

科技部人文社會科學研究中心  
學術研究群成果報告

貿易、產業與公共經濟理論學術研究群

學術研究群編號：**MOST104-2420-H-002-016-MY3-SG10601**

學術研究群執行期間：106年3月1日至106年12月31日

學術研究群召集人：楊雅博

執行機構及系所：國立高雄大學經營管理研究所

中 華 民 國 107 年 1 月 24 日

## 補助學術研究群暨經典研讀班結案報告

(貿易產業與公共經濟理論研究群)

計畫編號：MOST104-2420-H-002-016-MY3-SG10601

執行期間：106年3月1日至106年12月31日

執行機構及系所：國立高雄大學經營管理研究所

計畫召集人：楊雅博

計畫成員：如下表

姓名	服務單位	職稱	社群職稱
楊雅博	高雄大學經營管理研究所	教授	召集人
吳世傑	中山大學政治經濟學系	教授	副召集人
李仁耀	高雄應用科技大學國際企業系	教授	社群成員
蔡穎義	高雄大學應用經濟學系	教授	社群成員
蔡建樹	高苑科技大學國際商務系	副教授	社群成員
許淑嫻	南台科技大學國際企業系	副教授	社群成員
佘志民	高雄大學應用經濟學系	助理教授	社群成員

兼任助理：楊孟軒、郭品秀

研讀書籍：(研究群可不必填寫)

中華民國 107 年 1 月 24 日

## 補助學術研究群暨經典研讀班成果自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明）

說明：

2. 研究成果在學術期刊發表或申請專利等情形(請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊)

論文：已發表 未發表之文稿 撰寫中 無

專書：已出版 尚未出版 撰寫中 無

其他：

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（敘述成果所代表之意義、價值、影響或進一步發展之可能性）。

本研究群成員在計畫執行期間 2017 年共發表 6 篇論文，包含 SSCI 經濟學期刊論文 5 篇，其中 2 篇為科技部經濟學門列為 B+ 級，2 篇為 B 級，1 篇為 TSSCI A 級，研究成果豐碩。此外，本研究群在近三年來獲得人社中心之研究群經費補助下的研究成果如下：共發表期刊論文共 22 篇，SSCI 經學門 15 篇(含 A 級：1 篇，B+ 級：7 篇，B 級：3 篇，其它：4 篇)，TSSCI 經學門第 A 級：4 篇，其它：3 篇。

本研究群在國際貿易及產業經濟學等領域發表頗具水準的期刊論文，雖然補助經費有限，但是卻獲不錯的學術成就，對於新議題的探討如企業的社會責任議題的探討等，預計將來會有更多此一議題上的論文發表，對於本研究群的初衷，帶動南部經濟學領域的學術研究作出積極的貢獻。

## 補助學術研究群暨經典研讀班成果彙整表

計畫主持人：楊雅博		計畫編號：MOST104-2420-H-002-016-MY3-SG10601				
計畫名稱：貿易產業與公共經濟理論研究群						
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)		
國內	學術性論文	期刊論文	1	篇	請附期刊資訊。	
		研討會論文				
		專書		本	請附專書資訊。	
		專書論文	4	章	請附專書論文資訊。	
		其他		篇		
國外	學術性論文	期刊論文	5	篇	請附期刊資訊。	
		研討會論文				
		專書		本	請附專書資訊。	
		專書論文		章	請附專書論文資訊。	
		其他		篇		
參與計畫人力	本國籍	教授	4	人次		
		副教授	2			
		助理教授	1			
		博士後研究員				
		專任助理				
	非本國籍	教授				
		副教授				
		助理教授				
		博士後研究員				
		專任助理				
其他成果						
(無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)						

本研究群在計畫期間發表之期刊論文共 6 篇，如下：

1. 佘志民、楊雅博、吳世傑 (2017)，「啞鈴模型與風險趨避廠商的區位選擇」，*經濟論文*，45:4，頁 627-659。(TSSCI A)
2. Hwang, Horn, Mai, Cho-Cheng, and **Wu, Shih-Jye** (2017), “Tariff escalation and vertical market structure”, *The World Economy*, Vol. 40, 1597-1613. (SSCI B+)
3. **Lee, J.Y.**, and Leonard F.S. Wang (2017), “Foreign Competition and Optimal Privatization with Excess Burden of Taxation,” *Journal of Economics*. (Accepted) (SSCI B)
4. Hsu, C.C., **J.Y. Lee** and Leonard F.S. Wang (2017), “Consumers Awareness and Environmental Policy in Differentiated Mixed Oligopoly,” *International Review of Economics and Finance*, 51, 444-454. (SSCI B+)
5. Zhang, Jingjing, Riccardo Leoncini and **Yingyi Tsai** (2017), “Intellectual property rights protection, labour mobility and wage inequality,” *Economic Modelling* xxx, 1-6.
6. Angela C. Chao, **Jen-yao Lee** and Leonard F.S. Wang (2017), “Stackelberg Competition, Innovation and Social Efficiency of Entry,” *The Manchester School*. 85(1),1-12. (SSCI, B).

本研究群發表之專書論文如下：

1. 楊孟軒，”垂直相關市場下的企業社會責任與要素訂價策略”，2017國立高雄大學經營管理碩士，指導教授楊雅博。
2. 黃誼庭，”企業社會責任與進口關稅”，2017國立高雄大學經營管理碩士 論文指導教授楊雅博。
3. 林寬宏，”企業的環境社會責任與上游訂價策略”，2017國立高雄大學應用經濟系碩士論文指導教授蔡穎義與楊雅博。
4. 潘冠舟，企業的環境社會責任與上游訂價策略，2017國立高雄大學應用經濟系碩士 論文指導教授蔡穎義與楊雅博。

本研究群在近三年來獲得人社中心之研究群經費補助下的研究成果如

下：期刊論文共 22 篇，SSCI 經學門 15 篇(含 A<sup>+</sup> 級：1 篇，B<sup>+</sup> 級：7 篇，B 級：3 篇，其它：4 篇)，TSSCI 經學門第 A 級：4 篇，其它：3 篇。

1. 佘志民、楊雅博、吳世傑 (2017)，「啞鈴模型與風險趨避廠商的區位選擇」，*經濟論文*，45:4，頁 627-659。(TSSCI A)
2. Hwang, Horn, Mai, Cho-Cheng, and **Wu, Shih-Jye** (2017), "Tariff escalation and vertical market structure", *The World Economy*, Vol. 40, 1597-1613. (SSCI B+)
3. **Lee, J.Y.**, and Leonard F.S. Wang (2017), "Foreign Competition and Optimal Privatization with Excess Burden of Taxation," *Journal of Economics*. (Accepted) (SSCI B)
4. Hsu, C.C., **J.Y. Lee** and Leonard F.S. Wang, 2017, Consumers Awareness and Environmental Policy in Differentiated Mixed Oligopoly, *International Review of Economics and Finance*, 51, 444-454. (SSCI B+)
5. Zhang, Jingjing, Riccardo Leoncini and **Yingyi Tsai** (2017), "Intellectual property rights protection, labour mobility and wage inequality," *Economic Modelling* xxx, 1-6.
6. Angela C. Chao, **Jen-yao Lee** and Leonard F.S. Wang (2017), "Stackelberg Competition, Innovation and Social Efficiency of Entry," *The Manchester School*. 85(1),1-12. (SSCI, B).
7. 蔡明芳、楊雅博，(2016)。「技術授權與最適貿易政策」，*經濟論文叢刊*，44(4),641-658。(TSSCI A)。
8. Tsung-Hsiu Tsai, Chia-Chi Wang and Jiunn-Rong Chiou, 2016, "Can Privatization Be a Catalyst for Environmental R&D and Result a Cleaner Environment?" *Resource and Energy Economics* 43, 1-13. (SSCI B+)
9. Shih-Jye Wu, Yang-Ming Chang and Hung-Yi Chen (2016). Imported Inputs and Privatization in downstream mixed oligopoly with Foreign Ownership. *Canadian Journal of Economics* 49(3),1179-1207.(SSCI A)
10. Lo, C. P. and Hsu, S. Y. (2016). International Outsourcing, FDI, and Middleman Strategy. *Transylvanian Review*, Vol 14 (5), 421-431.
11. 許淑嫻 楊雅博 胡均立，(2015)。「環境污染型式、市場集中度與環境政策」。*經濟論文*。43，45-80。(TSSCI A)
12. Hong Hwang and Chao-Cheng Mai and Ya-Po Yang (2015), "Specific vs. Ad Valorem Strategic Export Subsidies with Taxation Distortion" *Review of Development Economics*, 19,820-828.(SSCI B).
13. Leonard F.S. Wang, Angela C. Chao, **Jen Yao Lee** (2015). "R&D and Social Inefficiency of

Entry.” *Journal of Industry, Competition and Trade*. 15(2) 181-187.

14. Chih-Min She (2015), “What Determines the Technology Adoption of Firms under Optimal Tax?” *International Review of Economics and Finance*, 37, 274-89. (SSCI, B+).
15. 楊雅博，許淑嫻，(2015年三月)“開放經濟體系下之環境政策：跨界污染與區域污染”，*東吳經濟商學報* 88期 45-72.
16. Jen-yao Lee, Chien-shu Tsai (2014). Trade Liberalization and Corporate Social Responsibility with Consumer-friendly Initiative. *Asia-Pacific Economic and Management Review*, 18(1), 85-96.
17. Chang, Yang-Ming, Hung-Yi Chen, L.F.S. Wang, and Shih-Jye Wu (2014). Corporate Social Responsibility and International Competition: A Welfare Analysis. *Review of International Economics*, 22:3, 625-638. (SSCI B+).
18. Lo, Chu-Ping, Wu, Shih-Jye, Hsu, Su-Ying (2014). The role of overseas Chinese-speaking regions in global sourcing. *China Economic Review*, 30(1), 133-142. (SSCI)
19. Yi-Wen Chen, Ya-Po Yang, Leonard, F.S. Wang, and Shih-Jye Wu (2014). Technology Licensing in Mixed Oligopoly. *International Review of Economics and Finance*, 31, 193-204. (SSCI B+).
20. Su-Ying Hsu, Chu-Ping Lo, and Shih-Jye Wu (2014). The Nexus of Market Concentration and Privatization Policy in Mixed Oligopoly. *Economics Modelling*, 33, 196-203. (SSCI).
21. Wu, Shih-Jye, Yang-Ming Chang, and Hung-Yi, Chen (2014). Antidumping Duties and Price Undertaking: A Welfare Analysis. *International Review of Economics and Finance*, 29, 97-107. (SSCI B+).
22. 吳世傑、陳宏易 (2014年)。代工出口與貿易政策。經濟論文叢刊，42(3)，333-361。(TSSCI A)。

## 摘 要

「貿易、產業與公共經濟理論」研究群原先是南部地區中山大學、高雄大學、南台科技大學、高苑科技大學四所大專院校貿易、產業與公共經濟理論等領域的師生所組成的經濟學跨校研究成長社群，於 100 年 5 月成立，迄今已有 4 年多的歷史。研究社群的主要目的是希望集結南部地區在國際貿易、產業經濟學、環境經濟學、公共經濟理論等相關領域的學者，齊聚於高雄大學，每週排定固定的時間，討論除了討論上述相關領域最新的研究成果外，也希望能邀請國內外在這些領域研究傑出的學者，到本社群來分享其最新的研究成果及其研究心得，提昇南部地區經濟學相關領域的研究質量，以期縮小南北經濟學研究的差距。

本研究群在自 2014 年至今共發表或被接受 22 篇期刊論文，其中包含 15 篇 SSCI 期刊(包含經學門 A：1 篇，B<sup>+</sup> 級：7 篇，B 級：3 篇，其它：4 篇。)，TSSCI 經學門第 A 級：4 篇，其它期刊 3 篇。

關鍵詞：國際貿易、產業組織、公共經濟

## **Abstract**

Trade ∙ Industrial and Public Economic Theory Workshop was established in May 2011. Members in the Workshop includes the faculty members and students of National Sun Yat-Sen University, National University of Kaohsiung, Kao Yuan University, Southern Taiwan University of Science and Technology in south Taiwan. We discuss published Journal and working papers on trade ∙ industrial and public economics every week. We also invited distinguished scholars in these fields to share their recently work. We expect the workshop can improve both the quantity and quality of economic research in south Taiwan.

Since 2014, we had published or been accepted 18 economic journal papers, including 15 in SSCI Journals (1 classified as level A, 7 classified as B<sup>+</sup>, 3 classified as B and 4 others), 4 in TSSCI economic journals (classified as level A) and 3 in others.

Keywords : International Trade ∙ Industrial Organization ∙ Public Economics

## 目 錄

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# 一 前言

本研究群的構想、目的及重要性如下：

## (一)背景

自 1980 年代以 Brander and Spencer 為首的學者，發表一系列以不完全競爭市場及賽局理論為分析架構的國際貿易論文以來，此一領域的研究，不但在理論上獲得許多有趣的成果，在實務上，也提供了許多關於貿易自由化及區域經濟整合相當有價值的政策涵義，因此，「策略性貿易」儼然成為國際貿易理論最重要的一支。當前「策略性貿易」的研究也不因時間已久而退色，近年來與產業經濟學理論、環境經濟理論及公共經濟理論有更加緊密的結合趨勢，而且使得相關領域的研究論文更加豐富而有趣。職是之故，本研究社團擬結合南部地區有志於研究國際貿易、產業經濟學論、環境經濟理論及公共經濟理論等相關領域的年輕學者，每週齊聚一堂，探討相關議題，以期提升南部地區經濟學的研究能量。

## (二)目的及重要性

「貿易、產業與公共經濟理論」研究群原先是南部地區中山大學、高雄大學、南台科技大學、高苑科技大學四所大專院校貿易、產業與公共經濟理論等領域的師生所組成的經濟學跨校研究成長社群，於 100 年 5 月成立，迄今已有 5 年多的歷史。研究社群的主要目的是希望集結南部地區在國際貿易、產業經濟學、環境經濟學、公共經濟理論等相關領域的學者，齊聚於高雄大學，每週排定固定的時間，討論除了討論上述相關領域最新的研究成果外，也希望能邀請國內外在這些領域研究傑出的學者，到本社群來分享其最新的研究成果及其研究心得，提昇南部地區經濟學相關領域的研究質量，以期縮小南北經濟學研究的差距。

南台灣的學術研究風氣及成果，一直被學術界公認為落後北部地區甚多，經濟學界也不例外。本研究社群的主要目的是希望集結南部地區在國際貿易、產業經濟學、環境經濟學、公共經濟理論等相關領域的學者，齊聚於高雄大學，每週排定固定的時間，討論除了討論上述相關領域最新的研究成果外，也希望能邀請國內外在這些領域研究傑出的學者，到本社團來分享其最新的研究成果及其研

究心得，提昇南部地區經濟學相關領域的研究質量，以期縮小南北經濟學研究的差距。

近年來國內外經濟學界的研究水準大幅提升，使得投稿於具水準的國內外期刊難度也愈來愈高，新進教師承受相當大的研究壓力。本研究社群由資深教授帶領，對資淺社團群成員提供研究的議題的建議，對紓緩升等壓力，提昇研究動能，可收事半功倍之效；對資深教授而言，也獲得教學相長的助益，共創「雙贏」的利益，使南部地區的經濟學研究質量更因此而獲得提升，可謂一舉多得。

## 二 研究群成員

「貿易與產業經濟理論」研究社群於 100 年 5 月成立，迄今已有 5 年多的歷史，是南部地區四所大專院校師生所組成的經濟學跨校研究成長社群。目前研究社群成員包括中山大學政治經濟系 1 位、高雄大學經營管理所 1 位、高雄大學應用經濟系位、高雄大學應用科技大學 1 位、南台科技大學 1 位、高苑科技大學 1 位，共 8 位教師所組成，並邀請高雄大學經營管理所及應用經濟系共 6 位學生參與討論。本研究群如下表 1 所示：

表 1 研究群成員資料表

姓 名	服務單位	職 稱	社群 職 稱
楊雅博	高雄大學經營管理研究所	教授	召集人
吳世傑	中山大學政治經濟學系	教授	副召集人
李仁耀	高雄應用科技大學國際企業系	教授	社群成員
蔡穎義	高雄大學應用經濟學系	教授	社群成員
蔡建樹	高苑科技大學國際商務系	副教授	社群成員
許淑嫻	南台科技大學國際企業系	副教授	社群成員
佘志民	高雄大學應用經濟學系	助理教授	社群成員

### 三 研究群的執行方式

本研究群除春節連假期間外，不分寒暑假，原則上「每週」於週一下午一時至下午四時在高雄大學經營管理研究所之管 423 教室聚會一次，每次研討時間約三小時，運作模式包括下列五種方式：

- (一) **由本研究群成員負責報告一至二篇重要文獻：**藉著研讀重要參考文獻，可增進成員對現有貿易、產業及公共經濟理論文獻及研究發展趨勢的了解，再透過彼此的腦力激盪，尋求可行的研究議題。
- (二) **由本研究群成員報告其最新的研究成果：**透過演講者的報告，聽眾的詢問，可協助釐清論文的經濟涵義，或文中存在的缺陷，有助於尋找研究主題，改善論文品質以及日後投稿學術期刊的被接受率。
- (三) **邀請國內經濟學者共同切磋並分享其最新的研究成果：**本計畫將不定期邀請國內研究表現優異的經濟學者演講，互相切磋，增進彼此的研究水準。
- (四) **邀請國際知名的經濟學者交流訪問：**邀請國際知名的經濟學者交流訪問，探索貿易、產業經濟、環境經濟、公共經濟理論的熱門議題並分享其最新的研究成果，可促進本研究群成員對上述領域熱門議題的了解，也可提昇本研究群的國際觀與研究水準。
- (五) **設立專屬網站推廣研究成果：**本計畫預定將以上四種研討項目的演講資訊與成果定期公佈於本研究群之網站（路徑：至國立高雄大學經營管理研究所網頁 <http://iem.nuk.edu.tw>，點選「學術活動/貿易、產業與公共經濟理論研究社群」），期盼與國內經濟學界共同分享與成長。

#### 四 研究群執行收穫及成果

本研究群計畫值 行一年後主要成果如下：

##### (一) 本研究群成員負責報告重要文獻

本研究群一年內共執行 38 週，報告 41 篇文章，歷次討論文章如表 2 所示。

執行期間之簽到表與會議記錄請參考附件一。

表 2 研究群歷次討論文章

研究群歷次討論文章

項次	日期	報告人	篇名	出處
1	2017/03/06	黃煒哲	Information disclosure and consumer awareness	Journal of Economic Behavior & Organization 128 (2016) 209–230
2	2017/03/13	吳世傑	Bargaining power and firm profits in asymmetric duopoly An inverted-U relationship	Osaka University, Working paper
3	2017/03/20	林寬宏	Vertical technology transfer via international outsourcing	Journal of Development Economics Vol. 65 (2001) 389–415
4	2017/03/27	潘冠舟	Menus of price-quantity contracts for inducing the truth in environmental regulation	Journal of Environmental Economics and Management
5	2017/04/10	洪國仁	Market Power, Permit Allocation and Efficiency in Emission Permit Markets	Journal of Environmental and Resource Economics
6	2017/04/17	蔡明芳	Parallel Trade under Vertically Related Markets	Working paper
7	2017/04/24	黃誼庭	Endogenous number of firms, horizontal concentration and	Economics Letters Vol.154,May 2017,p.74-p.76

			heterogeneity of firms—A note	
8	2017/05/01	楊孟軒	Strategic incentives when supplying to rivals with an application to vertical firm structure	International Journal of Industrial Organization, Volume 51, March 2017, 137–161
9	2017/05/08	楊雅博	Fixed cost, Location and welfare in spatially separate markets	Working paper
10	2017/05/15	林寬宏	Cournot vs. Bertrand under centralised bargaining	Economics Letters 154 (2017) 124–127
11	2017/05/22	潘冠舟	Price Discrimination in Input Markets: Downstream Entry and Efficiency	Journal of Economics & Management Strategy
12	2017/06/05	郭品秀	Competitive and Harmonized R&D Policies for International R&D Alliances involving Asymmetric Firms	Review of International Economics, 24(2), 302–329
13	2017/06/12	洪舟璟	Offshoring with endogenous NGO activism.	Journal of International Economics 101 (2016) 22–41
14	2017/06/19	彭正浩	Trade liberalization and product R&D in a differentiated duopoly	Working paper
15	2017/06/26	李仁耀	Mixed Oligopoly at Free Entry Markets	Working paper series at NUK working group
16	2017/07/03	潘冠舟	企業的環境社會責任與上游訂價策略	高雄大學
17	2017/07/10	郭品秀	Complementary monopolies and multi-product firms	Economics Letters 157 (2017) 28–30
18	2017/07/17	洪舟璟	Adapting to climate change: Is cooperation	Economics Letters 153 (2017) 1–5

			good for the environment?	
18	2017/08/07	許淑嫻	Market Concentration and Licensing Royalty in an Asymmetric Oligopoly	Working paper
20	2017/08/14	郭品秀	The advertising of credence goods as a signal	The Manchester School Vol 72 No. 1 January 2004
21	2017/08/21	洪舟環	Vertical integration and downstream collusion	International Journal of Industrial Organization 53 (2017) 99–113
22	2017/08/28	蔡建樹	企業社會責任與連鎖加盟分析	Working paper
23	2017/09/04	郭品秀	Optimal Production Channel for Private Labels: Too Much or Too Little Innovation?	Journal of Economics & Management Strategy, Volume 24, Number 2, Summer 2015, 348–368
24	2017/09/11	吳世傑	Tariffs, vertical specialization and oligopoly	European Economic Review (2016), 82:1-23
25	2017/09/18	陳金盛	Quality, Price Control and Parallel Imports	Working paper
26	2017/09/25	洪舟環	A note on strategic delegation: The market share case	International Journal of Industrial Organization 53 (2017) 99–113
27	2017/10/02	郭品秀	Are Standards Always Protectionist?	Review of International Economics, 18(1), 179–192, 2010
28	2017/10/16	趙來勳	Inequalities and Patience in Catching up	Working paper
29	2017/10/23	吳世傑	The welfare impact of a managerial oligopoly with an altruistic firm	Journal of Economics (2013), 109:97–115
30	2017/10/30	蔡穎義	Investment for green technology under uncertainty	Working paper

