。此外，還有其他相關議題，包括財政政策、貨幣政策、人口政策及環境政策等。另外研討會亦安排二場專題演講，分別是美國 Metropolitan State University 商學院的 Donald Chang 教授發表 “The Moderating Role of Green Attitude on the Effect of Travel Motivations on Souvenir Consumption”，及英國 University of Plymouth 的 Shaofeng Liu 教授發表 “Where Can Knowledge-based Decision Support Systems Go in Contemporary Business Management - A New Architecture for the Future”。其中，Shaofeng Liu 教授擔任申請人發表論文場次的主持人，給予申請人許多寶貴的修改建議。

本次研討會共分 5 個場次，主辦單位於每個場次選出最佳論文，並於 2 月 16 日的閉幕晚宴公開表揚。

貳、 出國行程及議程

報告人的行程為台灣時間 2 月 14 日上午由高雄國際機場搭乘港龍航空 KA453 班機出發。於香港當地時間中午抵達香港國際機場，隨即安排住宿。15 日上午搭乘地鐵前往「城景國際酒店」確認開會地點、完成註冊與報到手續，並領取大會議程及論文摘要集等會議資料，隨即進行非正式招待會及 2 天的議程。

16 日早上 8 點 30 分先由研討會主辦人美國 Metropolitan State University 商學院的 Donald Chang 教授發表開幕詞。接著由英國 University of Plymouth 的 Shaofeng Liu 教授發表 “Where Can Knowledge-based Decision Support Systems Go in Contemporary Business Management - A New Architecture for the Future” 專題演講。Donald Chang 教授簡短評論後，亦發表專題演講 “The Moderating Role of Green Attitude on the Effect of Travel Motivations on Souvenir Consumption”。開幕儀式結束，在簡短的茶敘時間後，隨即分 2 個場地同時進行上午及下午共 5 個場次的分組討論。大會除了論文發表外，會場同時安排攤位展覽主辦單位新加坡的 International Economics Development and Research Center (IEDRC) 組織所出版各類期刊。由議程的安排可看出主辦單位的精心規劃，內容緊湊充實，盡量使參與會議的人員得到最多的訊息及充份交流的機會。

本次研討會報告人發表一篇論文，於 2 月 16 日下午進行，題目

是 “Testing Optimal Seigniorage Theory in Taiwan, 1965-2012”，論文共同作者為國立中正大學經濟學朱琇妍助理教授。論文主要利用台灣 1965 至 2012 年的時間序列資料，探討我國政府在此期間的租稅政策及貨幣政策是否符合稅收平滑化假說及收入平滑化假說。研究結果對台灣未來總體經濟政策可作出建議。

英國 University of Plymouth 的 Shaofeng Liu 教授是報告人發表場次的主持人，同一場次發表論文的學者來自很多國家，包括韓國、日本、越南、中國大陸、美國及印尼。其中，多位學者的研究方法與報告人同為時間序列實證方法。因此，雖然研究領域或有不同，但報告人仍能與國際上各領域的時間序列研究人員進行討論與廣泛交換意見，獲益良多。此外，論文發表場次主持人 Shaofeng Liu 教授亦給予報告人許多寶貴的修改建議，對論文修改投稿期刊將有很大幫助。

主辦單位於每個場次選出一篇最佳論文，並於 16 日的閉幕晚宴表揚。報告人的論文雖沒有獲選最佳論文，但經 Shaofeng Liu 教授推薦，論文修改後亦將收錄發表於 International Economics Development and Research Center (IEDRC) 組織所出版的 International Journal of Trade, Economics and Finance (IJTEF) 國際性學術期刊。

報告人於 2 月 17 日下午由香港國際機場搭乘港龍航空 KA456

班機回程，並與晚間 8 點 30 分準時抵達高雄國際機場。

參、心得與建議

報告人與論文發表期間與國外學者交換研究意見，對後續研究規劃及研究方向獲益良多。最重要的是與國際學者們交換意見，可瞭解目前國際上時間序列研究方法及租稅政策與貨幣政策的最新知識。報告人認為參加此種國際性研討會有助於提高學術視野，因此期望國內專家學者能多加前往參會，以便提高國內時間序列研究在國際上之知名度，對於個人之研究可吸收最新研究方法，將有極豐富的啟發及研究助益。

另外，Shaofeng Liu 教授給予報告人許多寶貴的修改建議，更是讓申請人獲益良多。本次參與 2014 年的 2014 1st Journal Conference on Trade, Economics and Finance (JCTEF 2014 1st) 國際研討會，成果豐碩。除與韓國、日本及其他國家與會之專家學者交換研究心得外，也吸取很多寶貴經驗與想法，建議國內之專家學者多能在參與多國舉辦之國際研討會後，貢獻經驗，提供國內的國際研討會籌備參考。有感於研究不能閉門造車，應多與各國之研究學者專家交流，才能以獲裨益，使國內有志從事時間序列及財政政策研究之年輕後輩，除學校課程與參與研討會外，能進一步在研討會中學習理論基礎及實務之機會。

肆、 附錄

一、 研討會議程

2014 IEDRC HONG KONG CONFERENCES

Registration: February 15, 2014 (Saturday)

The Cityview

<http://www.thecityview.com.hk/eng/index.php>

10: 00 – 12: 30 13: 30 - 17: 00	Arrival and Registration (Venue: Lobby)
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- (1) Please print your registration form before you come to the conference.
- (2) You can also register at any time during the conference.
- (3) Certificate of Participation can be collected at the registration counter.
- (4) Please tell the conference receptions your paper ID.

(5)The organizer won't provide accommodation, and we suggest you make an early reservation.

(6)One Best Paper will be selected from each oral session. The Certificate for Best Papers will be awarded in the Welcome Banquet on February 16, 2014.

Conference: Morning, February 16, 2014 (Sunday)

Venue: Diamond Room 5/F

08:30-08:40	<p>Opening Remarks</p>  <p>Professor Donald Chang School of Business Metropolitan State University, USA</p>
08:40-09:20	<p>Keynote Speaker Speech 1</p>  <p>Prof. Shaofeng Liu Graduate School of Management, University of Plymouth, UK</p> <p>Title: Where Can Knowledge-based Decision Support Systems Go in Contemporary Business Management - A New Architecture for the Future</p> <p>Abstract: Decision support systems (DSS) are one of the most widely used management information systems in current business management. The focus of the paper is on the knowledge-based decision support systems, namely the KB-DSS, in support of contemporary business management decision making. Business managers use KB-DSS can improve their decision making not only in terms of speed and accuracy but also consistency. Key perspectives of KB-DSS including technological, organizational, social and cultural perspectives are discussed in the context of contemporary management decision context. New contribution to the knowledge management function of KB-DSS through a number of recent projects is presented. The paper then highlights some implications for the development of the next generation of KB-DSS before a new architecture is proposed for future work.</p>

<p>09:20-10:00</p>	<p style="text-align: center;">Keynote Speaker Speech 2</p> <div style="text-align: center;">  <p>Professor Donald Chang School of Business Metropolitan State University, USA</p> </div> <p>Title: The Moderating Role of Green Attitude on the Effect of Travel Motivations on Souvenir Consumption</p> <p>Abstract: We examine the moderating effect of the traveler's green attitude in the relationship between travel motivations and souvenir consumption. Souvenir shopping could represent a sizable proportion of one's overall travel expenditure. Yet, how to manage travellers' souvenir acquisition behaviour to optimize a destination's travel portfolio has been an under-studied research issue. Literature reviews reveal that travel motivations have been found to be influential factors of souvenir consumption. With growing sensitivity toward environmental impact due to travel activities, there is a need to explore how one's green attitude affects souvenir consumption and its role in the travel motivations-souvenir consumption relationship. This paper proposes a theoretical model that illustrates the role of green attitude in the travel motivations-souvenir consumption relationship. Related hypotheses are proposed and presented based on the proposed model. Important research and managerial implications are offered.</p>
<p>10:00-10:30</p>	<p style="text-align: center;">Coffee Break & Photo Session</p>

SESSION – 1

Venue: Diamond Room 5/F

Session Chair: *Jiří Strouhal*

Time: 10:30-12:30

ID	Title+ Author's name
Economics Business and Marketing	
M10014	The Effects of CSR on Customer Satisfaction and Loyalty in China: The Moderating Role of