31	2017/11/06	余志民	Effects of Spatial Price Discrimination with an Input Source	Working paper
32	2017/11/13	楊雅博	On the certification of credence goods in an oligopoly market	Working paper
33	2017/11/20	許淑嫻	Menu Auctions, Resource Allocation, and Economic Influence	The Quarterly Journal of Economics, Vol. 101, No. 1 (Feb., 1986), pp. 1-32
34	2017/11/27	洪舟璟	Market power of the input supplier, technology transfer and consumer welfare	CESifo Working Paper No. 5093
35	2017/12/04	彭森怡 李蕊君	1. The deterrence of collusion by a structural remedy 2. Delegation in a Mixed Oligopoly: The Case of Multiple Private Firms	1. Economics Letters 160 (2017) 78–81 2. Managerial and Decision Economics, Vol. 30, No. 2 (Mar., 2009), pp. 71-82
36	2017/12/11	王勇傑 張坤夏	1. Union bargaining power, subcontracting and innovation 2. Social efficiency of entry in a vertically related industry	1. Journal of Economic Behavior & Organization Volume 137, May 2017, Pages 90-104 2. Economics letters 139(2016)8-10
37	2017/12/18	李仁耀	工會議價能力與企業社會責任	國立高雄大學貿易與產業經濟理論研究群 Working Paper
38	2017/12/25	黃安妤 余韋婷	1. Optimal Privatization Policy with Asymmetry among Private Firms 2. Firms' Costs, Profits, Entries, and Innovation under Optimal Privatization Policy	1. MPRA Paper No. 77523, posted 15 March 2017 2. MPRA Paper No. 80927, August 2017

## (二) 邀請國內、外經濟學者互動交流

研究群邀請之國內外講員如下表 3，過程中大家討論熱烈，也收獲許多。

表 3 研究群邀請支國內外講員

來訪日期	姓名	任職單位與職稱	報告題目
2017/04/17	蔡明芳	淡江大學產業經濟系副教授	Parallel Trade under Vertically Related Markets
2017/06/19	彭正浩	輔仁大學經濟系教授	Trade liberalization and product R&D in a differentiated duopoly
2017/09/18	陳金盛	東吳大學國際經營與貿易學系副教授	Quality, Price Control and Parallel Imports
2017/10/16	趙來勳	日本神戶大學經濟與經營研究所教授	Inequalities and Patience in Catching up

## (三) 研究群成員一年來的研究成果

本研究群成員近三年來的研究成果如下：

- (1) 期刊論文共 22 篇，SSCI 經學門 15 篇 (含 A<sup>+</sup> 級：1 篇，B<sup>+</sup> 級：7 篇，B 級：3 篇，其它：4 篇)，TSSCI 經學門第 A 級：4 篇，其它：3 篇。研討會論文共 5 篇。進行中論文共 10 篇。碩士論文 4 篇。
1. 余志民、楊雅博、吳世傑 (2017)，「啞鈴模型與風險趨避廠商的區位選擇」，*經濟論文*，45:4，頁 627-659。(TSSCI A)
  2. Hwang, Horn, Mai, Cho-Cheng, and **Wu, Shih-Jye** (2017), "Tariff escalation and vertical market structure", *The World Economy*, Vol. 40, 1597-1613. (SSCI B+)
  3. **Lee, J.Y.**, and Leonard F.S. Wang (2017), "Foreign Competition and Optimal Privatization with Excess Burden of Taxation," *Journal of Economics*. (Accepted) (SSCI B)
  4. Hsu, C.C., **J.Y. Lee** and Leonard F.S. Wang, 2017, Consumers Awareness and Environmental Policy in Differentiated Mixed Oligopoly, *International Review of Economics and Finance*, 51, 444-454. (SSCI B+)
  5. Zhang, Jingjing, Riccardo Leoncini and **Yingyi Tsai** (2017), "Intellectual property

- rights protection, labour mobility and wage inequality,” *Economic Modelling* xxx, 1-6.
6. Angela C. Chao, **Jen-yao Lee** and Leonard F.S. Wang (2017), “Stackelberg Competition, Innovation and Social Efficiency of Entry,” *The Manchester School*. 85(1),1-12. (SSCI, B).
  7. 蔡明芳、楊雅博，(2016)。“技術授權與最適貿易政策”，*經濟論文叢刊*，44(4),641-658。(TSSCI A)。
  8. **Tsung-Hsiu Tsai**, Chia-Chi Wang and Jiunn-Rong Chiou, 2016, “Can Privatization Be a Catalyst for Environmental R&D and Result a Cleaner Environment?” *Resource and Energy Economics* 43, 1-13. (SSCI B+)
  9. Shih-Jye Wu ,Yang-Ming Chang and Hung-Yi Chen (2016). Imported Inputs and Privatization in downstream mixed oligopoly with Foreign Ownership. *Canadian Journal of Economics* 49(3),1179-1207.(SSCI A)
  10. Lo, C. P. and Hsu, S. Y. (2016). International Outsourcing, FDI, and Middleman Strategy. *Transylvanian Review* , Vol 14 (5), 421-431.
  11. 許淑嫻 楊雅博 胡均立，(2015)。“環境污染型式、市場集中度與環境政策”。*經濟論文*。43，45-80。(TSSCI A)
  12. Hong Hwang and Chao-Cheng Mai and Ya-Po Yang (2015), “Specific vs. Ad Valorem Strategic Export Subsidies with Taxation Distortion” *Review of Development Economics* ,19,820-828.(SSCI B) .
  13. Leonard F.S. Wang, Angela C. Chao, **Jen Yao Lee** (2015). “R&D and Social Inefficiency of Entry.” *Journal of Industry, Competition and Trade*. 15(2) 181-187.
  14. Chih-Min She (2015), “What Determines the Technology Adoption of Firms under Optimal Tax?” *International Review of Economics and Finance*, 37, 274-89. (SSCI, B+).
  15. 楊雅博，許淑嫻，(2015年三月)“開放經濟體系下之環境政策：跨界污染與區域污染”，*東吳經濟商學報* 88期 45-72.
  16. **Jen-yao Lee**, **Chien-shu Tsai** (2014). Trade Liberalization and Corporate Social Responsibility with Consumer-friendly Initiative. *Asia-Pacific Economic and*

*Management Review*, 18(1), 85-96.

17. Chang, Yang-Ming, Hung-Yi Chen, L.F.S. Wang, and **Shih-Jye Wu** (2014). Corporate Social Responsibility and International Competition: A Welfare Analysis. *Review of International Economics*, 22:3, 625-638. (SSCI B+).
18. Lo,Chu-Ping, **Wu, Shih-Jye, Hsu, Su-Ying** (2014). The role of overseas Chinese-speaking regions in global sourcing. *China Economic Review*, 30(1), 133-142. (SSCI)
19. Yi-Wen Chen, **Ya-Po Yang**, Leonard, F.S. Wang, and **Shih-Jye Wu** (2014). Technology Licensing in Mixed Oligopoly. *International Review of Economics and Finance*, 31,193-204. (SSCI B+).
20. **Su-Ying Hsu**, Chu-Ping Lo, and **Shih-Jye Wu** (2014). The Nexus of Market Concentration and Privatization Policy in Mixed Oligopoly. *Economics Modelling*, 33, 196-203. (SSCI).
21. **Wu, Shih-Jye**, Yang-Ming Chang, and Hung-Yi, Chen (2014). Antidumping Duties and Price Undertaking: A Welfare Analysis. *International Review of Economics and Finance*, 29, 97-107. (SSCI B+).
22. **吳世傑**、陳宏易 (2014年)。代工出口與貿易政策。《*經濟論文叢刊*》，42(3), 333-361。 (TSSCI A)。

(2)研討會論文(共5篇)

1. **吳世傑**、楊雅博與余志民(2016)，啞鈴模型與風險趨避廠商的區位選擇，台灣經濟學會2016年年會暨當代經濟議題學術研討會。
2. 余志民與楊雅博(2016)，Endogenous Location and Spatial Discrimination in Input Market with Fixed Cost，台灣經濟學會2016年年會暨當代經濟議題學術研討會。許竹筌、李仁耀與蔡建樹(2016)，Production Externality, Bargaining Wage, Pollution Tax and Compensation Schemes，台灣經濟學會2016年年會暨當代經濟議題學術研討會。

3. Chih-Min She (2016, Jul). Endogenous Location and Spatial Price Discrimination with Public Infrastructure. PET 2016 (Association of Public Economics Theory)
4. Chih-Min She and Ya Po Yang (2016) , Uniform vs Discriminatory Pricing in Spatially Separate Market. 2016 International Conference on Business and Information.
5. Wu, Shih-Jye, Che-Wen Wu, and Hung-Yi Chen, (2015)Optimal import tariff rate toward a multinational firm with alternative channels of market entry, presented at the Bilateral International Meeting of WEAI, Wellington, New Zealand-.

(3)成員進行的works in progress(working paper共10篇)

1. Ya Po Yang, Nov 2017. “On the Certification of credence in an Oligopoly market,” *Working Paper*.
2. Chih-Min She, Aug 2016. “Location and Spatial Discrimination with Public Infrastructure.” *Working Paper*.
3. Yang, Y. P. Jul 2016. “Location of Monopoly supplier in a Barbel Market.” *Working Paper*.
4. Shih-Min She and Leonard F.S. Wang, “Market Structure, Private Goods and Public Goods” ◦
5. Lee, Jen-yao; Tsai, Chien-shu; Wang, Leonard, Foreign Ownership, Strategic Export Policy and Optimal Discriminatory Tariffs, submitted.
6. Su-Ying Hsu, Lo, Chu-Ping and Shih-Jye Wu, “Foreign Intermediate Market and Downstream Privatization,” ◦
7. Wu, Shih-Jye, Che-Wen Wu, and Hung-Yi Chen (2016), Optimal import tariff rate toward a multinational firm with alternative channels of market entry, memo.
8. Wu, Shih-Jye, Ya-Po Yang, and Huang-Reuy, Sung, (2016),Uniform vs. Discriminatory pricing in a barbell model under uncertainty, memo

9. Wu, Shih-Jye, Yang-Ming Chang, and Hung-Yi, Chen, (2014),FTO and trade policy, submitted.
10. Ya-Po Yang, Yang-Ming Chang, and Chia-Chun Hong (2014) “Technology Licensing, Entry Mode and Trade Liberalization”.

(4)研究群培育的博碩士論文(共碩士論文4篇)

1. 楊孟軒，”垂直相關市場下的企業社會責任與要素訂價策略 ”, 2017國立高雄大學經營管理碩士，指導教授楊雅博。
2. 黃誼庭，” 企業社會責任與進口關稅”，2017國立高雄大學經營管理碩士 論文指導教授楊雅博。
3. 林寬宏，” 企業的環境社會責任與上游訂價策略”， 2017國立高雄大學應用經濟系碩士 論文指導教授蔡穎義與楊雅博。
4. 潘冠舟，企業的環境社會責任與上游訂價策略，2017國立高雄大學應用經濟系碩士 論文指導教授蔡穎義與楊雅博。

(5)成員於研究群中發表的演講

研究群成員於研究群中發表的演講如下表4，過程中大家討論熱烈，也獲得許多有趣的研究題材。

表 4 研究群成員於研究群中發表的演講

項次	日期	報告人	篇名	出處
1	2017/03/13	吳世傑	Bargaining power and firm profits in asymmetric duopoly An inverted-U relationship	Osaka University, Working paper
2	2017/05/08	楊雅博	Fixed cost, Location and welfare in spatially separate markets	Working paper
3	2017/06/26	李仁耀	Mixed Oligopoly at Free Entry Markets	Working paper series at NUK working group
4	2017/08/07	許淑嫻	Market Concentration and Licensing Royalty in an Asymmetric	Working paper

			Oligopoly	
5	2017/08/28	蔡建樹	企業社會責任與連鎖 加盟分析	Working paper
6	2017/09/11	吳世傑	Tariffs, vertical specialization and oligopoly	European Economic Review (2016), 82:1-23
7	2017/10/23	吳世傑	The welfare impact of a managerial oligopoly with an altruistic firm	Journal of Economics (2013), 109:97-115
8	2017/10/30	蔡穎義	Investment for green technology under uncertainty	Working paper
9	2017/11/06	余志民	Effects of Spatial Price Discrimination with an Input Source	Working paper
10	2017/11/13	楊雅博	On the certification of credence goods in an oligopoly market	Working paper
11	2017/11/20	許淑嫻	Menu Auctions, Resource Allocation, and Economic Influence	The Quarterly Journal of Economics, Vol. 101, No. 1 (Feb., 1986), pp. 1-32
12	2017/12/18	李仁燿	工會議價能力與企業 社會責任	國立高雄大學貿易與產 業經濟理論研究群 Working Paper

## 五 結 論

從本研究群成員在計畫執行期間，共報告 41 篇文章，自 2014 獲得人社中心研究群的經費補助以來，共有 22 篇文章刊登或接受刊登於經濟學專業期刊，其中 SSCI 期刊有 15 篇，包括一篇刊登於 *Canadian Journal of Economics*，經濟學門列為 A 的期刊，以及經濟學門列為 B+ 的期刊 7 篇。在微薄的經費補下，可謂研究成果豐碩，也達到初步達到提升南部學術水準的目的。

遺憾的是，自 2018 年起科技部對於研究群計畫的補助經費已暫停，研究群希望在能更夠在未來仍有機會獲得補助經費，繼續發揮研究最大質量上的效益。

附 件 一：研究群歷次會議紀錄

國立高雄大學貿易與產業經濟理論討論會 報告人：黃煒哲

2017/03/06

篇名	<i>Information disclosure and consumer awareness</i>
作者	<i>Sanxi Li, Martin Peitz, Xiaojian Zhao</i>
出處	Journal of Economic Behavior & Organization 128 (2016) 209–230
摘要	Whether consumers are aware of potentially adverse product effects is key to private and social incentives to disclose information about undesirable product characteristics. In a monopoly model with a mix of aware and unaware consumers, a larger share of unaware consumers makes information disclosure less likely to occur. Since the firm is not interested in releasing information to unaware consumers, a more precise targeting technology that allows the firm to better keep unaware consumers in the dark leads to more disclosure. A regulator may want to intervene in this market and impose mandatory disclosure rules.
研究動機	Adverse product effects are a serious economic problem. As a result of information disadvantages, consumers may be unaware of some low-quality aspects of products. A profit-seeking firm may use many ingredients to different degrees to produce its products. Additional examples are asbestos, nicotine, transgenic fats, and flavor enhancers, whose health risks were and, for some consumers. In many of these examples, the consumer side is characterized by both, uncertainty and unawareness. To capture this, they develop a simple and unified monopoly model in which the consumer side is composed of a mix of aware and unaware consumers. Some of the consumers are aware of the ingredient but uncertain of its level and whether it is harmful. The monopolist firm knows whether or not the ingredient is harmful, as well as the level contained in its product. It then decides about its disclosure policy: It may fully, partially, or not at all disclose information through advertising.

<p>模型</p>	$U = (u - \theta)q - \frac{1}{2}q^2 - pq.$
<p>研究結果</p>	<p>When endogenizing the firm entry decision. They show that consumers are not necessarily better off when full rather than awareness-enhancing disclosure is mandated. The reason is that imposing full disclosure may cause the monopolist not to enter, which may be consumer-surplus reducing. Since awareness-enhancing disclosure is never privately optimal for the firm, they show that the publicly chosen disclosure rule may be qualitatively different from any optimal disclosure strategy that may be optimal for the firm. If a firm can invest in reducing the level of the adverse effect, then mandatory disclosure rules affect the firm's incentive to invest. They show that the mandatory full-disclosure rule provides the firm with the strongest incentive to reduce the adverse effect.</p>
<p>研究貢獻</p>	<p>The firm may or may not want to hide the fact that its product contains a harmful substance, as well as the level of it. As a result, a firm discloses all its information if the level of the harmful substance is low, while it does not disclose at all if the level is high. Consumers always benefit from more information; thus, they will benefit from learning that the substance is indeed harmful and from knowing how much of the substance the product contains. When endogenizing the firm's entry decision, the issue arises that a firm may not find it profitable to offer the product. This holds if the expected gross profits are below the entry cost. This makes well-meaning mandatory disclosure rules a double-edged sword.</p>
<p>未來研究方向</p>	<p>Theory applies not only to adverse effects that impact consumers' material well-being, but also to other aspects a consumer may care because of other consideration. In particular, it applies to the type of production processes that is used and the type of labor contracting within the firm and in vertical supply relationships. To be applicable, the utility that a consumer derives must depend on the use of inputs and contracts that the firm uses. This is the case if the utility function reflects ethical or environmental concerns. Cases in point are the failure to uphold standards in labor contracts, such as</p>

<p>the use of child labor or forced labor (as exemplified by hand-woven carpets and textiles – recall, for instance, past media coverage on sweatshops for products by Nike); the health and safety risks for workers (this applies, e.g., to mining products and textiles – recent concrete examples are jeans dying in Turkey and textile manufacturing in Bangladesh), disrespect of environmental standards (e.g., in case of textiles and cleaning products), disrespect of indigenous rights (as happened in case of oil extraction), and animal experiments (e.g., for cosmetics).</p>
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篇名	<i>Bargaining power and firm profits in asymmetric duopoly An inverted-U relationship</i>
作者	Shohei Yoshida
出處	Osaka University, <i>Working paper</i>
摘要	This paper investigates the effects of bargaining power on downstream firms' profits. Consider a vertically related industry consisting of one upstream and two downstream firms, the latter having different marginal costs. Each pair bargains over a linear wholesale price, and then the downstream firms engage in Cournot competition. They show that the inefficient downstream firm may benefit from an increase in the bargaining power of the upstream firm. Furthermore, they obtain similar results when each downstream firm trades with its exclusive upstream agent, or downstream firms compete in price.
研究動機	Firms need to negotiate with various agents (e.g., input suppliers, labor unions, and governments) regarding numerous important factors regarding their profits (e.g., input prices, wages, taxes). <sup>1</sup> Since such contract outcomes significantly affect their profitability, almost all firms might want to negotiate skillfully to induce better contract terms. Generally, to obtain better outcomes in bargaining, agents should have better outside options (threat points) and stronger bargaining power. In vertical relations, for example, the common belief is that upstream firms act as the sole input suppliers toward the downstream firms and they exploit their monopoly power to raise input price, which unambiguously reduces downstream firms' profits. However, we show that there are situations under which the widely accepted view that downstream firms' profits are decreasing with the bargaining power of upstream firms does not hold.

模型	<ul style="list-style-type: none"> <li>▪ Consider a vertically related industry <ul style="list-style-type: none"> <li>— one upstream and two downstream firms with the latter having different technology in terms of marginal costs.</li> <li>— each upstream-downstream pair bargains over a liner wholesale price</li> <li>— subsequently, the downstream firms engage in Cournot competition.</li> </ul> </li> <li>▪ Demand function, <math>p = p(Q)</math>, with <math>Q = q_1 + q_2</math></li> <li>▪ Each downstream firm has a constant marginal cost: <math>c_i = w_i + z_i</math> <ul style="list-style-type: none"> <li>— <math>w_i</math> is a pre-unit input price determined by Nash bargaining</li> <li>— <math>z_i \geq 0</math>, measures the efficiency of downstream firm <math>i</math>. Assume <math>z_2 &gt; z_1</math>.</li> </ul> </li> <li>▪ Downstream firm <math>i</math>'s profit, <math>\pi_{Di} = (p(Q) - c_i)q_i</math></li> <li style="padding-left: 40px;">Upstream firm's profit, <math>\pi_U = \sum_{i=1}^2 w_i q_i</math></li> <li>▪ Two stage game: 1<sup>st</sup> stage—bargaining stage; 2<sup>nd</sup> stage—Cournot competition.</li> </ul>
研究結果	<p>An increase in the bargaining power of upstream firms have two effects:</p> <ul style="list-style-type: none"> <li>• Input price effect: an increase in the bargaining power of upstream firms raises both wholesale prices, clearly harming both downstream firms.</li> <li>• Anti-selection effect: with positive bargaining power, the upstream firms charge different wholesale prices <ul style="list-style-type: none"> <li>✓ the efficient downstream firm's wholesale price becomes higher than that of the inefficient one.</li> <li>✓ an increase in the bargaining power of upstream firms raise the wholesale prices for the efficient downstream firm more than for the inefficient one, thereby reduces the difference of ex post efficiency between downstream firms—this can benefit the inefficient downstream firm, whereas it always harms the efficient one.</li> </ul> </li> </ul>
研究貢獻	<p>This paper challenges the conventional wisdom that strong upstream firms always make downstream firms worse off. The author identifies a situation under which the widely accepted view that downstream firms' profits are decreasing with the bargaining power of upstream firms fails to manifest itself. In a market consisting of inherently asymmetric firms, an increase in the bargaining power of upstream firms harms the efficient downstream firm, but may benefit the inefficient one.</p>
未來研究方向	<p>None.</p>

篇名	<i>Vertical technology transfer via international outsourcing</i>
作者	<i>Howard Pack, Kamal Saggi</i>
出處	Journal of Development Economics Vol. 65 (2001) 389–415
摘要	To analyze the effect of vertical technology transfer on industrial development in lesser developed countries (LDCs), they develop a model in which the technology transferred to an LDC supplier by a developed country (DC) importer can diffuse to other LDC firms. Surprisingly, even if such diffusion in the LDC market leads to entry into the DC market, it can benefit both the initial DC importer and its initial LDC supplier by reducing the double marginalization problem. This effect does not depend upon whether firms compete in prices or quantities and exists even when the number of entrants into each market is endogenously determined. q 2001 Elsevier Science B.V. All rights reserved.
研究動機	Why technology suppliers may offer their knowledge even when they are unable to extract the full benefits that accrue to LDC firms?
模型	<p>This paper construct a simple model in which a DC firm may choose to engage in vertical technology transfer by outsourcing basic production to firm(s) in a LDC. Under exclusive outsourcing, the DC firm transfers technology to an LDC firm and markets its output in the DC market. A key feature of the model is that once the technology is transferred to an LDC firm, some of the knowledge may seep out to a non-affiliated firm within the LDC.</p> <p>Our basic model is a three-stage game involving one incumbent DC firm, two LDC firms, and one potential entrant into the DC market. In the first stage, the incumbent DC firm (labelled by 0) chooses to outsource production to a subset of the LDC firms. The profits that the incumbent DC firm can earn by producing in the DC market are normalized to zero. The incumbent DC firm is willing to take a chance on transferring a technology over which it could conceivably lose control as it perceives itself to have a complementary asset (marketing skills) in the absence of which sales in the DC home market are not possible. Let <math>\psi_0</math> denote the incumbent DC firm's marginal cost of marketing. Let <math>\psi_3</math> denote the potential entrant's marginal cost of marketing, where <math>\psi_3 \geq \psi_0</math>.</p> <p>They will analyze two scenarios: one in which entry into marketing is blocked and another in which it is not. Let <math>\theta</math> denote the share of this fixed cost that is borne by the incumbent DC firm. Technology transfer allows LDC firm(s) to produce a good that can be sold in the DC market by the</p>