	Corporate Image Ki-Han Chung, Ji-Eun Yu, Myeong-Guk Choi, Jae-Ik Shin
M10015	The career path of expatriates at repatriation Yanghua Zhou
M00002	The Effects of Exchange Rates and Exchange Rate Volatility on Asean-China Bilateral Exports Mohammed Yusoff and Ahmed Sabit
M00007	Ownership Structure and Bank Performance Nora Azureen Abdul Rahman
M00009	Modeling and Forecasting Corporate Default counts using Hidden Markov Model Lu Li and Jie Cheng
M00011	Thai Logistics Infrastructure Study of the East West Economic Corridor Jirapat Wanitwattanakosol and Danaitun Pongpatcharatorntep
M00018	Business Social Responsibility to Improve New Product Development Yen-Ru Wang and Li-Ren Yang
M00025	Thai – Korean Tourism Promotion through Motion Picture Application Nop Kongdee and Preawpilin Soontaratta
M10004	Film-Induced Tourism - Factors Affecting Vietnamese Intention to Visit Korea Pham Hong Hoa, Vo Thi Thanh Truc, and Mai Ngoc Khuong
M10005	Fiscal Correction Effect to Commercial Financial Statements for Corporate Taxpayers' Income Tax (Study on Telecommunication Industry Company Listed on the Indonesia Stock Exchange) Diana Sari, Florentina Anjar Anggraeni
M10006	The Relationship Between Total Quality Management (TQM) and Strategic Management Marina Kantardjieva

12:30 – 13:30	Lunch
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Afternoon, February 16, 2014 (Sunday)

SESSION – 2

Venue: Diamond Room 5/F

Session Chair: *Prof. Shaofeng Liu*

Time: 13:30-15:30

ID	Title+ Author's name
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Economics Business, Marketing and Trade	
M10017	The Analysis of Size and Book-to-Market Ratio Effects in KRX under Good Deal Condition Hankyung Lee, Bong Jun Kim, Jinsu Kim and Insung Son
M10018	Success Factors of Knowledge Management: Learning and Business Performance Hyeongyu Jang, Wenlong Liu, and Jeongsuk Noh <i>Abstract</i> —In this study, we discuss some concepts such as organizational cultures, knowledge process, and organizational performance in order to understand more practical knowledge management process. This study stands on knowledge process viewpoint including organizational culture to fill the theoretical and managerial gap between knowledge based culture and organizational performance. We provide a more detailed and nuanced analysis on their relationships, while bring out important implications how to manage cultures and processes in knowledge management process to contribute the organizational performance more effectively.
M10020	Historical Costs or Fair Value in Accounting? Impact on Selected Financial Ratios Jiří Strouhal
CF10001	Empirical Result On Firms' Cluster Integration: Should Firms Evolve Beyond Their Region? S. Rick Fernandez
CF10005	Empirical Result: West and Central Africa Standardization on Port Logistics Regine Adele Ngono Fouda
CF10006	The Distributed Profit Based Corporate Taxation, and the Valuation of Cash Holdings Priit Sander, Allan Teder, Karmen Viikmaa, and Mark Kantšukov
CF10007	Strategic Privatization with Tariffs and Environmental Taxes in an International Mixed Duopoly Lili Xu and Sang-Ho Lee
CF10009	Testing Optimal Seigniorage Theory in Taiwan, 1965-2012 Ming-Hung Yao and Shiou-Yen Chu
CF10012	Problems that Are Faced by Students While Doing Their Entrepreneurship Projects: A Survey Conducted in Business Schools in Jabodetabek (Jakarta, Bogor, Depok, Tangerang and Bekasi) Kerenhapukh Sugiarto, Honey Naresh Samtani, Stephanie Louissa Amaris and, Suresh Kumar
CF10013	Service Quality Management in Retailing: Theory and Empirical Analysis of Customer Satisfaction with Checkout Services Mitsunori Hirogaki
CF10014	Trend is Your Friend, or is it: Empirical Evidence from 60-year US Stock Market Data Allan Teder, Priit Sander, and Timo Mitt
CF10015	International Trade and Foreign Direct Investment: The Home Bias Puzzle Revised for the EU Martinez Valeriano, Bengoa Marta, and Sanchez-Robles Blanca