	<p>incumbent DC firm.</p> <p>In the final stage, the incumbent DC firm obtains the basic product from its LDC supplier(s) and then markets the product in the DC market. One unit of output requires one unit of marketing. Suppose only one LDC firm were to receive the technology from the DC incumbent firm. Let us refer to this LDC firm as the incumbent LDC firm. Let <math>p</math> denote the probability that the technology leaks out to the other LDC firm. Technology diffusion within the LDC economy may be incomplete: post diffusion, the marginal cost of production of a firm which is not directly involved in outsourcing equals <math>c_2 \geq c_1</math>. Under Bertrand competition with homogenous products, the LDC incumbent firm supplies its output to the DC incumbent firm at price equal to the marginal cost of the higher cost firm (<math>c_2</math>).</p>
研究結果	<p>In fact, our analysis shows that diffusion of technology among LDC suppliers accompanied by entry in the downstream DC market may actually benefit the two original firms engaged in technology transfer. Note that if the DC firm and the LDC supplier were vertically integrated, diffusion would harm the DC firm since, under vertical integration, the DC firm can source the upstream good at marginal cost in the first place.</p>
研究貢獻	<p>Unlike the literature on licensing (see, for example, Katz and Shapiro, 1985; Kamien and Tauman, 1986), they emphasize how such transfer of technology can diffuse to other firms and then have implications for competition at both stages of the market. Furthermore, the vertical aspect of technology transfer (i.e. from a buyer to a seller) is novel to our model. Our contribution to this literature is to show how a single downstream firm's decision to transfer technology can affect market structure at both the upstream and downstream level due to the feedback effects between the two markets.</p>
未來研究方向	<p>This analysis has some implications for an argument often made that developed country importers can obtain all the rents that may accrue to LDC firms from mastering new technologies by offering lower prices to LDC manufacturers. The preceding analysis implies this is not necessary. The simplest model suggests that the LDC costs falls due to technology diffusion. However, when entry of an additional marketing firm is allowed, the profits of the original LDC firm may actually increase. Thus, the view that the potential rents from technology diffusion are all appropriated by DC firms depends on the response of local agents, particularly whether managers and workers supply other producing firms with relevant knowledge and whether domestic marketing firms arise, perhaps with government support.</p>

篇名	<i>Menus of price-quantity contracts for inducing the truth in environmental regulation</i>
作者	<i>Ratna K. Shrestha</i>
出處	Journal of Environmental Economics and Management
摘要	Many authors have proposed mechanisms to induce regulated polluting firms to truthfully reveal their private information. This paper proposes an alternative scheme in which the regulator offers each firm a menu of linear price-quantity contracts; faced with this menu, each firm's dominant strategy is to truthfully report its private information and self-select the contract that is ex post efficient. The proposed menu schedule that is more elastic than the firm's residual marginal damage function engenders a positive quantity effect, thereby counterbalancing the firm's incentive to misreport prompted by the linearity of price. Due to its built-in price quantity structure, the scheme performs as designed regardless of the elasticities of marginal damage and demand functions.
研究動機	In a regulatory framework with private information, if the policy instrument is a linear tax, firms understate their demand and pay less for the marginal unit to lower the price for the infra-marginal units (see Wilson, 1979 for a similar phenomenon in a fixed-supply uniform-price auction). On the other hand if the policy instrument is a quantity standard, firms overstate their demand (Kwerel, 1977). Kwerel's scheme that integrates the two policy instruments can induce firms to truthfully reveal their demand; but, this scheme requires every firm to believe that the others are telling the truth and that the permit market is perfectly competitive (DHM).
模型	Consider an economy consisting of a regulator and $n \geq 2$ ( $i=1, 2, \dots, n$ ) polluting firms to be regulated. Each firm benefits from its pollution $x_i$ as given by $B_i(x_i)$ with $B_i(0) \geq 0$ and $B_i'(x) < 0$ , where $x_i \in [0, 1]$ ; marginal benefit $B_i'(x_i)$ can be interpreted as firm $i$ 's demand for $x_i$ (or, equivalently, cost of pollution control). The aggregate demand for pollution is denoted by $B(x)$ , where $x = \sum x_i$ . The environmental damage caused by $x$ is $D(x)$ with $D(0) = 0$ , $D'(x) > 0$ , and $D''(x) < 0$ . In this setting, the social-welfare maximizing solves the following problem:

研究 結果	<p>This paper proposes menus of linear price-quantity contracts for inducing polluting firms to truthfully reveal their private information (i.e., demand for pollution) as a dominant strategy. The linear corrective price based on a regulated firm's residual marginal damage, in the spirit of VCG, alone fails to provide the firm sufficient incentive to truthfully reveal its private information. In fact, this linear tax provides the firm a countervailing incentive to underreport. To offset this incentive, while retaining the linearity of price, a menu price schedule that is more elastic than the residual marginal damage function is introduced.</p>
研究 貢獻	<p>Although the (menu) price schedule itself can be nonlinear (except when marginal damage is constant), the price each firm pays for its pollution units (including infra-marginal units) is linear. It is this linearity of price that can make this scheme much simpler to implement (see Milgrom and Roberts (1992) for several popular examples with linear payments). However, the proposed scheme is vulnerable to collusion as do the Montero and DHM mechanisms.</p>
未來 研究 方向	<p>The proposed scheme provides incentive to firms to reveal their type (distinguished by their respective demand functions) and in that sense solves the adverse selection problem. It might be interesting to explicitly introduce an unobservable effort applied in controlling pollution and then explore how this scheme can be modified to address the associated moral hazard problem. Although the proposed scheme is designed in the context of the optimal regulation of environmental externality under asymmetric information, it can be equally useful as a screening or truth-inducing mechanism in various other applications such as insurance market, resource allocation, and the provision of public goods.</p>

篇名	<i>Market Power, Permit Allocation and Efficiency in Emission Permit Markets</i>
作者	<i>Beat Hintermann</i> <i>Faculty of Business and Economics, University of Basel,, Switzerland</i>
出處	<i>Journal of Environmental and Resource Economics</i>
摘要	Market power in permit markets has been examined in some detail following the seminal work of Hahn (Q J Econ 99(4):753–765, 1984), but the effect of free allocation on price manipulation with market power in both product and permit market has not been fully addressed. I show that in this case, the threshold of free allocation above which a dominant firm will set the permit price above its marginal abatement costs is below its optimal emissions in a competitive market, and that overall efficiency cannot be achieved by means of permit allocation alone. In addition to being of general economic interest, this issue is relevant in the context of the EU ETS. I find that the largest German, UK and Nordpool power generators received free allowances in excess of the derived threshold. Conditional on having price-setting power in both the electricity and permit markets, these firms would have found it profitable to manipulate the permit price upwards despite being net permit buyers.
研究動機	Profits related to free distribution of permits have been identified as an issue in permit markets in general (Vollebergh et al. 1997; Bovenberg and Goulder 2000), and in particular in the EU ETS (Grubb and Neuhoff 2006; Hepburn et al. 2006; Neuhoff et al. 2006; Sijm et al. 2006; Smale et al. 2006). Such profits constitute a wealth transfer from consumers to firms but they do not impact efficiency directly <sup>1</sup> nor affect the permit price in a competitive market. This no longer holds with imperfect competition, because a price-setting firm will take overall profits into account when making its production and permit purchase decisions, including such “windfall” profits.  The literature that is most closely related to my paper pertains to “raising rivals’ cost” strategies, whereby a dominant firm influences its position in the product market indirectly via manipulation of input prices (e.g. an emissions permit price). However, no direct market power in the product market is assumed and the focus is on firms expanding their market share at the expense of the fringe rather than consumers.

<p>模型</p>	<p>I set up a simple Stackelberg model of an industry sector containing <math>N</math> firms that is subject to an emissions permit market.<sup>4</sup> The cost function for firm <math>i \in N</math> is described by <math>C^i(q_i, e_i)</math>, which depends on output <math>q_i</math> and emissions <math>e_i</math> and is continuous and twice differentiable in both arguments. Costs are increasing in output, decreasing in emissions and convex in both arguments, such that <math>C_q^i &gt; 0</math>, <math>C_{qq}^i &gt; 0</math>, <math>C_e^i &lt; 0</math>, <math>C_{ee}^i &gt; 0</math>, <math>C_{qe}^i &lt; 0</math> and <math>C_{qq}^i C_{ee}^i - (C_{qe}^i)^2 &gt; 0</math>. Without loss of generality I assume that firm 1 has market power in both the product and the permit market.</p> <p>To study the equilibrium, I start by analyzing the behavior of firms <math>i = 2, \dots, N</math> that comprise the price-taking fringe, before I move on to the dominant firm. The fringe's profit maximization problem is</p> $\begin{aligned} \max_{q, e, x} \Pi_i &= pq_i - C^i(q_i, e_i) - (x_i - \bar{x}_i)\sigma \\ \text{s.t. } e_i &\leq x_i \end{aligned} \quad (1)$ <p>where <math>p</math> is the product price, <math>\sigma</math> the permit price, <math>x_i</math> refers to permit purchases and <math>\bar{x}_i</math> is firm <math>i</math>'s free permit allocation. With a binding cap we can substitute the constraint into the objective function and arrive at the familiar first-order conditions that marginal production costs equal the product price, and marginal abatement costs equal the permit price. This implicitly defines the fringe's optimal production output, emissions and permit purchase decisions:</p> $\begin{aligned} p = C_q^i(\cdot) &\Rightarrow q_i^* = q_i^*(p, \sigma) \\ \sigma = -C_e^i(\cdot) &\Rightarrow e_i^* = x_i^* = x_i^*(p, \sigma) \end{aligned} \quad (2)$ <p>The dominant firm takes (Eq. 2) into account when maximizing its own profits. It faces an inverse demand function and a permit market-clearing condition of</p> $\begin{aligned} p = P(Q) &= P\left(q_1 + \sum_{i=2}^N q_i^*(p, \sigma)\right) \\ S &= x_1 + \sum_{i=2}^N x_i^*(p, \sigma) \end{aligned} \quad (3)$
<p>研究結果</p>	<p>Derive a threshold of free allocation in the presence of imperfect competition in both markets, above which a dominant firm finds it profitable to inflate the permit price by under-abating and over-purchasing permits. This threshold is less than the firm's emissions were it to set its marginal abatement costs equal to the permit price, and necessarily makes the firm a net permit buyer</p> <p>present no evidence that EU firms are in fact able to manipulate either the permit or the output price. Given the size of the market, a strict interpretation of market power as proposed by Maeda (2003) might conclude that even the largest firms are too small to yield price-setting power.</p>
<p>研究貢獻</p>	<p>Provide both theoretical and empirical approach result.</p>
<p>未來研究方向</p>	<p>Study phase3 of EU ETS market and later. Wait for the opening data.</p>

篇名	<i>Parallel trade under vertically related markets</i>
作者	<b>Pei-Cyuan Shih<sup>a</sup>, Ming-Fang Tsai<sup>b</sup>, Jin-Ji Chen<sup>c</sup></b> a Department of International Business, Ming Chuan University, Taiwan b Department of Economics, Tamkang University, Taiwan c Department of Business Administration, CTBC Financial Management College, Taiwan
出處	Working paper
摘要	This paper sets up a two-country model in which there is one domestic manufacturer authorizing its product to a distributor in the foreign country. The distributor can sell the product not only to its own market (i.e., the foreign market) but also back to the domestic market. The latter is called as parallel trade. The paper investigates the effects of parallel trade on the wholesale price and the profit of the manufacturer if the domestic market structure is vertically related markets. With a vertically related market structure, it is found that the optimal wholesale price charged by the manufacturer might be higher (lower) under parallel trade regime than that under no parallel trade regime, depending on the market size difference. Moreover, parallel trade may increase the profit of the manufacturer.
研究動機	The previous papers all focus on the of the parallel trade policy without considering an important fact: Vertically-related market structures. In reality, the vertically-related market is prevalent and has grown dramatically over the last two decades. In this paper, they concentrate our analysis on the effects of parallel trade on the input price and the manufacturer's profit by considering the vertically related market.

模型

Assume there are two countries in the model: a host country and a foreign country. In the host country, there exist an upstream firm U and a downstream manufacturer M who sells its product and authorizes an independent distributor F to sell its product in country F. The distributor may parallel export the product to country H at no cost.

We assume that the inverse demand functions for country H is  $P(Q) = a - Q$ . In country H, when parallel trade takes place we have  $Q = q_M + q_T$ , where  $q_M$  is the output of the firm M and  $q_T$  are parallel trade. In country F, the inverse demand functions for country F is  $P(q_F) = b - q_F$ , where  $q_F$  is the output of the firm F. We assume that the price of intermediate good is  $w$  and the constant marginal cost of firm U is zero, for simplicity. We further assume that Firm M charges a two-part tariff contract, i.e., a fixed fee ( $L$ ) and a wholesale pricing ( $r$ ) when providing the product to the distributor.

The game in question comprises three stages. In the first stage, the upstream firm determines its optimal prices for the intermediate good. In the second stage, taking the intermediate good price as given, a manufacturer determines its optimal two-part tariff contract (a wholesale price,  $r$ , and a fixed fee,  $L$ ). In the third stage, in the case without parallel import, firm M and firm F set the retail quantity in the host country and the foreign country individually; otherwise, once parallel trade takes place, both the manufacturer and foreign distributor compete in quantity in the domestic market.

In the national exhaustion regime, firm M is a monopoly in the host country and firm F is a monopoly in the foreign country. At stage three, the profit functions for the firm M and the firm F can be respectively expressed as follows:

	$\pi_M = [P(q_M) - w]q_M + (r - w)q_F + L$ $= (a - q_M - w)q_M + (r - w)q_F + L.$ $\pi_F = [P(q_F) - r]q_F - L = (b - q_F - r)q_F - L.$ <p>From the above, we can derive that the optimal quantity in the host and the foreign country is <math>(a - w)/2</math> and <math>(b - r)/2</math>.</p> <p>The equilibrium profit of firm M can be expressed as follows:</p> $\pi_M = \frac{(a - w)^2}{4} + \frac{(b - r)(r - w)}{2} + L$ $s.t. L \leq \frac{(b - r)^2}{4}.$
研究結果	<p><b><i>Proposition 1. Parallel trade may increase or decrease the input price, depending on the relative market size of two countries.</i></b></p> <p><b><i>Proposition 2. Parallel trade may increase the profit of manufacture when the market size of host country is small enough.</i></b></p>
研究貢獻	<p>It is found that the manufacturer will charge its foreign distributor a wholesale price which is higher than its marginal cost (i.e., the input price) under parallel trade regime. In addition, the input price difference under two policy regimes is ambiguous, depending on the two country's market size. Finally, the permitting parallel trade may enhance the profit of the domestic manufacturer. This result is of interest as it goes against the conventional wisdom that parallel trade is harmful to the manufacturer's profit. This finding also bears a policy implication and has not been grounded in the parallel trade literature.</p>
未來研究方向	<p>We can consider the role of the trade cost in the domestic market such as Hur and Riyanto (2006) and Mueller-Langer (2012). We can also consider the case that the manufacturer acts as a Stackelberg leader and is able to commit its output in prior to the foreign distributor.</p>

篇名	<i>Endogenous number of firms, horizontal concentration and heterogeneity of firms—A note</i>
作者	<i>Markus Thomas Münter</i>
出處	Economics Letters Vol.154,May 2017,p.74-p.76
摘要	This paper re-examine implications of heterogeneity of firms under a Cournot setting on free entry equilibria concerning the number of firms. Heterogeneity reduces the number of firms in equilibrium—the larger the cost asymmetries, the smaller the free entry equilibrium number of firms in an industry.
研究動機	They adopt a stylized yet flexible model of Cournot competition with free entry and consequently an endogenous number of firms, where potential firms are persistently heterogeneous in their marginal costs. For a discrete number of firms, they follow the approach of Bergstrom and Varian (1985) and re-examine and generalize the result of Novshek (1980) concerning the endogenous number of firms in equilibrium.
模型	<p>Following the seminal approach of Bergstrom and Varian (1985), they consider a discrete number of firms. Assume that at any point in time there is a certain ranking of all potential firms <math>i=1, 2, \dots, z, z+1, \dots, \infty</math> with respect to their marginal costs <math>c_i = c_1, c_2, \dots, c_z, c_{z+1}, \dots, c_\infty</math> or efficiencies, where <math>c_1 &lt; c_2 \dots</math>. To keep things simple, they assume a homogeneous product market with a linear demand function <math>p(Q) = a - bQ</math> with parameters <math>ab &gt; 0, a &gt; c_i</math> and total production of all firms <math>I</math> given by <math>Q = \sum q_i</math>.</p> <p>With a cost function <math>C_i = c_i q_i + F</math> including firm-specific marginal costs <math>c_i</math> and industry-specific fixed costs <math>F</math> identical to all firms, the profit function of each firm <math>i</math> can be written as <math>\pi_i(q_i, Q - q_i) = p(Q) q_i - C_i</math>.</p> <p>Under a Cournot setting, each firm <math>i</math> maximizes its profits by choosing its individual production <math>q_i</math> given as</p> $q_i = \frac{a - c_i}{b} - Q. \quad (1)$ <p>Total production and price is then</p> $Q = n \frac{a - \bar{c}}{b} - nQ = \frac{n}{n+1} \frac{a - \bar{c}}{b} \quad (2)$

	and $p(Q) = a - bQ = \frac{a + n\bar{c}}{n + 1}, \quad (3)$
研究 結果	With an exogenously given number of firms, heterogeneity of marginal costs affects the outcome of the competitive process represented in a Cournot–Nash setting only quantitatively, as shown by Bergstrom and Varian (1985). This changes fundamentally, if the number of firms is considered an endogenous variable due to entry and exit.
研究 貢獻	First, they demonstrate that the number of firms is reduced by heterogeneity of firms with respect to marginal costs. Secondly, with heterogeneous firms horizontal concentration is to increase at a more than proportionate rate, if differences in efficiency force less competitive firms out of the market. Furthermore, if the random distribution of marginal costs of potential firms is to some extent bell-shaped, one will end up with a large number of small firms and a small number of large firms—clearly supporting one of the key stylized facts in empirical studies on market structure.
未來 研究 方向	None.

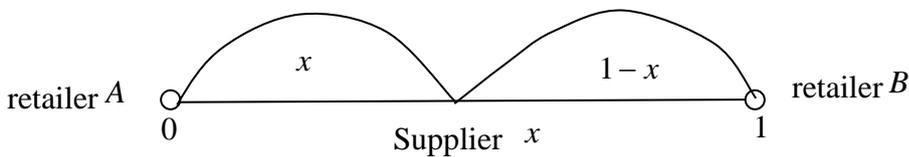
篇名	<i>Strategic incentives when supplying to rivals with an application to vertical firm structure</i>
作者	<i>Serge Moresi &amp; Marius Schwartz</i>
出處	International Journal of Industrial Organization, Volume 51, March 2017, 137–161
摘要	This paper consider a vertically integrated input monopolist supplying to a differentiated downstream rival. With linear input pricing, at the margin the firm unambiguously wants the rival to <i>expand</i> —unlike standard oligopoly with no supply relationship—for either Cournot or Bertrand competition. With a two-part tariff for the input, the same result holds if downstream choices are strategic complements, but is reversed for Cournot with strategic substitutes. They analyze vertical delegation as one mechanism for inducing expansion or contraction by the rival/customer.
研究動機	<p>Vertically integrated firms often supply inputs to other firms with whom they compete in a downstream market. Tougher behavior or “expansion” by a rival/customer—an output increase or a price decrease—then has opposing effects on the integrated firm's profit: downstream profits fall, the competition effect, but input sales and upstream profits rise, the supply effect. At the margin, would the integrated firm gain or lose from expansion by its rival/customer? Specifically, consider the following thought experiment. Hold constant the integrated firm's downstream choice and the equilibrium input contract with the other firm, and suppose the integrated firm could change the other firm's downstream choice, anticipating how this affects input orders. Would it prefer to set a (marginally) higher quantity (or lower price) than the other firm chooses in equilibrium or the reverse, i.e. for the other firm to become more aggressive than in the actual equilibrium or less aggressive?</p> <p>Additionally, the integrated firm might alter the other firm's choice—without necessarily changing the input contract—by making observable commitments that change its own strategic posture in downstream competition, as discussed in the extensive literature on strategic commitments in oligopoly (surveyed by <a href="#">Shapiro, 1989</a>). (They shall analyze one such mechanism, vertical delegation.) There, a firm may adopt a tough or soft posture depending on whether the competitive choice variables are strategic substitutes or strategic complements (<a href="#">Fudenberg and Tirole, 1984</a> ; <a href="#">Bulow et al., 1985</a>)—but the goal throughout is to induce</p>

	<p>softer behavior by a rival. In our setting, the downstream rival is also an input customer, which introduces an opposing incentive.</p>
<p>模型</p>	<p>They consider an unregulated and vertically integrated input monopolist that chooses to supply the input also to a downstream firm selling a differentiated substitute product. With enough differentiation, or a sufficient cost advantage for the other firm, the input monopolist indeed will prefer not to foreclose entirely the other firm. Downstream competition may be Cournot or Bertrand, and they do not impose a functional form on demand. An input monopolist, firm 1, supplies to its downstream unit and to an independent downstream rival, firm 2, a setting sometimes described as partial forward integration or dual distribution. The firms produce imperfect substitutes, and with enough differentiation firm 1 indeed will prefer to supply also to firm 2 rather than foreclose it entirely. Downstream choice variables <math>x_1</math> and <math>x_2</math> are either quantities (<math>q_1</math> and <math>q_2</math>) or per-unit prices (<math>p_1</math> and <math>p_2</math>), thereby allowing Cournot or Bertrand competition downstream. To streamline the exposition, they define <math>x_i \equiv q_i</math> for Cournot and <math>x_i \equiv p_i</math> for Bertrand; thus, an increase in <math>x_i</math> represents greater “aggressiveness” or “toughness” because it reduces downstream profit of the other firm. The timing is as follows. First, firm 1 sets a per-unit input price <math>w_2</math> to firm 2. Then, firms 1 and 2 simultaneously set downstream variables <math>\mathbf{x} = (x_1, x_2)</math>, consumers purchase, and firm 2 pays for the required quantity of firm 1’s input. Each firm requires one unit of input per unit of output, and they use <math>Q_k(\mathbf{x})</math> for both <math>k</math>’s output and input amounts conditional on the downstream variables. Firm 2 chooses <math>x_2</math> to maximize its profit <math>\Pi_2(\mathbf{x}; w_2)</math>, and firm 1 chooses <math>x_1</math> to maximize its total profits:</p> $V(\mathbf{x}; w_2, c) = \Pi_1(\mathbf{x}; c) + (w_2 - c)Q_2(\mathbf{x}). \quad (1)$ <p>In our setting, firm 1 sells inputs to firm 2 at a markup (i.e. <math>w_2 &gt; c</math>), so firm 2’s downstream choice, <math>x_2</math>, has two opposing effects on firm 1’s</p> $\frac{\partial V}{\partial x_2} = \frac{\partial \Pi_1}{\partial x_2} + (w_2 - c) \frac{\partial Q_2}{\partial x_2}, \quad (2)$ <p>profits:</p>

	<p>where <math>\partial\Pi_1/\partial x_2</math> is the “downstream competition” effect discussed previously and <math>(w_2 - c)\partial Q_2/\partial x_2</math> is the “input supply” effect which typically runs in the opposite direction.</p>
<p>研究 結果</p>	<p>When the input is sold under linear pricing, at the margin the integrated firm necessarily benefits from expansion by the rival/customer (<a href="#">Proposition 1</a>). Therefore, the only direction in which the integrated firm wants to change the other firm's choice relative to the equilibrium value is expansion, i.e. it wants to make the other firm more aggressive.</p> <p>They also analyze the case where the input is sold under a two-part tariff and the integrated firm fully extracts the other firm's profit via the fixed fee. The equilibrium contract nevertheless fails to maximize industry profit—because the integrated firm cannot commit to the rival/customer regarding its own downstream choice—and the integrated firm will still benefit at the margin from expansion or contraction by the other firm relative to the equilibrium choice.</p> <p>They consider one potential mechanism to elicit expansion or contraction by the rival/customer: <i>vertical delegation</i>. The input supplier grants its downstream unit autonomy to set price or quantity to maximize its objective, rather than integrated profit as in the standard <i>centralization</i> case (or spins off control of the downstream unit to outside investors but retains majority passive ownership); and charges that unit an input price observable to the rival/customer.</p> <p>Focusing on linear input pricing (for reasons explained later), they apply <a href="#">Proposition 1</a> to show how the supplier can gain under delegation by adjusting the input price to its downstream unit relative to its shadow marginal cost under centralization: raise the input price if competition involves strategic substitutes—to convey contraction by its downstream unit and induce expansion by the rival/customer—or lower the input price with strategic complements (<a href="#">Proposition 3</a>). With Bertrand competition and strategic complements, delegation also creates an incentive to raise the input price to the other firm, but not for standard foreclosure reasons.</p>
<p>研究 貢獻</p>	<p>With linear input pricing, at the margin the firm unambiguously wants the rival to expand—unlike standard oligopoly with no supply relationship—for either Cournot or Bertrand competition. With a two-part tariff for the input, the same result holds if downstream choices are strategic complements, but is reversed for Cournot with strategic</p>

	substitutes. They analyze vertical delegation as one mechanism for inducing expansion or contraction by the rival/customer.
未來 研究 方向	A different but complementary direction involves applications of the analysis: mechanisms the supplier might employ to alter the rival/customer's choice. Regarding vertical delegation, an important empirical issue is how the supplier may set an observable input price. Alternatives to vertical delegation could also be explored.

篇名	<i>Fixed cost, Location and welfare in spatially separate markets</i>
作者	<b>Chih-Min She<sup>a</sup> Ya-Po Yang<sup>b</sup> Shih-Jye Wu<sup>c</sup></b> a Department of Applied Economics National Kaohsiung University b Institute of Business and Management National Kaohsiung University c Department of Political Economy National Sun Yat-Sen University
出處	Working paper
摘要	We examine the location choice of a supplier and the associated welfare in a straight line model where two markets of different size exist on the two endpoints. There is a retailer in each market who purchases goods from the only supplier who charges either uniform or discriminatory mill price on the two retailers. The fixed cost incurred by the retailers turns out to be crucial in determining the location of the supplier and the associated welfare. We find, when the fixed cost of the retailer is high, it becomes the pulling power of the supplier's location, therefore, if the fixed cost of the small market retailer is high enough, the supplier's location will be pulled toward the small market, and may lie between the two markets or on the small market. Moreover, when the fixed cost of the big market retailer is high, both the total output and social welfare under discriminatory pricing will be greater than that under uniform pricing; when both of the fixed cost of the two retailer are high, even the total output under discriminatory pricing is less than that under uniform pricing, the social welfare under discriminatory pricing may be higher.
研究動機	Retailers in cities in fact have to bear various kinds of fixed cost such as rent and shelf fees for their brick-and-mortar stores. In previous studies the fixed cost in such conventional channel of product distribution seldom plays any role, but in this paper it turns out to be crucial for the location choice of the supplier. Therefore, another focus is how the fixed costs of retailers affect the location of the supplier.

<p>模型</p>	<p>Two cities A and B locate on the two endpoints of a straight line ( distance normalized to 1) as Figure 1. The respective demand function of A、B are <math>P = P(Q)</math> and <math>p = p(q)</math>, where, <math>P' &lt; 0</math>, <math>P'' = 0</math>, <math>p' &lt; 0</math>, <math>p'' = 0</math>.</p>  <p style="text-align: center;">Figur 1 barbel market</p> <p>Demand function <math>P = P(Q)</math> and <math>p = p(q)</math>, where <math>P' &lt; 0</math>, <math>P'' = 0</math>, <math>p' &lt; 0</math>, <math>p'' = 0</math>; <math>\forall p = P, Q(P) \geq q(p)</math></p> <p>Profit function of the two retailers</p> $\pi_A = P(Q)Q - (w_a + tx)Q - F$ $\pi_B = p(q)q - (w_b + t(1-x))q - f$ <p>Profit function of the supplier</p> $\Pi = w_a Q + w_b q$ <p>It is a two stages game</p> <p>1<sup>st</sup> stgsge</p> <p>The supplier maximizes <math>\Pi</math> with respect to <math>w_a</math>, <math>w_b</math> and <math>x</math></p> <p>2<sup>nd</sup> stage</p> <p>The retailers maximize <math>\pi_A</math> and <math>\pi_B</math> with respect to <math>Q</math> and <math>q</math>, respectively.</p>
<p>研究 結果</p>	<p><b>Proposition 1</b> : When the supplier adopts uniform pricing, if both <math>F</math> and <math>f</math> are small, the optimal location of the supplier is in the big market(i.e. <math>x^U = 0</math>).</p> <p><b>Proposition 2</b> : When the supplier adopts uniform pricing and <math>F</math> is low, if <math>f</math> is low(medium, high), the supplier will locate in the big city (between the two cities, in the small city).</p> <p><b>Proposition 3</b> : When the supplier adopts uniform pricing and <math>F</math> is low, the</p>

	<p>supplier will always locate in the big city.</p> <p><b>Proposition 4 :</b> When the supplier adopts uniform pricing, fixed cost of the retailers act as a pulling power, if the fixed of the retailer in a city is high, it will pull the supplier to locate toward that city.</p> <p><b>Proposition 5 :</b> When the supplier adopts discriminatory pricing, if both of the fixed cost of the two retailers is small, the optimal location of the supplier is in the big market (i.e. <math>x^U = 0</math>)</p> <p><b>Proposition 6 :</b> When the supplier adopts discriminatory pricing, the optimal location is a corner solution, if both <math>F</math> and <math>f</math> are small, then the supplier will locate in the big city; if <math>f</math> is relatively higher than <math>F</math>, then the supplier will locate in the small city.</p>
研究 貢獻	<p>These results are quite unique if compared to the standard corner solution of the location of the supplier in barbell models. Also unconventional is the result that total quantity and social welfare are both higher under discriminatory pricing when the two markets are linear. In the nutshell, they indicate the importance of the fixed cost in the location choice of the supplier and the welfare effects of the two pricing strategies.</p>
未來 研究 方向	<p>We can consider the case that the two retailers can mutually sell the goods to each other's city to check whether the location of the supplier and welfare ranking of the two pricing strategies are the same in this paper.</p>

篇名	<i>Cournot vs. Bertrand under centralised bargaining</i>
作者	<i>Debasmita Basak</i>
出處	<i>Economics Letters 154 (2017) 124–127</i>
摘要	This paper revisits the debate on Cournot and Bertrand profit comparison in a vertically related upstream market for inputs. They find that when an input pricing contract is determined through centralised bargaining, the final goods producers earn higher (lower) profit under quantity competition than under price competition if the goods are substitutes (complements). Our results are strikingly different to the ones obtained from a similar comparison in other vertical pricing models.
研究動機	While the assumption of decentralised bargaining process is a useful starting point, it is equally intriguing to investigate whether the results alluded above hold when the input price contract constitutes centralised bargaining.
模型	They consider an economy with two downstream firms, denoted by $D_i$ producing differentiated products where $i, j = 1, 2$ and $i \neq j$ . The downstream firms require a critical input for production that they purchase from a monopoly input supplier, $U$ at a per unit price $w_i$ which is determined through generalised centralised Nash Bargaining. $U$ produces the inputs at a constant marginal cost of production, $c \in (0, a)$ . They assume that one unit of input is required to produce one unit of the output, and $D_i$ and $D_j$ can convert the inputs to the final goods without incurring any further cost. They develop a model of two stage game. At stage 1, $U$ involves in a centralised bargaining with a representative of $D_1$ and $D_2$ to determine the price of the critical input, $w_i$ , $i = 1, 2$ . At stage 2, $D_1$ and $D_2$ compete either in quantities (Cournot competition) or in prices (Bertrand competition) and the profits are realised. They solve the game through backward induction.
研究結果	Proposition 1. If $\gamma \neq 0$ the downstream firms earn higher (lower) profits under Cournot competition than under Bertrand competition. Proposition 1. If $\gamma \neq 0$ the downstream firms earn higher (lower) profits under Cournot competition than under Bertrand competition. The input price (read as marginal cost) being identical under Cournot and Bertrand competition, the reasoning behind downstream firm's profit ordering in our analysis, is similar to that of Singh and Vives (1984), i.e.,

	<p>competition being less fierce under Cournot competition compared to Bertrand competition,<sup>8</sup> the former competition generates higher (lower) downstream profits when the goods are substitutes (complements). The upstream profit, on the other hand, depends on the market output. A higher output level under Bertrand competition offers greater opportunity to the upstream firm to extract rent. Hence, the input supplier reaps higher profit under Bertrand competition than under Cournot.</p> <p>Proposition 2. If <math>\gamma \neq 0</math> Bertrand competition yields higher consumer surplus and social welfare than Cournot competition.</p> <p>As follows from Proposition 1, downstream firms charge a higher market price under Cournot than under Bertrand competition. This serves as a negative externality to the consumers and creates lower consumer surplus under the former competition.</p>
研究 貢獻	<p>Again, they find that the loss in upstream profit and consumer surplus under Cournot competition is so severe that it outweighs the gains from producers surplus when the goods are substitutes. The comparison is straightforward if the goods are complements. Hence, social welfare under Cournot competition is strictly lower than Bertrand competition as traditional in the literature.</p>
未來 研究 方向	<p>Allowing a centralised generalised Nash bargaining between the input supplier and the final goods producers, they show that the net profits of the final goods producers are higher (lower) under Cournot competition than under Bertrand competition when the goods are substitutes (complements). Our findings contradict the existing results in vertical pricing models.</p>

篇名	<i>Price Discrimination in Input Markets: Downstream Entry and Efficiency</i>
作者	<i>FABIAN HERWEG and DANIEL MULLER</i>
出處	Journal of Economics & Management Strategy
摘要	In this paper, the structure of the downstream industry and examine the effects of permitting third-degree price is crimination in input markets on industry structure and welfare. They conduct our analysis in the standard framework of vertical relations between an upstream manufacturer and downstream retailers. Our assumptions are shared by a large part of the extant literature: monopolistic manufacturer supplies an input that is used by a own stream industry to produce a final product. The manufacturer takes a take-it-or-leave-it offer to each of two downstream firms, and a potential entrant, specifying a per-unit wholesale price $t$ which that firm can procure any desired quantity of the input. The feature in our model is that one of the downstream firms—the contract—has to decide, after observing the offered wholesale prices, incur a strictly positive fixed cost in order to become active the downstream industry.
研究動機	They also consider downstream Cournot competition. Here, if entry occurs, the entrant and the incumbent are active in the same market. While with separate downstream markets entry under price discrimination but not under uniform pricing is a sufficient condition for permitting price discrimination to be welfare enhancing, this does not hold true for competition. If downstream firms compete `a la Cournot, then entry alleviates the quantity distortion arising from double marginalization. Under price discrimination, however, this beneficial effect of entry is counteracted by an allocative inefficiency in production induced by the upstream supplier's discrimination against the more efficient firm. For a very inefficient entrant and/or very high cost of entry, this negative effect can outweigh the benefits of entry, which in consequence makes uniform pricing socially desirable—even though it leads to less firms being served than price discrimination.

模型	<p>Consider a vertically related industry where the upstream market is monopolized by manufacturer <math>M</math>. This manufacturer produces an essential input that is supplied to a downstream sector. For simplicity they assume that <math>M</math> produces without costs. There are potentially two downstream firms, <math>i \in \{I, E\}</math>, that transform one unit of input into one unit of a final good. While firm <math>I</math>, the incumbent, is already active, firm <math>E</math>, the entrant, has to expend an entry cost <math>F &gt; 0</math> to become active in the downstream industry. Downstream firm <math>i</math> produces at constant marginal cost <math>k_i \in \{0, k\}</math>, <math>k &gt; 0</math>, and without fixed cost. Downstream firms differ in their marginal cost of production, <math>k_I \neq k_E</math>, that is, either the incumbent or the entrant has a cost advantage of <math>k &gt; 0</math>.</p>
研究結果	<p>They investigate the effects of banning third-degree price discrimination on market structure and welfare in a vertically related industry where costly entry downstream is possible.</p> <p>Irrespective of whether price discrimination is banned or not, for intermediate values of the entry cost, the manufacturer optimally induces entry by offering the restricted wholesale price that allows potential entrants just to break even. This gives rise to situations—in terms of the entrant’s efficiency in production and the cost of entry—where price discrimination leads to either higher or lower prices for all downstream firms than uniform pricing. In these cases, with wholesale prices being clearly favorable under one of the two pricing regimes, they obtain unambiguous implications of banning price discrimination regarding welfare and consumer surplus.</p>
研究貢獻	<p>If downstream firms are Cournot competitors, price discrimination has the beneficial effect that it supports entry which in turn reduces double marginalization. This beneficial effect, however, can be outweighed by entry being costly and an allocative inefficiency in production induced by discrimination against the more efficient firm.</p>
未來研究方向	<p>These results are novel to the extant literature on third-degree price discrimination in intermediate-good markets and are not to be obtained in a model of price discrimination in final-goods markets.</p>

篇名	<i>Competitive and Harmonized R&amp;D Policies for International R&amp;D Alliances involving Asymmetric Firms</i>
作者	<i>Rod Falvey and Khemarat Talerngsri Teerasuwannajak (2016)</i>
出處	Review of International Economics, 24(2), 302–329
摘要	This paper examines R&D policies when a national firm forms an R&D alliance with a foreign competitor. Firms differ in R&D capabilities, select among three forms of R&D alliance and adopt a profit-sharing rule if they coordinate their R&D decisions. When firms coordinate their R&D decisions and governments choose R&D policies independently, R&D taxes are chosen, but if governments harmonize their policies, they decide not to intervene. These policy outcomes affect the types of R&D alliance chosen. Agreements to share R&D information can outperform those with both coordination and sharing as a result of the R&D tax that coordination attracts.
研究動機	The growing popularity of international R&D alliances raises interesting issues for the choice of national R&D policies. How “national” are national champions once they become part of an international R&D alliance? The case for subsidizing national firms’ R&D may be considerably weakened if doing so also implies an implicit subsidy for their foreign competitors. International R&D alliances take different forms depending on how much information sharing and coordination the members choose to engage in. This choice will depend on firm and market characteristics, as well as the policy environment. Optimal policies are in turn sensitive to the form of the alliance and the magnitudes of the interventions will be sensitive to any asymmetries among the firms. Given that firms are cooperating internationally, national governments may also benefit from international cooperation. In this paper, they extend the literature on international R&D alliances and optimal R&D policies to cases where firms are asymmetric in their costs of undertaking R&D.

<p>模型</p>	<p>A home (<math>h</math>) and a foreign (<math>f</math>) firm export a homogenous product to a third market with linear inverse demand <math>P = a - \sum_{i=h,f} q_i</math>, <math>a &gt; 1</math>, where <math>P</math> and <math>q_i</math> denote price and firm <math>i</math>'s product output respectively. In the absence of R&amp;D, both <math>h</math> and <math>f</math> produce with the same marginal cost, <math>\bar{c} (&lt; 1)</math>. Each firm can engage in cost-reducing R&amp;D, and we <math>\beta \in [0, 1]</math>, denote the proportion of involuntary spillovers of R&amp;D output between the firms.</p> <p>If <math>x_i</math> denotes firm <math>i</math>'s R&amp;D output, its marginal production cost is <math>c_i = \max\{0, \bar{c} - X_i\}</math>, where <math>X_i \equiv x_i + \beta x_j</math> can be interpreted as the effective R&amp;D output available to firm <math>i</math>.</p> <p>The R&amp;D cost function takes a standard form <math>R_i = \frac{x_i^2}{2\theta_i}</math>, with the only asymmetry between firms being in their different R&amp;D efficiencies, denoted by <math>\theta \in (0, 0.5)</math>. This paper assumes a unit of R&amp;D output can be delivered at a lower cost by the foreign firm, i.e. <math>\theta_f &gt; \theta_h</math>.</p> <p>This paper analysis employs a four-stage game. The first stage involves the firms selecting an R&amp;D regime: (1) R&amp;D Competition (CP); (2) Research Joint Venture (RJV); (3) R&amp;D Cartel (CT); and (4) Research Joint Venture Cartel (RCT). In the second stage, given the R&amp;D regime chosen by the firms, each government chooses an R&amp;D tax/subsidy so as to maximize its national benefits. They consider two alternatives at this stage: (1) government competition, and (2) government coordination, where they harmonize their R&amp;D tax/subsidies. In the subsequent (R&amp;D and production) stages, firms choose their R&amp;D investments, taking as given the governments' interventions and then compete in the product market. This paper presumes competition policies in the third market preclude cooperation at the production stage. The subgame perfect Nash equilibrium (SPNE) is used as a solution concept in the analysis, hence the game is solved backwards.</p>
<p>研究 結果</p>	<p>The presence of the profit-sharing rule directly affects the governments' motives for intervention, as each government realizes that the incidence of any tax/subsidy on its national firm will be internalized by the alliance so that the tax/subsidy burden/benefit is distributed among the alliance members, while the taxing/subsidizing government collects/disburses all the revenue. This paper finds that in these circumstances a R&amp;D tax is always justified when firms coordinate their decisions, contrary to the</p>

	<p>conclusion when firms are symmetric.</p> <p>Finally, investigating the optimal form of intervention when the governments harmonize their policies. This paper confirm that if firms compete in R&amp;D, then whether a R&amp;D subsidy or tax is optimal depends on the size of the spillovers between the firms. However, whenever firms coordinate their R&amp;D decisions, harmonized non-intervention is optimal. The firms find an information-sharing agreement the most attractive form of cooperation.</p>
研究 貢獻	<p>The main novelty of our analysis arose in the cases of a R&amp;D cartel and a RJV cartel where a profit-sharing rule was employed. This ensured that the national firm's share of the alliance's net profit, and not its profit prior to redistribution, appeared in the government's objective function. It also implied that under these two forms of agreement, the traditional rent-shifting and spill-back motives are internalized, and the optimal policy is a R&amp;D tax. The tax incidence is shared by the cartel members, while the levying government collects all the revenue.</p>
未來 研究 方向	<p>An equivalent analysis using the Brander and Krugman "reciprocal dumping" model would be helpful here. Likewise, there may be circumstances under which any R&amp;D alliance form is best modeled as chosen after R&amp;D policies have been locked into place. Since the order of moves can be important for the outcomes, it would also be useful to reconsider the game with the policy choice stage occurring before the regime choice stage to cover these cases.</p>

篇名	<i>Offshoring with endogenous NGO activism.</i>
作者	<i>Sebastian Krautheim, Thierry Verdier</i> <i>a University of Passau, Dr.-Hans-Kapfinger-Strasse 14b, 94032 Passau, Germany</i> <i>b PSE-Ecole des Ponts Paris Tech, 48 Boulevard Jourdan, 75014 Paris, France</i> <i>c CEPR, United Kingdom</i>
出處	Journal of International Economics 101 (2016) 22–41
摘要	This paper presents a model of offshoring and NGO–firm interactions in which offshoring to a low-regulation country allows a monopolist to implement a “dirty” technology undesired by consumers. Consumers can reduce the incentive for dirty production by financing an NGO monitoring the firm. NGO emergence and offshoring can arise as joint and interacting outcomes. For a range of trade costs, NGO emergence allows firms to capture gains from globalization, which would otherwise be unattainable. Somewhat paradoxically, NGO emergence can be at the expense of consumers possibly leading to welfare losses through offshoring.
研究動機	Over the last decades, globalization has been characterized by two remarkable features. This process of increased internationalization of production was accompanied by somewhat less studied by economic scholars: the proliferation of non-governmental organizations (NGOs) and activist groups addressing a wide range of issues related to global production and sourcing decisions of multinational firms. In literature the increased internationalization of production has triggered strong NGO activity; NGO activity, in turn, affects the offshoring and technology decision of firms. In this paper, the aim of closing the gap between the NGO as well as to the offshoring. They introducing potential NGO emergence in response to offshoring into the problem of the firm. They link the two literatures by analyzing the mechanisms leading to the joint emergence of offshoring and NGO activism as a response to falling trade costs.