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SESSION – 3

Venue: Meeting Room G/F

Session Chair: *Panos Fitsilis*

Time: 13:30-15:30

ID	Title+ Author's name
Education, Management Innovation	
H00003	The Social Network as a Filter for Internet Research Della Ventura Michele
H00005	A Study of Problems and Needs in Developing Competency of Undergraduate Students' Rajabhat University Supparaporn Thongsukkaew and Nattaphon Rampai
H00006	Teaching English based programming courses to English language learners/non-native speakers of English Ashok Kumar Veerasamy and Anna Shillabeer
H00007	Analysed and Proposed Plan for TRIZ Learning, Training and Application in Tunku Abdul Rahman University College Using S-Curve Analysis Chee Sheng Keong, Mum Wai Yip, Johan Kii Geat Lim, and Nikalus Shu Luong Swee
H00008	A study on Problems In Professional Experiences of Preservice Teachers from Rajabhat University in Southern of Thailand Kittiya Plodkaew and Sasichai Tanamai
H00009	The Role of Educational Mechanism in Driving Creative Economy: Missing Linkages Between Educational Policy and Creative Workforce Development Poomporn Thamsatitlej
H00012	Cognitive Models for Developing Students' Graphical Understanding of Residual Plots Ken W. Li
H00014	Utilizing Cooperative Learning For It Graduate Studies Mohamed A. Arteimi
H00016	Industrial Sectors' Need of Cooperative Students with Desired Characteristics Supitcha Cheevapruk, Cholticha Nuchpong, Sittipong Sang-in, Wannalak Laotaweesub
H00018	Effects of an Online Public Health Service Training among Grass-Root Health Care Workers: A Pilot Study in Rural China Xingxin Zhan, Zhixia Zhang, RongHu, and Weirong Yan
H00019	The Development of Health Communication Support System behind Flood Panana Tangwannawit, Sakchai Tangwannawit, and Kanita Sangkajang
H00020	Problem-based Learning: An Analysis of its Application to the Teaching of Programming Hong Cheong Looi and Afzaal H. Seyal

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15:30 – 15:50	Coffee Break
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SESSION – 4

Venue: Diamond Room 5/F

Session Chair: *Professor Donald Chang*

Time: 15:50-18:30

ID	Title+ Author's name
Linguistics, Literature and Arts	
G00004	Dress and Body Performance in Sarah Waters' <i>Fingersmith</i> Ya-Ju Yeh
G00010	'New Linguistic World Order' and 'Alternative Socio-linguistics' Shailendra Kumar Singh
G00014	A Case Study of How Multiple Semiotic Systems Relate to Non-Traditional College Students' Literacy and Literary Learning Yi-Ching Su
G00016	Of Holidays, Adventures and Language Teaching Walter H. Persaud
G00022	Written Assignments from the Eyes of Academicians Wan Hurani Osman, Kemboja Ismail and Saadiyah Darus
G00023	Lullaby Songs as a Medium of Cultural Education: A Gender Perspective Yulianeta and Lokman Abd Wahid
G00025	Transcription of Pure Korean Proper Nouns into Chinese Characters Jeongmyeong Kim and Taeseon Yoon
G00026	Satan and Fear of Movement in <i>Paradise Regained</i> Haeyeon Kim
G00028	Narrative Innovations in Okey Ndibe's <i>Arrows of Rain</i> Joy Etiowo
G00030	Language/Literature: Classroom Enough for Both? Revathi Srinivas and Veda Sharan
G00032	The Interplay of Gender, Reading Stance and Literary Responses in Malaysian ESL Literature Classroom Khairul Husna Abdul Kadir, Tengku Nor Rizan Tengku Mohamad Maasum and Ravichandran Vengadasamy
G10023	English Text to Japanese Translation with Ambiguity Reduction through Context Detection Adomar Ilaio, Marvin Zabala, Jonathan Israel Serrano
G10029	The Silent and The Silenced - On Jane' <i>Campion's</i> Movie <i>The Piano</i>

	Li Yaping
G10031	Shakespeare and Generic Dichotomy Hsin-yun Ou
G10032	Computer-Assisted Language Learning: Enhancing Phonemic Awareness of Thai Primary School Students Niramol Thajakan and Usaporn Sucaromana
G10037	Using Abridged Local Folklores to Develop the Eleventh Grade Students' Reading Achievement and Moral Value Sry Mulya Kurniati