<p>模型</p>	<p>This includes the fundamental characteristics of consumers, the firm, the NGO and donors as well as the timing of events. They assume that the valuation of the good is high when it was produced with a clean technology and negative if it was produce</p> $E(U) = c_0 + q^r Q - \frac{Q^2}{2} \quad (1) \quad \text{with} \quad q^r = \begin{cases} q^e & \text{if technology not revealed} \\ 1 & \text{if technology revealed and clean} \\ 0 & \text{if technology revealed and dirty} \end{cases}$ <p>where <math>q^e</math> is the expectation formed by the consumer on the probability that the good was produced with a clean technology.</p> $Q = \max\{q^r - p, 0\}. \quad (2)$ <p>Assume that enforcement by the Home government is perfect and costless. They denote the cost of production in Home by <math>c_H</math>. It can therefore choose between clean production with a marginal cost of <math>c &lt; c_H</math> and dirty production with a lower marginal cost of <math>c - \Delta</math> with <math>\Delta \in (0, c)</math>. This model by an increase in the probability <math>\pi_i</math> with <math>i \in \{0; 1\}</math> that the type of the firm is revealed to consumers, where the index <math>i</math> is 1 in the case with an NGO and 0 otherwise. This implies <math>\pi_1 &gt; \pi_0</math>.</p> <p>This implies that the motivated agent will set up an NGO as soon as there is some positive probability of dirty production and she is able to raise sufficient funds to cover the fixed cost <math>X</math>. The NGO requests a donation <math>x</math> from each donor. An activated donor is convinced to make a difference and is willing to donate up to the point where the donation equals the difference between expected individual consumer surplus with and without an NGO denoted by <math>E(w_1)</math> and <math>E(w_0)</math> respectively. This implies the following participation constraint for donors:</p> $x \leq E(w_1) - E(w_0).$
<p>研究 結果</p>	<p>Starting from production in Home, a fall in variable trade costs can trigger offshoring accompanied by NGO emergence. Thinking about globalization as a sequence of reductions in trade costs, the corresponding equilibria in their model are consistent with either the joint emergence of NGO activism and offshoring, but also with offshoring with later (or no) NGO emergence. The firm can benefit from the potential of NGO emergence from an ex-ante perspective. Potential NGO emergence increases the incentive of the firm to choose the clean technology and thereby increases its credibility in the eyes of consumers, which in turn increases demand.</p> <p>Due to a misalignment of the firm's and consumer's interests, there is a range of trade costs for which the firm offshores at the expense of consumers. While expected firm profits increase, expected welfare of consumers decreases in these cases. This translates into a range of trade</p>

	<p>costs in which offshoring leads to reduced overall social welfare. In these cases, the efficiency gains from offshoring cannot compensate the losses in consumer surplus when the firm offshores.</p>
研究 貢獻	<p>They contribute to the literature on NGOs by presenting a model with endogenous NGO emergence that highlights both the NGO– firm interaction and the NGO–consumer/donor interaction. They contribute as well to the literature on offshoring by introducing NGOs as an actor monitoring the technology choice of the firm into an offshoring decision. They link the two literatures by explicitly modeling the interaction between the relocation of production to low regulation countries and the emergence of international activist NGOs who run campaigns and provide labels to firms.</p>
未來 研究 方向	<p>Would be to extend our framework to endogenize the number of caring consumers. This would probably require a dynamic setup, cutting off on other modeling dimensions. In such a setup, the NGO could first build a “stock” of caring consumers, investing in some awareness capital. They would then expect the existence of a critical mass of consumers that needs to be reached before the firm benefits from cooperation with the NGO.</p>

篇名	<i>Trade liberalization and product R&amp;D in a differentiated duopoly</i>
作者	<b>Hong Hwang<sup>a</sup> Yi-Shan Hsueh<sup>b</sup> Cheng-Hau Peng<sup>c</sup></b> Department of Economics, National Taiwan University, Taipei, Taiwan RCHSS, Academia Sinica, Taiwan Department of Economics, Fu Jen Catholic University, Taipei, Taiwan Department of Economics, Fu Jen Catholic University, Taipei, Taiwan
出處	Working paper
摘要	This paper employs an intra-industry trade model with one firm in each country to discuss the impact of trade liberalization and firms' incentives to engage in product R&D. We show that trade liberalization may encourage or discourage the two firms to invest in product R&D, depending on the domestic and foreign consumers' preferences for the product innovations. This finding is in sharp contrast to the standard result if the firms engaged in process R&D.
研究動機	The main purpose of this paper is to investigate the relation between trade liberalization and R&D investment in an intra-industrial trade model. In our model, firms produce horizontally differentiated products and invest in product R&D to increase the willingness to pay of consumers.

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Assume that there are two countries, a home country and a foreign country, hosting one firm each. Firm 1 (2) is located in the home (foreign) country. Each of the two firms produces a horizontal differentiated good. Following Dixit (1979), we assume the utilities of the representative consumers in the two countries are functions of the two goods and the numeraire good  $m$  as follows:

$$U(q_1, q_2) = \alpha_1(k_1)q_1 + \alpha_2(k_2)q_2 - (q_1^2 + q_2^2 + 2\beta q_1 q_2) / 2 + m,$$

$$U^*(q_1^*, q_2^*) = \alpha_1^*(k_1)q_1^* + \alpha_2^*(k_2)q_2^* - (q_1^{*2} + q_2^{*2} + 2\beta q_1^* q_2^*) / 2 + m,$$

where  $\alpha_i$  ( $\alpha_i^*$ ),  $i = 1, 2$ , represents the highest willingness to pay of consumers in the home (foreign) country and  $\alpha_i(0) = \bar{\alpha}$ ,  $\alpha_i^*(0) = \bar{\alpha}^*$ . Firm  $i$  invests in product R&D,  $k_i$ , to increase  $\alpha_i$  and  $\alpha_i^*$  and its R&D cost is  $v(k_i)$  with  $v' > 0$  and  $v'' > 0$ . We assume that  $\partial \alpha_i / \partial k_i > 0$ ,  $\partial \alpha_i^* / \partial k_i > 0$ ,  $\partial^2 \alpha_i / \partial k_i^2 = 0$ ,  $\partial^2 \alpha_i^* / \partial k_i^2 = 0$ ;  $q_i$  ( $q_i^*$ ) is firm  $i$ 's output sold to the home (foreign) country. The parameter  $\beta \in [0, 1]$  measures the degree of substitutability between the two products: Products are homogeneous if  $\beta = 1$  and unrelated if  $\beta = 0$ .

Utility maximization gives rise to the following inverse demand functions:

$$p_i = \alpha_i(k_i) - q_i - \beta q_j, \quad p_i^* = \alpha_i^*(k_i) - q_i^* - \beta q_j^* \quad \text{for } i, j = 1, 2 \text{ and } i \neq j \quad (1)$$

where the price of firm  $i$ 's good in the home (foreign) country is denoted by  $p_i$  ( $p_i^*$ ). The two firms compete in Cournot fashion in the two markets. Given the above assumptions, the profit functions of the two firms are expressed respectively as follows:

$$\pi_1 = (p_1 - c)q_1 + (p_1^* - c - t)q_1^* - v(k_1), \quad \text{and} \quad \pi_2 = (p_2 - c - t)q_2 + (p_2^* - c)q_2^* - v(k_2) \quad (2)$$

where  $c$  is the marginal production cost and  $t$  is the trade cost.

The game in question encompasses two stages. In the first stage, the two firms determine their product R&D investments simultaneously. In the second stage, given the R&D investments, both firms compete in quantity terms in both countries. We shall solve for the sub-game perfect Nash equilibrium via backward induction.

研究結果	<p><i>Proposition 1. The outputs of each firm increase with its own product R&amp;D but decline with its rival's product R&amp;D.</i></p> <p><i>Proposition 2. Assume that the consumers' preference in two countries are symmetric and both firms engage in product R&amp;D. Trade liberalization decreases (increases) the R&amp;D of the domestic and foreign firms if <math>\theta_i &gt; (&lt;) 2/\beta</math>.</i></p>
研究貢獻	<p>It is shown that trade liberalization may encourage or discourage a firm's R&amp;D investment, depending on consumers' preferences for the innovation. If the consumers in the two countries have asymmetric preferences for their domestic and foreign firms' innovations, trade liberalization dampens(stimulates) R&amp;D investments of both firms if the consumers have higher preferences for their domestic (foreign) firm's product R&amp;D, i.e., <math>\theta_i &gt; (&lt;) 2/\beta</math>. □ □</p>
未來研究方向	<p>For future studies, we may consider how government policies, a tax or a subsidy, affect their domestic industries' investment in product innovations. We may also consider the endogenous market structure and mixed oligopoly cases. Hope that this paper</p>

篇名	<i>Mixed Oligopoly at Free Entry Markets</i>
作者	Leonard F.S. Wang, Jen-Yao Lee, Chien-Shu Tsai
出處	Working paper series at NUK working group
摘要	<p>In this paper, we show that when the equity shares held by foreign investors is zero and one, the government's privatization policy will not affect its optimal output subsidy (privatization neutrality theorem); however, when the equity shares held by foreign investors is relatively large between zero and one, the optimal output subsidy under nationalization will be higher than that under privatization. We further demonstrate that in the free entry equilibrium, on the premise that the equity shares held by foreign investors is low, free entry will make market competition intensive, even over crowdedness. Privatization will instead degrade the social welfare. However, if the equity shares held by foreign investors is relatively higher, foreign investors can share some fixed cost caused by free entry. The social welfare will be improved after privatization.</p>
研究動機	<p>Matsumura and Tomaru (2012)認為存在外國所有權下，政府對於企業的補貼政策將可能翻轉為課稅政策；一般而言，當市場進入自由化下，由於廠商存在過度進入，理論上政府應該課稅，阻擋廠商進入，但是，本研究認為，由於國外股權將分攤本國廠商的進入成本，政府將可能採取補貼政策。</p>

模型	<p style="text-align: center;">The Model</p> <p>As in Matsumura and Tomaru (2012), Cato and Matsumura (2012), Wang and Chen (2011a) and Wang and Lee (2013), there are one public firm and <math>n</math> private firms in domestic product market. The equity share of foreign investors for each private firm is denoted by <math>\alpha</math>. Products produced by all the firms are homogeneous and engage in Cournot competition. It assumed that the inverse demand function is <math>P = a - Q</math>, where <math>a</math> denotes market scale and <math>P</math> represents the market price. The aggregate output is expressed as <math>Q = q_0 + \sum_{i=1}^n q_i</math>, where <math>q_0</math> and <math>q_i</math> respectively stands for the production of the public and the private firms. As in Wang and Chen (2010, 2011a,b), and Matsumura and Tomaru (2012), the cost structures for the public and the private firms, both increasing marginal cost functions <sup>1</sup>, are <math>C(q_0) = q_0^2/2 + f</math> and <math>C(q_i) = q_i^2/2 + f</math> respectively, where <math>f</math> is the fixed cost for market entry. We also assumed that the government subsidizes the domestic public firm and private firms each production unit with subsidy rate <math>s</math>.</p> <p>We express profit functions for the public and the private firms in the following:</p> $\pi_0 = (a - q_0 - nq_i + s)q_0 - q_0^2/2 - f \quad (1)$ $\pi_i = (a - q_0 - nq_i + s)q_i - q_i^2/2 - f, \quad i = 1, 2, \dots, n \quad (2)$ <p>Consumer surplus is denoted as <math>CS = Q^2/2</math>. The domestic social welfare is the summation of all firms' profit and consumer surplus,</p> $W = \pi_0 + CS + (1 - \alpha) \sum_{i=1}^n \pi_i - sQ \quad (3)$ <p>where <math>\alpha</math> (<math>0 \leq \alpha \leq 1</math>) indicates the fraction of foreign ownership of private firms. If <math>\alpha = 0</math>, we consider private firm is thoroughly owned by domestic</p>
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<sup>1</sup> In De Fraja and Delbono(1989), and many other papers, increasing marginal cost functions are assumed for both the public and the private firms.

investors; on the other hand, if  $\alpha = 1$ , this private firm could be regarded as a foreign firm because no private firm's profit is accumulated as domestic social welfare. As described in Matsumura and Tomaru (2012), if  $0 \leq \alpha \leq 1$ ,  $100\alpha$  percent of firm  $i$ 's profit is taken away by foreign investors;  $100(1 - \alpha)$  percent of firm  $i$ 's profit is attributed to domestic residents.

This paper uses a three-stage game to probe into how the government determines the subsidization and privatization policy. A backward induction method is used to solve the equilibrium outcomes.

### Output Subsidy Policy with Public Firm

In a market with one public firm and  $n$  domestic private firms, we will first examine the government's output subsidy policies under entry restriction and under free entry.

#### 1 Entry restriction

The number of private firms is fixed under entry restriction. In the third stage, the outputs for the public and the private firms are obtained by partially differentiating Eqs. (2) and (3) with respect to  $q_i$  and  $q_0$ , the first-order conditions are:

$$q_0 = \frac{a(2+n\alpha) - ns(1-\alpha)}{4+n+n\alpha} \quad (4)$$

$$q_i = \frac{a+2s}{4+n+n\alpha}. \quad (5)$$

*Lemma 1: When the equity share held by foreign investor is increasing, the output of the private firms is decreasing, but the output of the public firm and total output are increasing.*

*Proof:*

$$\frac{dq_0}{d\alpha} = \frac{n(2+n)(a+2s)}{(4+n+n\alpha)^2} > 0, \quad \frac{dq_i}{d\alpha} = -\frac{n(a+2s)}{(4+n+n\alpha)^2} < 0, \quad \text{and}$$

$$\frac{d(q_0+nq_i)}{d\alpha} = \frac{2n(a+2s)}{(4+n+n\alpha)^2} > 0.$$

The output of the public firm and the private firms are strategic substitution. When the equity share held by foreign investor is increasing, due to the profit of the private firms flow out more, the public firm will produce more to enhance the social welfare.

Substituting Eqs. (4) and (5) into Eq. (3) and then differentiating with respect to  $s$ , the government's optimum subsidy is obtained:

$$s^{MR} = \frac{a(2-\alpha(6-n+n\alpha))}{2(2+n+6\alpha+n\alpha^2)} \quad (6)$$

where  $MR$  denotes mixed oligopoly with fixed number of private firms.

As found in Matsumura and Tomaru (2012), because  $s^{MR}(\alpha = 0) > 0$  and  $s^{MR}(\alpha = 1) < 0$ , the government's optimum output subsidy may be negative if the private firms are fully owned by foreign investors; that is, output tax is levied under entry restriction.

*Lemma 2: In mixed oligopoly with foreign ownership, the government's optimum policy may be subsidy or taxation when the number of firms is fixed. When the equity share held by foreign investors goes beyond a critical value, the government will levy output tax. Otherwise, the government will provide output subsidy.*

*Proof:*

From Eq. (6), we get  $s^{MR} = 0$  iff  $\alpha = \alpha^{MR} \equiv \frac{\sqrt{36+(n-4)n}-6+n}{2n}$ .

Profit shifting arises when foreign investors held the equity shares of any domestic private firms. Thus, when the equity shares held by foreign investors is too high, positive output subsidy by the government may degrade the domestic social welfare. Therefore, the government should levy output tax. On the contrary, when the equity shares held by foreign investors is not high, the government will provide firms positive subsidy in order to rectify the production insufficiency in oligopoly market.

Substituting Eq. (6) into Eq. (1) and (3), we have the following

equilibrium outcomes:

$$q_0^{MR} = \frac{a(2+\alpha(6+n+n\alpha))}{2(2+n+6\alpha+n\alpha^2)}, \quad q_i^{MR} = \frac{a}{2+n+6\alpha+n\alpha^2},$$

$$Q^{MR} = \frac{a(2+6\alpha+n(2+\alpha+\alpha^2))}{2(2+n+6\alpha+n\alpha^2)}, \quad P^{MR} = \frac{a(2+(6-n(1-\alpha))\alpha)}{2(2+n+6\alpha+n\alpha^2)},$$

$$\pi_0^{MR} = \frac{a^2(6-\alpha(6+n+n\alpha))(2+\alpha(6+n+n\alpha))}{8(2+n+6\alpha+n\alpha^2)^2} - f, \quad \pi_i^{MR} = \frac{3a^2}{2(2+n+6\alpha+n\alpha^2)^2} - f,$$

$$CS^{MR} = \frac{a^2(2+6\alpha+n(2+\alpha+\alpha^2))^2}{8(2+n+6\alpha+n\alpha^2)^2},$$

$$W^{MR} = \frac{1}{4}a^2 \left(1 + \frac{n}{2+n+6\alpha+n\alpha^2}\right) - [n(1-\alpha) + 1]f.$$

## 2 Free entry

We next turn to the case in the presence of free entry by private firms. For this purpose, we consider the following stage game: in the first stage, the government sets the subsidy rate, private firms decide whether they entry or not in the second stage and firms in the market choose their outputs in the third stage. In this game, private firms with free entry meet the condition of zero profit in the equilibrium. Substituting Eq. (6) into Eq. (2), the equilibrium number of private firms in the long run is:

$$n^{MF} = \frac{\sqrt{6(a+2s)} - 8\sqrt{f}}{2\sqrt{f}(1+\alpha)} \quad (7)$$

where *MF* denotes mixed oligopoly with free entry of private firms. It would be natural to presume that private firms entry the market even if the government provides no subsidies to them, so that we assume that  $8\sqrt{f} < \sqrt{6}a$ , provided that market scale is large enough. This assumption implies that  $n^{MF} > 0$  if the government does not impose a large amount of taxes.

Note that the number of private firms increases with *s* and decreases with  $\alpha$  when the government does not impose taxes. Indeed,

$$\frac{\partial n^{MF}}{\partial s} = \frac{\sqrt{6}}{(1+\alpha)\sqrt{f}} > 0, \quad \frac{\partial n^{MF}}{\partial \alpha} = \frac{8\sqrt{f} - \sqrt{6}a - 2\sqrt{6}s}{2\sqrt{f}(1+\alpha)^2} < 0. \quad (8)$$

The former can be easily explained by reductions in effective marginal costs of private firms. On the other hand, the latter is a special feature in our model. As observed from Eq. (4) and (5), the public firm becomes more aggressive as the fraction of foreign ownership  $\alpha$  increases. Accordingly, the price is decreased, so that it falls short of each private firm's average cost if the number of private firms remains unchanged. Therefore, some of private firms exit from the market.

Substituting Eq. (7) into Eq. (3) and differentiating it with  $s$ , the optimal output subsidy under free entry is obtained:

$$s^{MF} = \frac{\alpha(1-\alpha)(3\alpha-4\sqrt{6}\sqrt{f})}{6(1+\alpha^2)} \geq 0, \quad (9)$$

where the second-order condition is satisfied and  $s^{MF} < \bar{s}$ .

$$\frac{ds}{d\alpha} = \frac{(3\alpha-4\sqrt{6}\sqrt{f})(1-\alpha(2+\alpha))}{6(1+\alpha^2)^2} < 0, \text{ if } \alpha > \sqrt{2} - 1.$$

Notice that from Eq. (9),  $s^{MF}$  is zero if  $\alpha = 1$ , the private firm could be regard as a foreign firm because no private firm's profit is accumulated as domestic social welfare. If  $\alpha = 0$ ,  $s^{MF}$  is also zero, the private firm is owned by domestic investors and subsidy is no needed because entry is excessive. However, when  $\alpha$  is increasing from zero, the output subsidy is increasing to attract entry of the firm, while  $\alpha$  exceeds  $\sqrt{2} - 1$ , the output subsidy turns to decreasing.

We conclude with the following proposition.

*Proposition 1: In mixed oligopoly with foreign ownership and free entry of domestic firms, the government's best policy is output subsidy if the fraction of foreign ownership of private firms is less than one.*

When free entry occurs in the market, private firms earn zero profits. The equity return held by foreign owners is accordingly zero. Namely, there is no profit shifting. Therefore, the government should provide output subsidy in order to improve the production efficiency and lower the output of the public firm in oligopoly when the fraction of foreign ownership of private firms is less than one.

Substituting Eq. (9) into Eq. (7), we then have the following equilibrium outcomes:

$$n^{MF} = \frac{\sqrt{6}a - 8\sqrt{f}}{\sqrt{f}(2+2\alpha^2)} > 0,$$

$$q_0^{MF} = \frac{\sqrt{6}a\alpha(1+\alpha) + 8\sqrt{f}(1-\alpha)}{2\sqrt{6}(1+\alpha^2)} > 0, \quad q_i^{MF} = \sqrt{2/3}\sqrt{f},$$

$$Q^{MF} = \frac{\sqrt{6}a(2+\alpha+\alpha^2) - 8\sqrt{f}(1+\alpha)}{2\sqrt{6}(1+\alpha^2)}, \quad P^{MF} = \frac{4\sqrt{6}\sqrt{f}(1+\alpha) - 3a(1-\alpha)\alpha}{6(1+\alpha^2)} > 0,$$

$$\pi_0^{MF} = \frac{8\sqrt{6}a\sqrt{f}(\alpha+\alpha^2)^2 + 8f(1-\alpha^2(2+\alpha(8+3\alpha))) - 3a^2(\alpha+\alpha^2)^2}{24(1+\alpha^2)^2}, \quad \pi_i^{MF} = 0,$$

$$CS^{MF} = \frac{(\sqrt{6}a(2+\alpha+\alpha^2) - 8\sqrt{f}(1+\alpha))^2}{48(1+\alpha^2)^2}, \quad W^{MF} = \frac{4f(5-3\alpha^2) + 3a^2(2+\alpha^2) - 8\sqrt{6}a\sqrt{f}}{12(1+\alpha^2)}.$$

We here compare the optimal unit production subsidies under entry restriction and under free entry.

$$(s^{MF} - s^{MR})|_{n=n^{MF}} = \frac{2\sqrt{f}(1-3\alpha)\Delta}{3(1+\alpha^2)(\sqrt{6}a - 4\sqrt{f}(1-3\alpha))}$$

where  $\Delta \equiv 4\sqrt{6}\sqrt{f}(1-\alpha)\alpha - 3a(1+\alpha)$ . Due to that

$\alpha > 4\sqrt{2/3}\sqrt{f} > \frac{4\sqrt{2/3}\sqrt{f}(1-\alpha)\alpha}{1+\alpha}$ , we have  $\Delta < 0$ . We obtain  $s^{MF} - s^{MR} < 0$ ,

if and the only if  $\alpha < \frac{1}{3}$ .

We infer the following proposition.