SESSION – 5

Venue: Meeting Room G/F

Session Chair: *Della Ventura Michele*

Time: 15:50-18:30

ID	Title+ Author's name
Education and Management Innovation	
H00015	Project Knowledge Management based on Social Networks Panos Fitsilis, Vassilis Gerogiannis and Leonidas Anthopoulos
H00027	Understanding and Managing Malaysian Academics' Emotional Labour Tengku Elena and Tengku Mahamad
H00028	Comparing the Strengths and Difficulties Questionnaire (SDQ) and Behavior consideration Assessment using SVM Technique Sakchai Tangwannawit and Montean Rattanasiriwongwut
H00031	Innovation and Success in Micro- Enterprises: The Role of Family and Environments Chiayu Tu and Shiuh-Nan Hwang
H00032 depending	In Quest to Quality: Are we on the right path? Mohammadi Sabra Nadeem, Qaisar Abbas, and Uzma Javed
H00033	Examining Individual and Institutional Influences on Students' Engagement Ines Dužević, Tonći Lazibat and Mia Delić
H10004	An Empirical Study of Teaching Narrow Listening in College English Chuanlin Zheng, Fangtao Kuang, Lili Zhang, and Wei Zeng
H10005	Development of Information Technology Curriculum in the Province of Bataan, Philippines Lorna L. Loyola MSIT
H10006	Performance of Middle Managers of Technological Colleges and Universities in Region Iii-Philippines ZENaida OLEA – LUNA, Ed. D.

H10013	Career Development Learning and Employability Skills of Students in Information and Communication Technology ROBERTO T. DIAMANTE
H10014	Domains Of Leadership Behavior Of Administrators As Determinants Of Self-Efficacy Of Faculty In Engineering and ICT Schools April B. Evangelista
H10015	Self-Development Beliefs and Values of the Workforce as Constructs in the Attainment of the Firms' Learning Organization Status Gloria P. Gempes
H10016	Factors That Contribute to the Effectiveness of Internal Audit in Public Sector Zulkifli Baharud-din, Alagan Shokiyah, and Mohd Serjana Ibrahim
H10031	How was the 'School Consulting' Theory Created and Extended?: Based On the Knowledge Creation Theory SeungHo Lee and Tae Yeon Kim

Listener list

Listener 01	Kar-On Lee Learning Technology Specialist, Teaching and Learning Centre
Listener 02	Maduka Perera La Trobe University, Australia
Listener 03	Sebastian Siedlis Advertising Agency OKAY of Radio Katowice
Listener 04	Tarfa Makyur La Trobe University Melbourne Australia
Listener 05	Daisuke Akagi Daito Bunka University
Listener 06	Dr. Steven G. Morgan Rikkyo University

* Listeners can go any conference listed above.

February 16, 2014 19:00	Closing Ceremony
	Dinner

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptops (with MS-Office & Adobe Reader)
Projectors & Screen
Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF files (Files shall be copied to the Conference Computer at the beginning of each Session)

Duration of each Presentation (Tentatively):

Regular Oral Session: about 10-15 Minutes of Presentation 2-5 Minutes of Q&A

Keynote Speech: 30- 35 Minutes of Presentation 5-10 Minutes of Q&A

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二、 報告人發表之專題論文

Testing Optimal Seigniorage Theory in Taiwan, 1965-2012

Ming-Hung Yao, and Shiou-Yen Chu

Abstract—The optimal collection of taxes and seigniorage is an important issue in public finance. For developing and emerging countries, seigniorage is particularly essential to provide an additional source for government revenue. Barro (1979) and Mankiw (1987) propose tax-smoothing and revenue-smoothing hypotheses to discuss how the government should optimally collect taxes. This paper aims to test the tax- and revenue-smoothing hypotheses with Taiwanese annual data from 1965 to 2012. Unit root tests and Johansen's cointegration technique are employed. Our results indicate that Taiwanese data are in favor of these two hypotheses. The government may have used seigniorage as a supplement to raise tax revenue. Moreover, both fiscal policy and monetary policy are implemented in an optimal fashion to finance government expenditure.

Index Terms—Cointegration analysis, optimal seigniorage theory, tax smoothing, revenue smoothing.

I. INTRODUCTION

The optimal collection of taxes and seigniorage is an important issue in public finance. Seigniorage generally is regarded as an inflation tax. The government issues new currency, increases the price level and redistributes the wealth from the lender to the borrower. The higher the inflation rate, the more revenue the government receives from seigniorage. For developing and emerging countries, seigniorage is particularly important to provide an additional source for government revenue.

Barro (1979) [1] and Mankiw (1987) [2] propose tax-smoothing and revenue-smoothing hypotheses to discuss how the government should optimally collect taxes. Barro assumes that the government smooths the tax rates in different time periods to minimize the distortion, which is defined as the present value of excess burdens. The optimality conditions state that tax collections should follow a random walk. Mankiw proposes that the optimal tax rates are positively associated with inflation and nominal interest rates. More specifically, inflation rates, nominal interest rates, and optimal tax rates follow a random walk.