*Proposition 2: When the equity shares held by foreign investors is relatively lower (higher), the optimal output subsidy under entry restriction is higher (lower) than that in the free entry equilibrium.*

This finding is consistent with economic intuition. When the equity shares held by foreign investors exceeds critical value,  $\frac{1}{3}$ , the profit shifting through private firms is too much under entry restriction. Therefore, the government will levy output tax. However, when the equity shares held by foreign

	<p>investors is relatively small, the government should provide subsidy to improve production insufficiency. In the free entry equilibrium, the product market competition is intensive with free entry of private firms, and the government will reduce its optimal subsidy. We demonstrated that when the equity shares is lower than a critical value, the optimal output subsidy under entry restriction will be higher than that in the free entry equilibrium.</p>
<p>研究 結果</p>	<p>In the model of oligopoly market with homogeneous products, Matsumura and Kanda (2005) suggested that the optimum policy for the government in the short run is having the public firm partly privatized. In the free entry equilibrium, the government's optimum policy is keeping the public firm state-owned. Wang and Chen (2011a) showed that in the short-run without having optimal tax-subsidy policy, the government should increase the degree of privatization when the equity share held by the multinational firms is increasing which increases all domestic private firms' profit and social welfare. Matsumura and Tomaru (2012) found that under the optimal tax-subsidy policy, the government's privatization decision depends on how many private firms in the market and the equity shares held by foreign investors. When the equity shares held by foreign investors is low, the government should privatize the public firm in the absence of free entry of private firms.</p> <p>From the exploration of this paper, we showed that in mixed oligopoly with foreign ownership and free entry of domestic firms, the government's best policy is output subsidy if the fraction of foreign ownership of private firms is less than one. We further demonstrated that the social welfare after privatization will be lower than that before privatization regardless of the degree of foreign ownership in the free entry equilibrium, the privatization neutrality theorem does not hold. Privatization will instead degrade the social welfare.</p>
<p>研究 貢獻</p>	<p>本研究發現，長期而言，在混合寡占下，政府將採取補貼政策；在純粹寡占下，政府將採取課稅政策。</p>

未來 研究 方向	由於本研究探討完全公營以及完全民營兩種狀況，未來研究考慮將部分民營化納入考量，探討民營化程度對於補貼/課稅政策的影響。
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篇名	企業的環境社會責任與上游訂價策略
作者	蔡穎義博士、楊雅博博士、潘冠舟研究生
出處	高雄大學
摘要	<p>本文主要是將企業環境社會責任與環境污染結合納入考慮，探討上游原料供應商的訂價策略對社會福利的影響。本文建立一個垂直相關市場模型，假設上游有一家獨占廠商提供要素給兩下游廠商 1 和廠商 2 製造最終財，兩廠商在最終財市場從事同質產品的 Cournot 競爭。兩最終財廠商生產會排放污染，但可能聚集在同一地點或分散在不同地點，導致其生產排放的損害分成聚集型跟分散型，此外，兩廠商可能為關心污染之 CSR 廠商。當污染損害很大時，分散型污染下的差別訂價其社會福利會高於單一訂價。而聚集型污染下，因為在兩下游廠商的 CSR 程度相等下的總污染相等，所以差別訂價的社會福利會小於單一訂價，但在另外兩個情境中，當污染損害很大時，差別訂價下的社會福利會高於單一訂價。</p>
研究動機	<p>本文主要的研究動機就是將社會責任與環境污染結合納入考慮，比較上游原料供應商對下游廠商採取差別訂價及單一訂價的各項均衡與福利效果。我們想要探討在有社會責任與環境污染下的廠商產量、廠商利潤會是如何?企業社會責任，在以往文獻對廠商的產量跟利潤而言，都是有正向的效果；而廠商生產產品時，所產生的環境污染對產量可能對產量跟利潤來說是負向的效果。因此，結合兩種一正一負的關係下去探討，其影響會是如何?並比較上游原料供應商對下游採取差別訂價及單一訂價的福利效果。</p>
模型	<p>本文建立一個垂直相關市場模型，假設上游有一家獨占廠商提供要素給兩下游廠商 1 和廠商 2 製造最終財，兩廠商在最終財市場從事同質產品的 Cournot 競爭。兩廠商面對的總需求函數為 <math>P = a - q_1 - q_2</math>，<math>a &gt; 0</math>。P 為最終財貨價格，<math>q_1</math> 為廠商 1 的生產數量；<math>q_2</math> 為廠商 2 的生產數量。為簡化分析，假設一個單位投入可以產生一個單位的最終產品，上游廠商生產原料的成本為 0，而兩下游廠商須向上游原料供應商購買生產要素的批發價格為 <math>w_i</math>，<math>i = 1, 2</math>，此外，兩廠商製造最終財時，每單位善需要花費加工成本 <math>c_i</math>，<math>i = 1, 2</math>。</p> <p>假設兩最終財廠商生產最終財的過程中會排放污染，污染型式有兩</p>

	<p>種，一種是分散型，分散型的總污染損害函數為<math>E^d = \frac{d}{2}(q_1^2 + q_2^2)</math>，<math>d</math>為污染的邊際損害，<math>q_1^2</math>、<math>q_2^2</math>分別為兩廠商的污染排放量，用以表示兩最終財廠商設廠在相隔較遠之處；另一種是聚集型，聚集型的總污染損害函數為<math>E^g = \frac{d}{2}(q_1 + q_2)^2</math>，<math>d</math>為污染的邊際損害，<math>(q_1 + q_2)^2</math>為廠商的污染排放量，用以表示兩最終財廠商設廠在同一地區。假設兩廠商為關心污染的 CSR 廠商，他們的關心污染程度分別為<math>\theta_i</math>，<math>i = 1, 2</math></p>
研究結果	<p>本文結果發現，當污染為分散型時，發現如果兩下游廠商的CSR程度相等，則當污染的邊際損害較大(小)時，差別訂價的社會福利大(小)於單一訂價。只有低成本的下流廠商有CSR且污染損害較小(大)時，差別訂價的福利會小(大)於單一訂價。只有高成本的下流廠商CSR且污染損害較小(大)時，差別訂價的福利會小(大)於單一訂價。而當污染為聚集型時，發現如果兩下游廠商的CSR程度相等，差別訂價的福利小於單一訂價。只有低成本的下流廠商有CSR且污染損害較小(大)時，差別訂價的福利會小(大)於單一訂價。只有高成本的下流廠商有CSR且污染損害較小(大)時，差別訂價的福利會小(大)於單一訂價。上述結果顯示，當污染損害很大時，分散型污染下的差別訂價下社會福利會高於單一訂價。而聚集型污染下，因為在兩下游廠商的CSR程度相等下的總污染相等，所以差別訂價下的社會福利會小於單一訂價，但在另外兩個情境中，當污染損害很大時，差別訂價下的社會福利會高於單一訂價。</p>
研究貢獻	<p>在污染為分散型之下，當兩廠商具有相同 CSR 程度時，若污染的邊際損害較大(小)，則差別訂價下的社會福利大(小)於單一訂價；差別訂價下的總產量等於單一訂價；總污染如果在<math>c_2 - c_1</math>夠大且<math>\theta</math>很小時，差別訂價下的總污染會小於單一訂價。</p> <p>在污染為聚集型之下，當兩廠商具有相同 CSR 程度時，差別訂價下的社會福利小於單一訂價；差別訂價下的總產量與總污染都等於單一訂價。</p>
未來研究方向	<p>本文僅考慮下游廠商有CSR，如果考慮上游有CSR或上下游都有CSR時，或者兩下游廠商兼消費者及污染CSR情況，本文結果會有何不同都是未來值得研究的方向。</p>

篇名	<i>Complementary monopolies and multi-product firms</i>
作者	<i>Michael Kopel, Clemens Löffler, Thomas Pfeiffer (2017)</i>
出處	Economics Letters 157 (2017) 28–30
摘要	According to the classical result on complementary monopolies, a single-product firm unambiguously prefers purchasing complementary inputs from an integrated monopolistic supplier rather than from different non-integrated monopolistic suppliers. In this note, this paper account for the fact that firms often manufacture multiple products and show that the classical result on complementary monopolies can be reversed in such a case. Purchasing complementary inputs from non-integrated suppliers can be optimal for multi-product firms.
研究動機	The literature on complementary monopolies has established the powerful result that it is always beneficial for a single-product firm to purchase complementary inputs from a single integrated supplier instead of purchasing them from non-integrated monopolistic suppliers (Cournot, 1838; Sonnenschein, 1968, among others). Previous literature has shown that this result is remarkably robust for single-product firms in terms of different demand functions, number and degree of substitutability of inputs (e.g., Economides and Salop, 1992; McHardy, 2006; Amir and Gama, 2013). The complementary monopoly result has influenced the political discussion on whether to break up integrated monopolies or not(e.g., Else and James, 1994; Gisser and Allen, 2001) and has also inspired discussions on the tragedy of the anti-commons (e.g., Heller, 1998). Several studies have documented the prevalence of multiinput–multi-product firms in many industries, such as the automotive, the aviation, the computer and the telecommunications industry (e.g., Bernard et al., 2010). In this note, this paper investigate whether the complementary monopoly result also holds true for multi-product firms that need multiple complementary inputs for their production.
模型	Consider a multi-input–multi-product firm that sells two different products, A and B, as a monopolist on two independent markets. In each market, demand is characterized by a linear, downward-sloping inverse demand function, i.e., $p_j = a_j - q_j$ for $j=A,B$ , where $p_j$ denotes the price, $a_j$ denotes the intercept that this paper interprets as market size, and $q_j$ denotes the quantity. Producing one unit of product A requires one unit of input 1 and one unit of input 2. Producing one unit of product B requires just one unit

	<p>of input 2. The firm can purchase the inputs either from a single integrated supplier or from two independent monopolistic suppliers. The independent supplier <math>i=1,2</math> can only produce Input <math>i</math> facing marginal costs of <math>c_i</math>. The integrated supplier also faces marginal costs of <math>c_i</math> for producing input <math>i</math>. The per-unit price for input <math>i</math> is denoted by <math>w_i</math>.</p> <p>The firm's profit, <math>\Pi_F</math>, the integrated supplier's profit, <math>\Pi_I</math>, supplier 1's and 2's profit, <math>\Pi_1</math> and <math>\Pi_2</math>, are given by:</p> $\begin{aligned}\Pi_F &= [p_A - w_1 - w_2] \cdot q_A + [p_B - w_2] \cdot q_B \\ \Pi_I &= [w_1 - c_1] \cdot q_A + [w_2 - c_2] \cdot [q_A + q_B] \\ \Pi_1 &= [w_1 - c_1] \cdot q_A \\ \Pi_2 &= [w_2 - c_2] \cdot [q_A + q_B].\end{aligned}\tag{1}$ <p>The timing of the game is as follows. At <math>t = 0</math>, the firm decides whether to purchase the inputs from the integrated supplier or from the two independent suppliers. At <math>t = 1</math>, the supplier(s) determine(s) the per-unit prices for the inputs. At <math>t = 2</math>, the firm sells the products A and B and profits are realized.</p>
研究結果	<p>The positive effect on product B dominates the negative effect on product A if the size of market B is sufficiently large. In this case, non-integrated sourcing is beneficial.</p> <p>Proposition 1 depicts the formal result.</p> <p><b>Proposition 1.</b> <i>Given Assumption 1, the multi-product firm prefers non-integrated sourcing compared to integrated sourcing if the size of market B is sufficiently large compared to market A, i.e., if</i></p> $\frac{a_B - c_2}{a_A - c_1 - c_2} \geq \frac{7\sqrt{31} + 32}{55} \approx 1.29.\tag{8}$
研究貢獻	<p>This note puts the classical complementary monopoly result for single-product firms into the perspective of multi-product firms. Depending on the relative sizes of the markets that the multiproduct firm serves, non-integrated or integrated sourcing can be beneficial for the multi-product firm. Illustrating that the complementary monopoly result can be reversed for multi-product firms. Similar insights can be obtained in settings with multiple products using various input mixes and facing more complex interactions on the final product markets.</p>
未來研究方向	None.

篇名	<i>Adapting to climate change: Is cooperation good for the environment?</i>
作者	<i>Nahid Masoudi , Georges Zaccour</i> <i>a Department of Economics, Memorial University of Newfoundland, Canada</i> <i>b GERAD, HEC Montreal, 3000 Cote-Sainte-Catherine, Montreal, Canada, H3T 2A7</i>
出處	Economics Letters 153 (2017) 1–5
摘要	They consider the formation of an international environmental agreement focusing on adaptation to climate change. Members of the agreement fully share their knowledge and determine their investments in R&D by maximizing their joint welfare, while non-members optimize their individual payoffs. Using a three-stage game formalism, a large coalition is achievable and that total emissions increase with the size of the agreement. The welfare implications are parameter dependent.
研究動機	A considerable effort has been deployed during the last two decades to design and implement international environmental agreements (IEAs) to control global warming and climate change. These agreements, e.g., the Paris Agreement, the Kyoto Protocol, pursue a strategy of voluntary emissions reduction. Notwithstanding the necessity of reducing emissions, adapting to climate change is also a necessity. The literature looking at IEAs with adaptation is recent and sparse. The rationale is that knowledge in adaptation technologies may not be fully appropriable, and even if it were, cooperation may be attractive because a technology can be useful to many countries. Cooperation on emissions has been so far elusive and it is clearly of interest to analyze the consequences of an IEA that only concerns adaptation. Their aim is to address the following questions: What is the stable size of an IEA on adaptation? Does this IEA lead to higher emissions? What are the welfare implications?

模型	<p>They consider a set <math>M</math> of symmetric countries indexed by <math>i = 1, \dots, M</math>.</p> <p>Production of goods <math>P_i</math> in country <math>i</math>, generates revenues <math>R_i</math> and, as a by-product, pollutant emissions <math>e_i</math>. Assuming a monotone increasing relationship between production and revenues, they can express revenues as a function of emissions.</p> $R_i(e_i) = \alpha e_i - \frac{1}{2} e_i^2, \quad \alpha > 0.$ <p>Denote by <math>\varepsilon</math> the total emissions, and by <math>D_i(\varepsilon)</math> the convex increasing damage cost given by</p> $D_i(\varepsilon) = \frac{1}{2} \beta (\varepsilon)^2, \quad \beta > 0,$ <p>Country <math>i</math> can invest in R&amp;D to develop a knowledge or means to adapt to a polluted world, i.e., reducing the negative impacts of pollution.</p> $C(\kappa_i) = \frac{c}{2} \kappa_i^2, \quad c > 0. \quad (1)$ <p>Knowledge can be voluntarily shared between countries and is not fully appropriable. Denote by <math>K_i</math> the total knowledge available to <math>i</math>.</p> $K_i = \kappa_i + \text{knowledge spillover},$ <p>with the spillover being dependent on being or not member of the IEA.</p> $D_i(\varepsilon, K_i) = \frac{1}{2} \beta \varepsilon^2 - \theta A \varepsilon, \quad (2)$ <p>A higher knowledge capacity, can lead to higher yields, but up to a certain upper bound. The specify <math>F(K_i)</math> as follows:</p> $F(K_i) = \begin{cases} 0 & K_i < \underline{K} \\ \frac{K_i - \underline{K}}{\bar{K} - \underline{K}} & \underline{K} \leq K_i \leq \bar{K} \\ 1 & K_i > \bar{K}, \end{cases} \quad (3)$ <p>Country <math>i</math>'s welfare is defined as</p> $W_i = \alpha_i e_i - \frac{1}{2} e_i^2 - \frac{c}{2} \kappa_i^2 - \frac{1}{2} \beta \left( \sum e_i \right)^2 + \theta F(K_i) \sum e_i.$
研究結果	<p>A coalition member invests in adaptation <math>S</math> times the investment by a non-member and pollutes more. Consequently, any level of coordination in R&amp;D is harmful to the environment as it increases total emissions.</p>
研究貢獻	<p>The higher the value of adaptability <math>\theta</math>, the higher the individual emissions by a signatory and a non-signatory, and hence the total pollution. Recalling the results from Table 1, the conclusion is that a higher adaptability leads to lower coalition size, higher emissions and higher welfare.</p>
未來研究方向	<p>None.</p>

篇名	<i>Market Concentration and Licensing Royalty in an Asymmetric Oligopoly</i>
作者	Su-Ying Hsu and Chu-Ping Lo
出處	Working paper
摘要	The influence of market concentration on licensing royalty for an innovator is analyzed in an asymmetric oligopoly in which the technology transfer takes place from the innovator to a part of firms with asymmetric cost. It is shown that the nexus of market concentration and the licensing royalty is highly sensitive to the curvature of market demand. When the market demand is concave (convex) to the origin, a higher market concentration leads to a higher (lower) royalty, whereas in the case of linear demand, the royalty is independent of market concentration. As a result, the market concentration and market demand can crucially affect the licensing royalty.
研究動機	Patent licensing provides an opportunity for innovators to realize profits associated with their effort related to research and development. Patent licensing is a pervasive practice that takes place in almost all industries. The total transaction of technological sales and import payments for technology purchases from 1970 to 1988 increased fourfold in Japan and the U.K. (Nadiri, 1993). In 2002, U.S. companies collected \$29,023 million in royalties and fees from their foreign subsidiaries and an additional \$12,075 million from unaffiliated firms in foreign lands (Vishwasrao, 2007). Even though many scholars assert that two-part licensing is no worse than fixed fee or royalty, it is still debatable whether the optimal licensing strategy is a fixed fee, a royalty or a two-part licensing fee (Kamien and Tauman, 1984, 1986; Katz and Shapiro, 1986; Kamien, 1992; Poddar and Sinha, 2010; Battersby and Grimes, 2015, among others)

模型	<p>To conduct our analysis, we employ a two-stage game where in the first stage of the game, the outsider patentee sets its licensing strategy by choosing a fixed fee and a royalty to the <math>n</math> licensees, and the potential licensees choose whether to accept or reject the offer. The firm that accepts the offer belongs to the category of licensees while that rejects falls to the category of unlicensed firms; in the second stage, these <math>n</math> licensees compete with <math>m</math> unlicensed firms <i>a la</i> Cournot. The equilibrium notion of subgame perfect Nash equilibrium is derived by solving backwards.</p>
研究結果	<p>It is shown that the relation between market concentration index and licensing royalty rate is highly affected by the curvature of the market demand. In linear demand, the royalty is not affected by market concentration, whereas a higher market concentration leads to a larger (smaller) royalty, when market demand is concave (convex) to the origin. Moreover, the presence of unlicensed firms does not alter this relationship.</p>
研究貢獻	<p>This paper attempts to investigate how market concentration can interact with the licensing royalty in an asymmetric oligopoly, where one outsider patentee licenses its technology to <math>n</math> firms. Specifically, we examine whether a higher degree of market concentration measured by the <i>Herfindahl-Hirschman</i> Index (henceforth <i>HHI</i>) should involve a higher royalty.</p>
未來研究方向	<p>Note that this paper does not aim to discuss the optimal licensing strategy for the patentee, i.e., that whether the optimal licensing strategy is a fixed fee, a royalty or a two-part tariff, is not analyzed in this paper due to paper length.</p>

篇名	<i>The advertising of credence goods as a signal</i>
作者	SUNKU HAHN†
出處	The Manchester School Vol 72 No. 1 January 2004
摘要	The advertising of credence goods is analysed in a similar way to the way Milgrom and Roberts analysed the advertising of experience goods. The existing literature on credence goods has not considered the possibility that some consumers have the expertise to assess the product's quality and the possibility that the producer can advertise. This paper assumes these two points and show that there exists a unique equilibrium that survives the 'intuitive criterion'. Also, it is shown that through encouraging producers to accept new technologies advertising may increase social welfare instead of just being a pure social cost.
研究動機	There have not been many papers on credence goods. Emons (1997, 2001) and De Jaegher and Jegers (2001) are some of the papers that have dealt with them. One characteristic of these papers is that it was assumed that all consumers were non-experts who would never figure out the quality of the product even after using it repeatedly. This paper considers a slightly different situation where the consumers are not identical, in the sense that some portion of the consumers have the expertise to judge the product quality with little extra cost. Another assumption that we make is that the producer of a credence good is able to advertise its product.
模型	This paper is going to consider a case where $N$ consumers buy a maximum of one unit of the product per period from a monopoly producer. When a consumer uses the product, her utility from it will be $u^L$ if the product has a low quality, and $u^H$ if the product has a high quality, whether she can identify this or not ( $0 < u^L < u^H$ ). The ex ante probability that the product has a high quality is $\phi$ . Assuming that there are two types of consumers: $x$ of the consumers are 'informed', in the sense that they have the expertise or skills to judge the quality of the product even before using it, while the rest, $1-x$ , are 'uninformed' and unable to tell the quality even after they use it. On the producer side, the quality of the product is exogenously given. There are no fixed costs, and the only costs to be considered are the zero marginal cost and advertising cost. The producer has to choose the price

	and advertising cost $(p, c)$ ; then the consumers will decide whether they will buy the product or not.
研究 結果	In this paper finds that there exists a unique equilibrium that survives the ‘intuitive criterion’, and that this equilibrium is the separating equilibrium, with only the high quality producer advertising. Later in the paper, having compares the social welfare levels of the equilibria with and without the possibility of advertising. The result is ambiguous. In other words, there are multiple equilibria when advertising is not available, and the unique equilibrium with advertising can provide a higher or a lower social welfare depending on which of the multiple equilibria will occur when advertising is not available. This ambiguous result itself is meaningful in the sense that advertising is not necessarily a pure social cost.
研究 貢獻	This paper shows that in some particular situations advertising will always increase social welfare by encouraging producers to accept new technologies. In other words, advertising will increase the profit difference between high and low quality producers, and as a result it can make producers more willing to accept a new technology that can improve their quality whenever they come across new technologies, even if accepting the technologies is costly.
未來 研究 方向	None

篇名	<i>Vertical integration and downstream collusion</i>
作者	<i>Sebastian Krauthheim<sup>a</sup> &amp; Thierry Verdier<sup>b</sup></i> <i>a Université de Caen-Normandie, CREM, France</i> <i>b Université Paris Dauphine, PSL Research University, LEDa and CEREMADE, France</i>
出處	International Journal of Industrial Organization 53 (2017) 99–113
摘要	They investigate the effect of a vertical merger on downstream firms' ability to collude in a repeated game framework. They show that a vertical merger has two main effects. On the one hand, it increases the total collusive profits, increasing the stakes of collusion. On the other hand, it creates an asymmetry between the integrated firm and the unintegrated competitors. The integrated firm, accessing the input at marginal cost, faces higher profits in the deviation phase and in the non-cooperative equilibrium, which potentially harms collusion. As they show, the optimal collusive profit-sharing agreement takes care of the increased incentive to deviate of the integrated firm, while optimal punishment erases the difficulty related to the asymmetries in the non-cooperative state. As a result, vertical integration generally favors collusion.
研究動機	The effects of vertical mergers on competition are an important issue in antitrust policy and have gained increasing attention in the last decades. Both the US and the EU merger policies embrace the idea that vertical mergers might give rise to anti-competitive effects due to coordinated effects. The US Non-Horizontal merger guidelines, adopted in 1984, state that "A high level of vertical integration by upstream firms into the associated retail market may facilitate collusion". The more recent EU Non-Horizontal merger guidelines, adopted in 2008, also mention the risk that a vertical merger results in coordinated effects and state that "A vertical merger may make it easier for the firms in the upstream or downstream market to reach a common understanding on the terms of coordination". The present paper aims to shed light on possible channels through which a vertical merger can lead to coordinated effects in the downstream market. They present a framework in which increased retaliation possibilities can increase the collusion potential with downstream independent competitors. They focus on downstream collusion investigate the impact of vertical mergers in a dynamic game of repeated interaction between upstream and downstream firms.