The tax smoothing theory implies that when the government anticipates an increase in future spending, it should reduce current budget deficit and accumulate more savings. On the other hand, if the government expects a decrease in future spending, it should increase current budget deficits. The government should issue debts to finance a temporary and substantial increase in government spending.

Manuscript received December 10, 2012.

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The U.S. data from year 1917 to 1976, and from year 1952 to 1985 were empirically investigated in Barro's and Mankiw's original models, respectively. The ordinary least squares results in both models are in accord with the hypotheses. Huang and Lin (1993) [3] reexamine Barro's tax smoothing hypothesis using annual U.S. fiscal data from year 1929 to 1988. They employ log-linearization on government expenditure, budget deficit, and aggregate output. Then, a vector autoregression (VAR) framework is used to test the linear relation. Their results indicate that the post-1947 data support the tax smoothing hypothesis. Serletis and Schorn (1999) [4] conduct cointegration tests, unit root tests and a VAR approach on quarterly data of Canada, France, the UK and the US. The empirical evidences of these four countries support tax- and inflation-smoothing, but not revenue-smoothing hypotheses. Ricciuti (2001) [5] tests these two hypotheses using Italian data from 1861 to 1998. He defines seigniorage as the ratios of changing monetary base of the Treasury over GDP from previous period. Besides standard unit-root tests, a Granger causality analysis and a VAR approach are also implemented. The findings include that a unit root exists in tax rates, but not in seigniorage. Dođru (2013) [6] applies cointegration and vector error correction methods techniques to Turkish data. He finds that a causality relationship from inflation and tax revenue to nominal interest rates exists in the long run, but not in the short run.

This paper employs Johansen's cointegration technique [7] to test Barro's tax-smoothing hypothesis and Mankiw's revenue-smoothing hypothesis with Taiwanese annual data. We find that Taiwanese data support these two hypotheses. Next section will describe the basic model. Section 3 provides empirical results and section 4 concludes.

II. BASIC MODEL

In Barro's (1979) model, government expenditure is assumed to be exogenous. Seigniorage is combined with other government tax revenue. The government aims to minimize the tax distortion defined as (1) with respect to $\{T_t, B_{t+1}\}_{t=0}^{\infty}$ subject to a budget constraint (2).

$$E_t \sum_{i=0}^{\infty} \beta^i L(T_{t+i}, Y_{t+i}) \quad (1)$$

$$B_{t+1} = (1+r)B_t + G_t - T_t \quad (2)$$

where Y_t is the national income at time t , T_t is the total tax revenue at time t , B_t is the interest-bearing government

debt at time t , G_t is the exogenous real government expenditure, L is the loss function, $(1+r)$ is the gross real interest rate, β is the discount factor.

Combined with the non-Ponzi-game condition (3), equation (2) can be written as the intertemporal budget constraint (4).

$$\lim_{t \rightarrow \infty} \frac{B_t}{(1+r)^t} = 0 \quad (3)$$

$$\sum_{i=0}^{\infty} \frac{1}{(1+r)^i} E_t T_{t+i} = B_t + \sum_{i=0}^{\infty} \frac{1}{(1+r)^i} E_t G_{t+i} \quad (4)$$

The Euler equations are obtained as follows.

$$L'(T_t) = (1+r)\beta E_t L'(T_{t+1}) \quad (5)$$

As $\beta = 1/(1+r)$, equation (5) becomes

$$L'(T_t) = E_t L'(T_{t+1}) \quad (6)$$

$$T_t = E_t T_{t+1} \quad (7)$$

Equation (6) implies that the excess burden from raising tax revenue should be equalized in different periods. If a quadratic loss function is used, equation (6) also implies (7). The collection of tax revenue follows a random walk. Let T_t be a proportion of Y_t . Equation (7) predicts that tax rates will be smoothed by means of deficits over time.