模型	<p>They denote <math>V_i^{col}</math> the present value of collusive profits and <math>V_i^{pun}</math> the present value of punishment profits, while <math>\pi_i^d</math> is the period payoff from a deviation. Collusion is sustainable if the following incentive compatibility constraint is satisfied:</p> $V_i^{col}(\delta) \geq \pi_i^d + \delta V_i^{pun}(\delta) \quad (1)$ <p>The critical discount factor <math>\underline{\delta}</math> is determined by the incentive compatibility constraints of each firm, given by (1). There exists a collusive equilibrium if and only if <math>\delta &gt; \underline{\delta}</math>. If <math>\underline{\delta}</math> is lower with vertical integration than without it, we will say that vertical integration raises collusion opportunities. They will denote, <math>\underline{\delta}^{NI}</math> and <math>\underline{\delta}^I</math>, the critical collusive discount factor without integration and with integration respectively.</p>
研究結果	<p>Vertical integration generally favors collusion, decreasing the critical discount factor above which collusion is feasible. Vertical integration generates a trade-off. Allows downstream firms to have access to the input at a lower price, removing the upstream oligopolistic margin.</p> <p>Vertical integration creates an asymmetry which is potentially harmful to collusion. The vertically integrated firm has a higher incentive to deviate both from the collusive agreement and from the defined behavior in the punishment phase (because it has unlimited access to the intermediate good at marginal cost).</p> <p>The optimal collusive agreement solves these two asymmetries. The asymmetry in the punishment phase is balanced by allocating asymmetric shares of the collusive profit to the integrated and non-integrated firms, and the asymmetry in the punishment phase is solved by enforcing maximal punishment in case of deviation from the collusive agreement.</p>
研究貢獻	<p>Integration generally, increases the feasibility of downstream collusion. Using maximal punishments firms can enforce a collusive outcome more easily when vertical integration takes place to contribute to mergers the analysis of factors which facilitate collusion is meant to inform merger policy decisions: a vertical merger could help firms to facilitate collusion in contexts in which previous attempts revealed ineffective.</p> <p>A vertical merger can indeed be a way for firms to increase the feasibility of collusion and make it successful in these kinds of markets. As a consequence, the potential collusive impact of vertical integration on the downstream market should be taken into account when attempting to establish if a merger is likely to create or strengthen collusion. The welfare effect of</p>

	vertical integration is generally ambiguous. However, their framework allows identifying instances in which a vertical merger, creating new collusion opportunities, has a welfare reducing the effect.
未來 研究 方向	None.

篇名	企業社會責任與連鎖加盟分析
作者	蔡建樹
出處	Working paper
摘要	探討在考慮企業社會責任的情形下，對於連鎖加盟市場均衡與社會福利的影響。結果顯示：無論加盟契約是以定額權利金或單位權利金的方式加盟，廠商越重視企業社會責任，有助於提高廠商自身的產量與市場總產量，但會減少對手產量；但權利商與加盟商同時完全重視企業社會責任，並非社會福利最佳的選擇，只有權利商或加盟商單方面的重視企業社會責任是廠商的最佳策略，並可改善社會福利。權利商就加盟契約的決策也受到廠商企業社會責任的影響，若只有權利商重視企業社會責任，則最適加盟契約可以是單位權利金契約或定額權利金契約；但若只有加盟商重視企業社會責任，則最適加盟決策契約是單位權利金契約。
研究動機	本文探討連鎖加盟考慮企業社會責任的情形下，分析連鎖加盟體系對於不同加盟契約的設計進行相關探討。並且，關心連鎖加盟對於企業社會責任的考量是否有助社會福利，並進而改變連鎖加盟體系的經營。
模型	本文假設市場上存在一家權利商 ( $L$ ) 與一家加盟商 ( $F$ )，且權利商擁有特定生產技術 (know-how)，使得產品能以邊際成本 $c$ 生產，分別探討加盟商選擇加盟時，以單位權利金(royalty)加盟、定額權利金(fixed-fee)加盟兩種加盟契約下，分別討論加入企業社會責任的考量，連鎖加盟體系最適權利金之決策問題。
研究結果	<ol style="list-style-type: none"> <li>1.無論加盟契約是以定額權利金或單位權利金的方式加盟，廠商越重視企業社會責任，有助於提高廠商自身的產量與市場總產量，但會減少對手產量；</li> <li>2.權利商與加盟商同時完全重視企業社會責任，並非社會福利最佳的選擇，只有權利商或加盟商單方面的重視企業社會責任是廠商的最佳策略，並可改善社會福利。</li> <li>3.若只有權利商重視企業社會責任，則最適加盟契約可以是單位權利金契約或定額權利金契約；但若只有加盟商重視企業社會責任，則最適加盟</li> </ol>

	<p>決策契約是單位權利金契約。</p>
研究 貢獻	<p>本篇文章是少數將連鎖加盟納入企業社會責任考量的研究，結果顯示企業社會責任可能導致過度提供現象的結論，與傳統討論企業社會責任之文獻不同。</p>
未來 研究 方向	<p>考慮多家加盟商加盟的連鎖加盟的例子，且加盟商只有一部份重視企業社會責任的情形；</p> <p>權利商與加盟商在連鎖加盟體系中，可以因為經營異質而使得各自提供的產品可以視為異質化，例如：因為服務品質而形成的差異；</p> <p>分析企業社會責任帶來消費者需求增加、市場擴張的效果，對於連鎖加盟體系相關均衡的影響。</p>

篇名	<i>Optimal Production Channel for Private Labels: Too Much or Too Little Innovation?</i>
作者	<i>CLAIRE CHAMBOLLE<sup>a</sup> &amp; CL 'EMENCE CHRISTIN<sup>b</sup> &amp; GUY MEUNIER<sup>c</sup></i> <i>a, c. INRA–UR1303 ALISS 65 boulevard de Brandebourg 94205 Ivry-sur-Seine, France and Department of Economics</i> <i>b. Normandie Universit ´e UCBN</i>
出處	Journal of Economics & Management Strategy, Volume 24, Number 2, Summer 2015, 348–368
摘要	This paper analyzes the impact of the private label production channel on innovation. A retailer may either choose to integrate backward with a small firm (insourcing) or rely on a national brand manufacturer (outsourcing) to produce its private label. The trade-off between insourcing and outsourcing strategies is a choice between too much or too little innovation (i.e., quality investment) on the private label. When insourcing, an outside-option effect leads the retailer to overinvest to increase its buyer power. When outsourcing, a hold-up effect leads to underinvestment. In addition, selecting the national brand manufacturer may create economies of scale that spur innovation.
研究動機	The sale of private label goods has reached approximately 25% of global supermarket sales, compared with 15% in 2003. In some European countries, these products exceed half of all sales (53% in Switzerland and 51% in Spain). In the United States, private labels accounted for approximately 19% of market shares in 2012. Although private labels were initially positioned as low-quality “me-too” products, their quality has significantly improved and private labels are increasingly innovative. “Economy private labels” and “premium private labels” often coexist on retailers’ shelves. Few papers have analyzed the retailer’s choice of production channel for private labels.
模型	This paper considers a framework in which a monopolist retailer, $R$ , may sell two different goods, a national brand $B$ supplied by a brand producer $P$ and a private label $L$ . The retailer may either outsource or insource the production of $L$ . These strategies are denoted by the superscripts $O$ and $I$ , respectively. When outsourcing, the retailer signs a contract with the producer for the exclusive production of $L$ . When insourcing, the retailer integrates backward.

	<p>Firms may innovate by investing in the quality of both <math>B</math> and <math>L</math>. The investments over <math>B</math> and <math>L</math> are denoted <math>k_B</math> and <math>k_L</math>, respectively. These qualities affect the gross surplus of consumers. The quality of the national brand is chosen by <math>P</math>, and the quality of the private label is chosen either by <math>P</math> (outsourcing) or <math>R</math> (insourcing).</p> <p>On the demand side, there are two types of consumers “brand lovers” and “standard consumers.” Absent any difference in quality and price, brand lovers have an intrinsic preference for good <math>B</math> represented by parameter <math>\delta</math>, whereas standard consumers consider <math>B</math> and <math>L</math> to be homogeneous goods.</p> <p>Each consumer only buys one type of good. The consumer chooses the good with the highest perceived quality net of the price and has a linear demand for this good. That is, a standard consumer buys a quantity <math>v + k_B - p_B</math> of good <math>B</math> if <math>k_B - p_B</math> is higher than <math>k_L - p_L</math>, and a quantity <math>v + k_L - p_L</math> of good <math>L</math> otherwise. A brand lover buys a quantity <math>v + \delta + k_B - p_B</math> of good <math>B</math> if <math>\delta + k_B - p_B</math> is higher than <math>k_L - p_L</math>, and a quantity <math>v + k_L - p_L</math> of good <math>L</math> otherwise. We assume that <math>\delta &lt; v</math>.</p> <p>The total mass of consumers is normalized to 1. There is a share <math>\lambda</math> of brand lovers and a share <math>1 - \lambda</math> of standard consumers.</p>
研究結果	<p>To develop a premium private label, the retailer can choose either an outsourcing strategy or an insourcing strategy. This paper defines outsourcing as contracting with a national brand producer that enters into dual branding. In that case, the retailer relies entirely on the producer’s capacity to innovate. In contrast, defining insourcing as buying the private label from a (small) dedicated manufacturer that sells at cost to the retailer. In this case, the innovation process for the private label relies entirely on the retailer. Insourcing boils down to backward integration. In both cases, innovation is undertaken before firms bargain over sales revenue.</p> <p>The trade-off between the two channels is primarily a choice between too much and too little innovation on the private label. Outsourcing may create economies of scale that spur innovation. Despite this straightforward argument in favor of outsourcing, this strategy may lead to too little innovation. In contrast, when insourcing, the retailer overinvests to increase its outside option, and therefore its buyer power toward the national brand manufacturer.</p> <p>In equilibrium, insourcing paradoxically emerges when the retailer’s bargaining power is sufficiently high. This is because the inefficiency due to the outside-option effect is all the stronger when the retailer’s bargaining</p>

	<p>power is initially weak. This choice may be detrimental to welfare because consumers may be hurt by too little innovation on the private label.</p>
研究 貢獻	<p>This paper analyzes the choice by a retailer of the supply channel for its private label. The analysis emphasizes the role played by innovation in both the quality of the private label (the outsourced good) and the national brand (an imperfect substitute) on the comparison between supply channels. They show that a retailer may prefer to entrust a national brand producer with the manufacturing of a private label rather than produce the private label on its own.</p>
未來 研究 方向	<p>They mention that it would be interesting for further research to incorporate retail competition in the analysis. In particular, retail competition could explain the noticeable emergence of large, specialized manufacturers in the production of private labels.</p>

篇名	<i>Tariffs, vertical specialization and oligopoly</i>
作者	Tomohiro, A., and A. Ghosh
出處	European Economic Review (2016), 82:1-23
摘要	The authors examine optimal tariffs in an environment with vertical specialization where the Home country specializes in final goods and the Foreign country specializes in intermediate inputs. A matched Home–Foreign pair bargains simultaneously over the input price and the level of output, and competes à la Cournot with other matched pairs in markets. The authors find that the optimal Home tariff rate is strictly decreasing in the bargaining power of Home firms, and an increase in the Home firms' bargaining power might therefore raise Foreign profits. Under an endogenous market structure with entry followed by matching, the relationship between bargaining power and output is non-monotone if the demand function is strictly concave or convex. This in turn induces a non-monotone relationship between the optimal tariff and bargaining power for a class of demand functions. For linear demand, free trade is optimal irrespective of bargaining power. This paper shows that non-monotonicity result is retained under endogenous bargaining power.
研究動機	The increasing importance of international outsourcing and FDI in input trade gives rise to new models of vertical specialization which embed organizational structures in an imperfectly competitive framework. Though these new models have matched positive features of reality quite well, barring a few papers (discussed later in Introduction), little attention has been paid to the welfare implications and trade policy in these models with vertical relationships that fragment the production process across countries.

模型	<p>Consider a setting with two countries, Home and Foreign, specializing respectively in final-good production and in intermediate-input production. Foreign has <math>n</math> upstream firms, <math>F_1; F_2; \dots; F_n</math>. Home has <math>m</math> downstream firms, <math>H_1; H_2; \dots; H_m</math>; each procures the intermediate input from an upstream Foreign firm to produce the final good. There are two ways to procure an intermediate input: intra-firm trade (FDI) and arm's length trade (outsourcing). In both cases, contracts are used to specify the delivery of input and Home firms bargain with Foreign firms regarding the terms of their contracts.</p> <p>The timing of the game is as follows. First, the Home government sets a specific tariff rate, <math>t</math>, to maximize Home welfare which consists of consumer surplus, aggregate Home profits and tariff revenues. Second, Home and Foreign firms enter and random matching takes place between them.</p>
研究結果	<p>With reductions in trade costs, firms from various countries are increasingly specializing indifferent but complementary stages of production. In such environments of vertical specialization, under what conditions might a welfare maximizing government impose a tariff? The authors show that weak bargaining power of its firms might prompt a country's government to impose a tariff on Foreign producers. This negative relationship between bargaining power and tariff is fairly robust to a variety of alternative specifications of the model, including the presence of Foreign consumers, strategic interactions between governments, ad valorem tariffs and an alternative bargaining mechanism among others. Surprisingly, this paper finds that an increase in Home firms' bargaining power not only benefits Home producers but it can also benefit Foreign producers by lowering tariff rates. The inverse monotone relationship between bargaining power and tariff breaks down in the long run where a change in bargaining power affects the market structure through matching and entry. Both when bargaining power is exogenously given and endogenously determined optimal Home tariff is non-monotone in bargaining power unless the demand function is linear. For linear demand, free trade is optimal irrespective of the bargaining strength.</p>
研究貢獻	<p>Throughout the paper, the authors have focused on oligopolistic competition and complete contracts to highlight the novel interaction between bargaining power and trade policy. Conceptually, a similar analysis could be applied to models of monopolistic competition and incomplete contracts—two features that have been extensively used in the recent literature on outsourcing and vertical specialization. Typically, these models have relationship-specific investments. Although this model abstracts from such investments, entry plays a similar role in the framework used here. In a model with</p>

	<p>relationship-specific investments, an increase in the bargaining power of downstream firms would reduce upstream investments. In a similar spirit, the authors also find that an increase in the bargaining power of down-stream firms discourages entry by upstream firms. Given the similarity in effects of entry and investment, the authors conjecture that a non-monotone relationship between bargaining power and tariff would arise in models with relationship-specific investments.</p>
<p>未來 研究 方向</p>	

篇名	<i>Quality, Price Control and Parallel Imports</i>
作者	Chin-Sheng Chen Department of International Business, Soochow University
出處	Working paper
摘要	This paper analyzes the effects of parallel imports on a manufacturer's choice of qualities between two countries. Parallel imports arise because of the retail price control in the sourcing country whereby a retailer in the receiving country can import the product. In response to parallel imports, the manufacturer may degrade the quality to the sourcing country. We show that the quality choice is determined by the degree of the price cap in the sourcing country and the size of trade cost. The welfare implications of parallel imports are also discussed.
研究動機	In previous literature, manufacturers adjust prices in response to the threats of PIs. Nevertheless, in many industries firms' prices are regulated by governments. For example, for the purpose of maintaining national safety, the price of AIDS drugs is limited by some less developed countries. Such price regulations have two meanings. First, price regulations lead to price differences among countries, thereby sourcing parallel trade. Second, manufacturers may not able to freely adjust their price when facing the threats of PIs. This offers a rationale for the uses of non-price strategies. This paper sets up a PI model to incorporate the two points. This paper assumes that the manufacturer can choose its quality level to the country that sources PIs because of the price control on the product. The author explore how PIs affect the manufacturer's quality choice and discuss possible policy implications behind.
模型	Assume that a manufacturer sells its product to two countries, denoted as 1 and 2, in a region (e.g., EU). The manufacturer sells the product in country 2 through a wholly-owned subsidiary, but relies on an independent retailer to serve country 1. We assume that there is a price cap regulation in country 2 such that the manufacturer can only charge its retail price below a certain level, denoted as $\bar{p}$ , which is assumed to small enough so as to ensure the effectiveness of the price control. Note also that the low retail price caused under the price control may source parallel imports as the retailer in country 1 (or the PI-receiving country) may choose to import the product from country

2 (or the PI-sourcing country).

Even though the retail price in country 2 is restricted, the manufacturer can decide the quality to be sold there. Assume that the original quality level of the product is given as  $v$ . In response to the potential PIs the manufacturer decides whether or not to degrade its quality in country 2. If doing so, the manufacturer sells the product with a quality level  $\delta v$  to the country 2, where  $0 \leq \delta \leq 1$ , which is related to the degree of quality degrading. If  $\delta = 1$ , then the manufacturer chooses to maintain the quality to country 2 and there is no quality differentiation between the two countries. If  $\delta$  falls, quality differentiation arises whereby the manufacturer degrades the quality and sells a lower quality in the sourcing country than in the receiving country of PIs.  $\square$

In each country there is a population of consumers, which is normalized to one in mass. Each consumer purchases at most one unit of the product. The willingness to pay for quality is parameterized by  $\theta$ , which is normally distributed in the unit interval  $[0,1]$ . The utility function of buying the product with a given quality level  $g$  at price  $p$  is specified as follows:  $U = \theta x - p$ , where  $x \in \{v, \delta v\}$ .<sup>7</sup>

From the utility maximization choice, given the retail prices, the retailer's output is derivable as follows:  $q_1 = 1 - p_1/v$ , if selling only the product authorized to be sold in country 1;  $q_2 = 1 - p_2/\delta v$ , if selling only the product authorized to be sold in country 2;

	<p><math>q_1 = 1 - (p_1 - p_2)/(v(1 - \delta))</math> and <math>q_2 = (p_1 - p_2)/(v(1 - \delta)) - p_2/\delta v</math> if selling both the products. In country 2, the manufacturer's output is derivable as <math>q = 1 - \bar{p}/\delta v</math>.</p> <p>We assume that the manufacturer offers a non-linear price contract (a two-part tariff), which specifies a per-unit wholesale price <math>w</math> and a fixed fee <math>F</math>, to the retailer in country 1. If the retailer imports the product from country 2, in addition to the regulated retail price <math>\bar{p}</math>, it incurs a per-unit trade cost <math>t</math> to import the product from country 2.<sup>8</sup> For simplicity, we assume that the manufacturer's marginal cost is zero. It is worth noting that the choice in quality differentiation (<math>\delta</math>) by the manufacturer may strategically affect the retailer's choice of doing PIs.</p> <p>The timing of decisions consists of three stages. In the first stage, the manufacturer decides the quality sold to country 2. In the second stage, the manufacturer offers its price contract to the retailer in country 1 and then the retailer decides whether accept it or not. Here, three possible situations need to be considered. First, the retailer accepts and sells only the product authorized to country 1, which also is the only case if parallel imports are not allowed. Second, the retailer rejects the offer and imports and sells only the product authorized to country 2. Third, the retailer accepts the offer and sells both products. In the third stage, the retailer decides the prices for its product(s) in country 1.</p> <p>□</p>
研究結果	<p><b>Proposition 1</b> <i>In the absence of PI, the manufacturer charges zero unit wholesale price, whereby it extract all the rent from the retailer via fixed fees, and set <math>\delta=1</math>, i.e., the same quality is sold in countries 1 and 2 .</i></p> <p><b>Proposition 2</b> <i>In the presence of PIs, the manufacturer will charge zero unit wholesale price under two part tariff, and the retailer chooses to sell only <math>q_1</math>.</i></p>

	<p><b>Proposition 3</b> <i>In the presence of PI, the manufacturer's optimal degrading level is <math>\sqrt{5\bar{p}^2 + 2\bar{p}t + t^2}/v^2</math>. The larger is the trade cost and the size of price cap, the lower is the degree of quality degrading. If <math>\bar{p} + t - v &gt; 0</math>, then quality degrading is always not profitable to the manufacturer.</i></p> <p><b>Proposition 4</b> <i>In the presence of PI, the global welfare falls due to quality degrading. Moreover, the degrading level is larger if trade cost is smaller (<math>t</math> falls) and the price cap regulation is severe (<math>\bar{p}</math> falls).</i></p>
研究貢獻	<p>This paper analyzed a manufacturer's the choice of quality portfolio between two countries. Due to the price cap regulation, a country may sources PI, whereby a retailer in another country can thus import and sell the product to its local market. In response to PI, the manufacturer degrades the quality to the sourcing country if the sum of the price cap and trade cost are sufficiently low. Such a quality degrading is welfare harming to the sourcing country where the price control is placed. Hence, in the presence of PI, regulators may need to reexamine the welfare effects of such price regulations.</p>
未來研究方向	<p>We can apply the quality improving idea to CSR model.</p>

篇名	<i>A note on strategic delegation: The market share case</i>
作者	<i>Thijs Jansen &amp; Arie van Lier &amp; Arjen van Witteloostuijn</i>
出處	International Journal of Industrial Organization 53 (2017) 99–113
摘要	<p>They consider a two-stage market share delegation game with two competing firms. Each owner delegates the production decision to a manager. Each manager's remuneration is a weighted sum of profits and market share. The market share delegation game results in higher duopoly profits than the sales delegation game. Both output delegation models lead to more aggressive managerial behavior than the standard Cournot case, implying lower profitability and higher social welfare: similar results are obtained for the Bertrand version of the delegation model. Market share delegation is the dominant strategy in a game in which owners can choose not to hire a manager or, if they do so, to pay their manager a bonus based on profits and sales or market share.</p>
研究動機	<p>Traditional economic theories of competition assume that the single aim of firms is profit maximization. However, in large companies, ownership and management are separated, and managerial decision processes are rather complex. Moreover, family businesses may well not be driven by the profit motive alone. managers may be guided by other objectives than pure profit-maximization, and suggested a sales-maximization model as a more realistic alternative. Hall (1967) and Lackman and Craycroft (1974) are two early managerial economics studies that supported the sales-maximization hypothesis empirically by directly estimating managers' objectives.</p> <p>VFJS consider the separation of owner and managers and examine a two-stage game, where in the first stage (contract stage) the owner writes his manager's contract, which is publicly announced before competition evolves in the second stage. In all these models, according to the contract, managers receive a bonus which is proportional to a combination of profits and output. In the consecutive stage (market stage), firms' managers decide on output, using the utility function directed by the contract, because their compensation depends on it.</p>