Mankiw (1987) [2] assumes that the government finances its expenditure with a mix of direct tax revenue and seigniorage. Suppose the money demand is proportional to the output.

$$\frac{M_t}{P_t} = kY_t \quad (8)$$

where M_t is the outside money at time t , P_t is the price level at time t , k is a constant. The tax revenue from seigniorage is

$$\frac{\dot{M}_t}{P_t} = kY_t \left[\frac{\dot{P}_t}{P_t} + \frac{\dot{Y}_t}{Y_t} \right] = kY_t(\pi + g), \quad (9)$$

where π is the inflation rate, and g is the growth rate of output. The total tax revenue is defined as

$$T_t = \tau Y_t + (\pi + g)kY_t. \quad (10)$$

where τ is the effective tax rate.

The government minimizes the distortion from direct tax,

$f(\tau_{t+i})$ and from seigniorage $h(\pi_{t+i})$ in equation (11) subject to the intertemporal budget constraint (12).

$$E_t \sum_{i=0}^{\infty} \beta^i [f(\tau_{t+i}) + h(\pi_{t+i})] Y_t, \quad (11)$$

$$\sum_{i=0}^{\infty} \beta^i G_{t+i} + B_t = \sum_{i=0}^{\infty} \beta^i T_{t+i}, \quad (12)$$

Three first-order conditions can be derived as follows.

$$E_t f'(\tau_{t+i}) = f'(\tau_t). \quad (13)$$

$$E_t h'(\pi_{t+i}) = h'(\pi_t). \quad (14)$$

$$h'(\pi_t) = kf'(\tau_t). \quad (15)$$

Equations (13) coincides with Barro's [1] tax smoothing of optimal fiscal policy. Equation (14) equates the marginal social cost of inflation across time. Equation (15) equates the marginal social costs of the two revenue sources. The tax-smoothing hypothesis can be tested by examining whether the tax rate and the inflation rate have a unit root, respectively. Whether these two tax rates are cointegrated can be used to validate the revenue-smoothing hypothesis.

III. EMPIRICAL RESULTS

In this paper, the inflation rate (*INF*) is calculated by the changes of consumer price index. The effective tax rate, defined as the ratio of tax revenue to GDP (*TAX*), is considered as a tax variable in the estimation. Figure 1 depicts these two variables from year 1965 to 2012. With respect to the tax burden (the ratio of tax revenue to GDP), Taiwan had almost 20% in the early 1990s. It fell to 13.9% in 2008, relatively lower than that in other OECD countries. In the midst of the 2008 global economic recession, Taiwan government proposed tax cuts in motor vehicle excise tax, corporate and personal income taxes, aiming to stimulate the economy.

Taiwan is a small open economy with scarce natural resources. The domestic producers heavily depend on imported raw materials. In the midst of oil crisis, its inflation rates reached around 47%. Except for the 1970s, the inflation rates were stably low. The averages of effective tax rates, and inflation rates over the 47 years are 15.78% and 4.22%, respectively.

Table I and Table II present the descriptive statistics and correlation coefficients of variables. There are 48 observations in our sample. The correlation coefficient between *INF* and *TAX* is around 0.41.

Prior to conducting cointegration analysis, we need to verify whether the time series are stationary. We report four unit root test results, the augmented Dickey and Fuller (1979, 1981; ADF) [8] [9]; Phillips and Perron (1988; PP) [10]; Elliot, Rothenberg, and Stock's (1996) [11] Dickey-Fuller GLS detrended (DF-GLS); and Kwiatkowski, Phillips,

Schmidt, and Shin (1992; KPSS) [12] in Table III. After TAX is differenced once, the hypothesis of unit root is rejected by three tests at the 5% significance level. The null hypothesis that INF has a unit root is rejected via PP test at the 5% significance level.

We employ Johansen's (1988) [7] maximum likelihood estimation method to examine the long-term relationship between tax revenue as a share of GDP and inflation. The lag length selection is an important issue in the cointegrated vector autoregressive models. Long lag length may cause overparameterization and lead to a loss in efficiency. Short lag length fails to yield white noise residuals and results in estimation bias. We start with a lag length, $k = 1$. If the null hypothesis of no serial autocorrelation cannot be rejected, a bigger k is needed until all residuals become white noise. We use the Breusch-Godfrey serial correlation LM test to choose an appropriate lag length. The null hypothesis of no serial correlation is accepted at the 5% significance level when $k = 1$.

After choosing the optimal lag length, we test the number of cointegration relations with Johansen and Juselius's (1990) [13] methodology. The trace and maximum eigenvalue statistics are reported in Table IV. Both statistics indicate at least one cointegration at the 5 percent significance level. This suggests that there is one long-term relationship between inflation rates and effective tax rates.

Equation (16) presents the results of the cointegration coefficients of the long-run relationship equation. At the 5% significance level, INF_t has a significantly positive effect on TAX_t . Higher inflation rates are associated with higher tax rates.

$$TAX_t = 12.364 + 0.806 \cdot INF_t. \quad (16)$$

We further conduct a cointegration vector coefficient significance test. Table V indicates that the effect of inflation on equation (16) is significant at the 5% level.

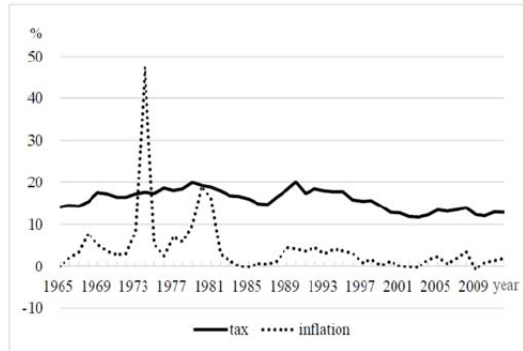


Fig. 1. Inflation and tax revenue as a share of GDP, Taiwan 1965-2012.

TABLE I: DESCRIPTIVE STATISTICS OF VARIABLES

Variable	Name	Mean	Max.	Min.	Std. Dev.	Obs.
TAX	Tax revenues as a share of GDP	15.78	20.0	11.7	2.36	48
INF	Inflation rate	4.22	47.45	-0.86	7.44	48

TABLE II: CORRELATION COEFFICIENTS OF VARIABLES

Variable	TAX	INF
TAX	1.00	
INF	0.41	1.00

TABLE III: RESULTS OF UNIT-ROOT TESTS

Variable	ADF	DF-GLS	PP	KPSS
Levels				
TAX	-2.507(0)	-1.846(0)	-2.507(0)	0.168(5)
INF	-2.674(6)	-1.596(7)	-5.584**(4)	0.073(2)
First differences				
TAX	-6.465**(0)	-6.607**(0)	-6.465**(1)	0.063(1)
INF	-3.241(6)	-3.117(6)	-29.771(45)	0.343**(34)

Notes: We apply four unit root tests: the augmented Dickey and Fuller (1979; ADF); Phillips and Perron (1988; PP); Elliot, Rothenberg, and Stock's (1996) Dickey-Fuller GLS detrended (DF-GLS); and Kwiatkowski, Phillips, Schmidt, and Shin (1992; KPSS). The numbers in parentheses indicate the selected lag order. The regressions include an intercept and trend. The lag lengths are determined via the Akaike information criterion (AIC) and are in parentheses. The superscript ** indicate significance at the 5% level. The null hypotheses for all tests except for the KPSS test are unit roots.

TABLE IV: JOHANSEN'S COINTEGRATION TEST FOR TAX AND INF

	λ_{max}		TRACE	
	statistics	5% critical value	statistics	5% critical value
$r = 0$	21.421**	14.265	23.519**	15.495
$r = 1$	2.099	3.841	2.099	3.841

Notes: ** denotes significance at the 5% level, and 5% finite sample critical values are constructed from the asymptotic critical values from Osterwald-Lenum (1992) [14] using the method of Cheung and Lai (1993) [15]. The cointegration rank is r .

TABLE V: COINTEGRATION VECTOR COEFFICIENT SIGNIFICANCE TEST

INF	
LR statistics	19.303**
p -value	[0.001]

Notes: LR test statistic is obtained by means of the $\chi^2(r)$ test; the figures inside [] are the p -values. ** denotes significance at the 5% level.

IV. CONCLUSION

This paper examines the tax-smoothing and revenue-smoothing hypotheses with Taiwanese annual data from 1965 to 2012. We conduct Johansen's cointegration technique to investigate the long-run relationship between inflation and tax revenue as a share of GDP. Our results indicate that Taiwanese data are in favor of these two hypotheses. The government may have used seigniorage as a supplement to raise tax revenue.

In addition, according to our result, both fiscal policy and monetary policy are implemented in an optimal fashion to finance government expenditure. The government issues debt to finance temporary increases in government expenditure. The budget deficits are accordingly incurred so as to minimize the distortion of taxation.

We regard this paper as a primal research. Further extension includes adding additional variables in accordance with Taiwanese data, or employing more advanced econometric techniques to test these two hypotheses.

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三、 出席會議暨發表論文證書



四、活動照片