<p>模型</p>	<p>A normalized duopoly with inverse demand given by <math>p=1-Q</math>, where <math>p</math> denotes price and <math>Q</math> is the sum of the output levels <math>q_1</math> and <math>q_2</math> of the two firms. For both firms, the cost of producing one unit equals <math>c &lt; 1</math>. They assume that the owners of both firms hire a manager in order to delegate the output decision. The manager is offered a contract that is publicly observable.</p> <p>In this contract, the manager receives a fixed salary and a bonus related to profits and market share. In particular, if profits <math>\pi_i</math> are positive, the manager of firm <math>i</math> receives a bonus that is proportional to the linear combination</p> $U_i = \pi_i + w_i \frac{q_i}{Q}.$ <p>In delegation literature, model this decision structure through a two-stage delegation game, where in each stage the decisions are taken simultaneously and independently. The first stage (contract stage) each owner seeks to maximize his profits by properly choosing the weight in the manager's contract.</p> <p>The second stage (market stage) each manager, knowing the weights chosen in the first stage, decides on his firm's output in order to maximize his bonus. This bonus is non-zero only if total output is between 0 and <math>1-c</math>.</p> <p>According to the first-order conditions, the equilibrium quantities of the market game satisfy the following system</p> $\begin{cases} 1-c-2q_1-q_2 + w_1 \frac{q_2}{Q^2} = 0 \\ 1-c-q_1-2q_2 + w_2 \frac{q_1}{Q^2} = 0. \end{cases} \quad (1)$ <p>As the Jacobian determinant <math>J_F = \det \left[ \frac{\partial F_i}{\partial q_j} \right]</math> is strictly positive, where <math>F_i</math> denotes the left-hand side of the <math>i</math> the equation of the system, the Implicit Function Theorem implies that the functions <math>q_1</math> and <math>q_2</math> have (continuous) partial derivatives with respect to the weights <math>w_1</math> and <math>w_2</math>. These partial derivatives are needed to formulate the first-order conditions for an equilibrium of the contract game. For owner 1, we obtain</p> $\frac{\partial \pi_1}{\partial w_1} = 0 \Leftrightarrow \frac{\partial q_1}{\partial w_1} [(1-c)-2q_1-q_2] - q_1 \frac{\partial q_2}{\partial w_1} = 0. \quad (2)$
<p>研究 結果</p>	<p>They explored strategic delegation games with a market share bonus. Each owner seeks to direct his manager to more aggressive behavior by attributing a positive weight to the market share component in the bonus scheme.</p> <p>More aggressive managerial behavior gives higher market output and higher social welfare in comparison with the standard Cournot case. Total</p>

	<p>market output is somewhat more restricted in the market share delegation game, resulting in 9.5% higher duopoly profits compared with the sales delegation case.</p> <p>Finally, they argue that hiring a manager and rewarding him on the basis of a combination of profits and market share dominates both sales delegation and standard Cournot profit maximization.</p>
研究 貢獻	<p>Similar results are obtained in the Bertrand version of the model. The property of higher profitability still holds in the case of an n-firm oligopoly, although the effect is less pronounced if n increases. Market share delegation is the dominant strategy in asymmetric duopoly delegation game. That is, in the face of a no-delegation or a sales-delegation rival, an owner maximizes his profits by attributing a positive weight to market share in his manager's bonus scheme.</p>
未來 研究 方向	<p>None.</p>

篇名	<i>Are Standards Always Protectionist?</i>
作者	<i>Stéphan Marette and John Beghin<sup>a</sup></i> <i>a. Agroparistech and INRA, UMR Économie Publique.</i>
出處	Review of International Economics, 18(1), 179–192, 2010
摘要	<p>This paper analyzes the effect of heterogeneity of foreign and domestic producers on product standard and investigate whether the standard chosen by the welfare-maximizing policymaker is protectionist. In a partial equilibrium set-up, both domestic and foreign producers compete in selling a product in the domestic market, in the presence of consumption externalities. The policymaker chooses a minimum domestic standard that has to be met by both domestic and foreign producers. Protectionism occurs when the welfare-maximizing domestic standard is higher than the international standard maximizing welfare inclusive of foreign profits. Result shows that the standard is anti-protectionist when foreign producers are much more efficient at addressing the externality than are domestic producers. Possible exclusion of domestic or foreign producers arises with large standards, which may alter the classification of a standard as protectionist or non-protectionist. The paper identifies multiple caveats for the estimation of tariff equivalents of nontariff barriers.</p>
研究動機	<p>Guaranteeing products' safety or environmental friendliness to consumers is challenging for many industries offering products. This issue is problematic in the context of globalization where producers are located in many countries, which sometimes impose different regulations.</p> <p>The implementation of the Uruguay Round of the World Trade Organization (WTO), in particular, the Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Agreements, has provided significant momentum towards the use of international standards. Government intervention is often required to protect consumers and the environment by guaranteeing that products internalize safety and environmental concerns. However, governments may use regulations as potential nontariff barriers (NTBs) at the extreme to drive out foreign producers, particularly producers coming from some developing countries.</p> <p>This paper analyzes the impact of producers' heterogeneity on the standard selected by a domestic policymaker, and investigate the potential protectionist impact of the standard. They focusing on the choice of</p>

	<p>products' or environments' safety standard influencing both domestic and foreign producers selling in the domestic market.</p>
<p>模型</p>	<p>They use a sparse and stylized framework in which trade occurs in a single period with domestic producers and foreign producers in a competitive market for good <math>x</math>. The ability to offer reliable products is determined by a combination of producers' effort and randomness.</p> <p>They let a producer's effort be equivalent to the probability of a safe product emerging. With a probability <math>0 \leq \lambda \leq 1</math>, a producer only offers safe products and with a probability <math>(1 - \lambda)</math> a producer only offers unsafe products. The level of care <math>0 \leq \lambda \leq 1</math> comes about through a variable cost <math>c\lambda^2</math> for a domestic producer and through a variable cost <math>\gamma c\lambda^2</math> for a foreign producer with <math>\gamma &gt; 0</math>. This parameter <math>\gamma</math> captures natural, technological, organizational, or institutional advantage with <math>\gamma &lt; 1</math> for a foreign producer (respectively disadvantaged with <math>\gamma &gt; 1</math>). There is also a variable cost of production independent of safety effort, <math>x^2/2</math>, whatever the good's origin, where <math>x</math> denotes output. Producers are price-takers in competitive industries.</p> <p>A linear demand <math>x(p) = a - p</math> in the domestic country is considered, where <math>a</math> is a positive parameter indicating the maximum market size, and <math>p</math> is the price. All foreign production is exported to the domestic market. The expected external damage associated with the consumption of <math>x</math> is <math>-[x_d(1 - \lambda_d) + x_f(1 - \lambda_f)]k</math>, where <math>x_d</math> and <math>x_f</math> are domestic and foreign components of domestic consumption and <math>1 - \lambda_d</math> and <math>1 - \lambda_f</math> are the domestic and foreign probability of having unsafe products, respectively. Parameter <math>k</math> is a measure of the per-unit external damage.</p>
<p>研究 結果</p>	<p>They show that the domestic standard relative to an international standard is not always protectionist and can be anti-protectionist, implicitly subsidizing imports. When foreign producers are more efficient to meet the standard than domestic producers are, a domestic policymaker chooses a lower standard than would an international policymaker who would take into account foreign profits in the welfare optimization. However, when the safety cost of foreign producers is either near or higher than the safety cost of domestic producers, the domestic standard is protectionist. Results are driven by producers' heterogeneity. In addition, a situation with a very</p>

	<p>inefficient producer leads to her/his exclusion under both domestic and/or international standards when damages are large and despite the absence of sunk cost in our model.</p>
研究 貢獻	<p>This paper contributes to the TBT and NTM literature. This paper departs from the literature on standards in international trade, which has overlooked the important consequences of heterogeneity in safety cost. In particular, the results differ from and qualify Fisher and Serra's main conclusion that, in the presence of a consumption externality, the standard chosen by the social planner is always protectionist. Conversely, they show that this previous result is less general than originally thought, because of potentially large safety cost heterogeneity between domestic and foreign producers. In the latter case, the domestic standard is not systematically protectionist and can be anti-protectionist.</p>
未來 研究 方向	<p>None.</p>

篇名	<i>Inequalities and Patience in Catching up</i>
作者	Kazumichi Iwasa <sup>a</sup> , Laixun Zhao <sup>b</sup> Research Institute for Economics and Business, Kobe University
出處	Working paper
摘要	This paper examines how impatience interacts with inequalities in economic development. We consider two distinct groups of households with intrinsic inequality (e.g., capitalists and workers), and show that (i) under decreasing marginal impatience (DMI), an unequal society may be preferable for poor households than communism when every household owns an equal share of asset; (ii) poor households tend to benefit more from positive shocks under DMI than CMI (constant marginal impatience). (iii) inequality exhibits a sharp inverted-U shape as more people become rich, which should be good news for developing countries in catching up; (iv) a tax on capital income reduces poor households income when the fraction of the rich is sufficiently small; (v) immigration into rich countries raises their average income but widens the income gap.
研究動機	This paper is motivated by the experiences of many developing countries, in whose early years of economic development, widespread subsidies are provided to the rich. They want to ask the following question: could inequality be responsible for the high growth rates in these economies? Indeed, when China started its open-door policy, the then-leader, Deng Xiaoping, in particular stressed to "allow a small fraction of the population to get rich." Recent studies by Chang, Gu and Tam (2015) and Gu, Li and Tam (2015) . and that income inequality is a significant contributor to China's savings glut, which enables the recent Chinese growth that is heavily dependent on investment.

<p>模 型</p>	<p>Under endogenous time preference with DMI, households become more patient when they are richer; in other words, a poorer household consumes a higher fraction of its income than a richer household.</p> <p>In this paper, we focus on an economy with two types of households, which are symmetric in all aspects except that one type owns asset (i.e., capitalists), while the other type is unable to own asset for some reason (i.e., workers).<sup>8</sup> That is, there exists intrinsic social inequality to begin with, as in many developing countries with strong traditional institutions and customs. In such economies, the fraction of rich households is small and the financial market is inefficient so poor households can hardly save or borrow.</p> <p>Consider one good that is consumed and saved as capital, whose output is given by</p> $Y = F(K, L),$ <p>where <math>K</math> and <math>L</math> are respectively capital stock and labor supply. Production exhibits constant returns to scale technology,</p> $k \equiv \frac{K}{L} \text{ and } f(k) \equiv F\left(\frac{K}{L}, 1\right).$ <p>Then, the capital rental rate <math>R</math> and the wage rate <math>w</math> are respectively</p> $R = f'(k) \text{ and } w = f(k) - kf'(k).$ <p>The household's inelastic labor supply is normalized to one, so that the number of households is denoted by <math>L</math>, and <math>k</math> is the capital stock per household or simply capital stock.</p>
<p>研 究 結 果</p>	<p><b>Proposition 1</b> Under DMI, a decrease in the share of rich households <math>\theta</math>; raises poor households income <math>w</math> and consumption <math>\tilde{c}^*</math>; which is absent under CMI.</p> <p><b>Proposition 2</b> The steady-state welfare in the economy without inequality (i.e., very one becoming a capitalist with an identical level of asset), is lower than the poor households' welfare in the steady state under a sufficiently small <math>\theta</math>.</p> <p><b>Proposition 3</b> Under Assumption 1b, as the share of rich households increases, both the level and the ratio income-gaps narrow. However, there is a non-monotonic relationship between the share <math>\theta</math> and the Gini coefficient <math>G</math>: <math>G = 0</math> holds when either</p>

	<p><math>\theta</math> approaches 0 or equals 1; <math>\frac{dG}{d\theta} &gt; 0</math> when <math>\theta</math> is sufficiently small, but <math>\frac{dG}{d\theta} &lt; 0</math> for <math>\theta \geq \frac{1}{2}</math>.</p> <p><b>Proposition 4</b> Let Assumption 1A hold. Then, a positive capital-income tax on rich households raises the welfare of the poor under CMI, but may not do so under DMI: for a sufficiently small <math>\theta</math>; subsidizing the rich and taxing the poor may raise all households' welfare in the steady state under DMI.</p> <p><b>Proposition 5</b> Given Assumptions 1A and 2, (i). An increase in productivity <math>A</math> reduces the Gini coefficient <math>G</math> under DMI; (ii). It widens the gap <math>g</math> when DMI is not strong.</p>
研究貢獻	<p>In an economy with intrinsic inequality to begin with, they examine how endogenous time preference affects social inequality, with special focus on DMI. Our analysis has shown that (i) poor households tend to benefit more from positive shocks under DMI than under CMI; (ii) positive shocks widen the income difference between the rich and the poor when the effect of DMI is small; (iii) inequality may be a necessary evil, in order for a country to increase its welfare faster, especially under DMI. We have also extended the basic model to examine the effects of immigration into rich countries, and found that it increases the average welfare on the one hand, but enlarges the income gap on the other hand.</p>
未來研究方向	<p>Our result that increasing inequality (a fall in <math>\theta</math>) makes the poor households better off is derived in the absence of international credit market. If international lending and borrowing are available, this result may be altered, mainly because international borrowing may change the asset holdings ratio <math>\theta</math>.</p>

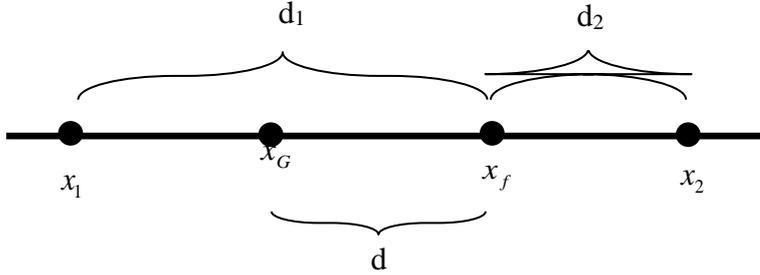
篇名	<i>The welfare impact of a managerial oligopoly with an altruistic firm</i>
作者	Johan Willner
出處	Journal of Economics (2013), 109:97–115
摘要	<p>The author analyses the welfare impact of a mixed market with a private or public firm that is characterized by wider objectives or altruism, in the presence of an agency problem. Contrary to some earlier findings, the total surplus turns out to be increasing in the degree of altruism. This impact is stronger than without an agency problem, despite more stringent conditions for the market to remain mixed. The altruistic firm is more cost efficient, and viable if the market can remain mixed. A competition policy that encourages entry may increase welfare, but its scope is reduced by higher altruism.</p>
研究動機	<p>Most earlier contributions associate wider objectives with public firms, thus ignoring the case of private-sector altruism, but this paper focus on behavior rather than ownership. The significance of the topic is illustrated by the existence of wider objectives in public firms in the UK , Argentine, Finland, the U.S. , and France, and by private retail co-ops in Scandinavia and private providers of health-care and education in the US.</p>
模型	<p>Inverse demand is <math>p = a - x</math>, where <math>p</math> and <math>x</math> stand for price and output. There are <math>n+1</math> firms. Firm 1 maximises the sum of its own profits <math>\pi_1</math> and industry output <math>x</math>, with the weight <math>\alpha</math>, i.e. <math>\alpha x + \pi_1</math>. Firm 1 is thus referred to be <i>altruistic</i> and <math>\alpha</math> the <i>degree of altruism</i>. The other <math>n</math> firms are identical profit-maximizing Cournot competitors and are indexed by <math>i</math>.</p> <p>Decisions that affect marginal costs are delegated to managers who cannot be monitored. The agency problem is modelled as that marginal costs <math>c</math> depend on a constant parameter <math>c_0</math>, on the manager's effort <math>e</math>, and on a normally distributed random variable <math>u</math> with zero mean and the variance <math>\sigma^2</math> so that <math>c = c_0 - e - u</math>.</p>

研究 結果	<p><b>Proposition 1</b> (i) <i>The altruistic firm has a higher output and lower expected unit and marginal costs than its rivals, and an increase in its degree of altruism increases their expected unit and marginal;</i> (ii) <i>An increase in the degree of altruism reduces the weighted average of the market's expected unit and marginal costs.</i></p> <p><b>Proposition 2</b> (i) <i>An increase in the degree of altruism of firm 1 increases the total surplus as long as the oligopoly can remain mixed;</i> (ii) <i>The maximum percentage impact of altruism is higher than when marginal costs are given.</i></p> <p><b>Proposition 3</b> <i>The optimal number of profit maximizing firms in a mixed market is decreasing in the degree of altruism.</i></p>
研究 貢獻	<p>In contrast to the earlier findings of a limited and not always even positive welfare impact, I have shown that the presence of an altruistic firm is beneficial if marginal costs are constant but dependent on unobservable managerial efforts. This effect is stronger than in a conventional mixed oligopoly. The altruistic firm breaks even if the oligopoly can remain mixed. There is (a limited) scope for encouraging entry if the value of a parameter that reflects risk, risk-aversion, and the disutility of effort are high, but the optimal number of firms is decreasing in the degree of altruism.</p>
未來 研究 方向	

篇名	<i>Investment for green technology under uncertainty</i>
作者	Sajal Lahiri <sup>a</sup> , Yingyi Tsai <sup>b</sup> a Department of Economics, Southern Illinois University b Department of Applied Economics, National University of Kaohsiung,
出處	Working paper
摘要	This paper considers an oligopolistic model with a number of domestic and a number of foreign firms. The two sets of firms produce differentiated goods and serve the domestic market. They consider different market structures depending on the existence or otherwise of free entry and exit of either or both sets of firms. In this context, we examine the structure of optimal lump-sum taxes, and the effect of an increase in the number of foreign firms on, inter alia:(i) the free entry number of domestic firms, (ii) the optimal number of domestic firms, and (iii) domestic welfare.
研究動機	In this paper, they combine the afore-mentioned two strands, and examine the welfare effect of FDI, including an additional channel of the effect of foreign penetration by FDI on welfare loss arising from excessive competition.
模型	<p>We consider a market in which there are two groups of firms <math>d</math> and <math>f</math>. Group <math>d</math> consists of <math>n_d</math> identical domestic firms, each with constant unit variable cost <math>c_d</math>, and Group <math>f</math> consists of <math>n_f</math> identical foreign firms, each with constant unit variable cost <math>c_f</math>. The two groups of firms produce two goods for the market— to be called goods <math>d</math> and <math>f</math> — that are imperfect substitutes. The inverse demand functions are:</p> $p_d = \alpha_d - \beta_d Q_d - \gamma Q_f, \quad p_f = \alpha_f - \beta_f Q_f - \gamma Q_d$ <p>where <math>p_k</math> and <math>Q_k</math> are respectively the price and total demand of good <math>k</math> (<math>k = d, f</math>). That is</p> $Q_k = n_k q_k, \quad k = d, f,$ <p>Profits for each firm in the two groups are given by:</p> $\pi_k = (p_k - c_k)q_k - F_k + S_k, \quad k = d, f,$ <p>where <math>F_k</math> and <math>S_k</math> are respectively fixed costs of, and lump-sum subsidy to, each firm in group <math>k</math> (<math>k = d, f</math>).</p> <p>Assuming Cournot conjectures, the first-order profit-maximizing conditions are:</p>

	<p>Finally, we shall consider sub-cases depending on whether the number of firms in either group is exogenous or endogenous, i.e., whether or not there is free entry and exit of the firms. In case of free entry and exit for domestic firms, we shall have:</p> $p_k - c_k = \beta_k q_k, \quad k = d, f.$ <p>Welfare of the country is given by</p> $W = n_d \pi_d + CS - n_d S_d - n_f S_f, \quad \text{where}$ $dCS = -Q_d dp_d - Q_f dp_f.$ $\pi_d = (p_d - c_d)q_d - F_d + S_d = 0,$ <p>and in case of free entry and exit for foreign firms:</p> $\pi_f = (p_f - c_f)q_f - F_f + S_f = 0.$
研究結果	<p><b>Proposition 1:</b> The optimal levels of both <math>S_d</math> and <math>S_f</math> are negative, i.e., both sets of firms are taxed.</p> <p><b>Proposition 2</b> When a lump-sum tax/subsidy policy is applied only to domestic firms and there is free entry and exit of both sets of firms, an increase in the fixed cost of the domestic firms reduces (increases) the level of optimal tax when the initial level of fixed costs is large (small).</p> <p><b>Proposition 3</b> When the number of foreign firms is exogenously given and there is free entry and exit among domestic firms, the optimal lump-sum subsidy to domestic firms is positive if and only if <math>\varepsilon_n &gt; 1</math>.</p>
研究貢獻	<p>They find that FDI unambiguously reduces excessive competition among domestic firms and increases welfare when there is free entry and exit of firms. When the number of foreign firms is exogenous, we also find conditions under which there is excessive competition among domestic firms. When there are free and entry exit among both sets of firms, the optimal policy is to apply lump-sum tax on both sets of firms. The level of optimal tax goes down (up) when fixed costs go up if the initial level of fixed</p>

	costs is large (small).
未來 研究 方向	We can consider the green good market.

篇名	<i>Effects of Spatial Price Discrimination with an Input Source</i>
作者	Chih-Min She
出處	Working paper
摘要	<p>The location and output of a monopolist and social welfare are re-examined with a spatial model a la Hwang and Mai (1990). They found that the welfare could be greater while the output is lower – a result sharply different from conventional wisdom. However, no economic intuition of it has been provided since then. This paper considers the presence of an input source. The same result arises only when the transportation rate of input is sufficiently higher than that of final product, which necessarily implies a different location under price discrimination. An economic intuition based on the pecuniary externality of location choice with mill pricing is offered. I further investigate the role of arbitrage. Arbitrage makes it more likely for the firm to change location under price discrimination, but its welfare effect is mixed.</p>
研究動機	<p>In this paper I consider a fixed input source with the spatial structure similar to HM. Core results in HM recur and an economic intuition based on the duality property is provided. Input source is considered for two reasons.</p>
模型	<p>Consider a linear space with market 1 and 2. It can be represented by the number line and a location by a number. Locations of market <math>i</math>, <math>i = 1, 2</math>, is denoted by <math>x_i</math> and it is assumed that <math>x_1 &lt; x_2</math>.</p> <div style="text-align: center;">  </div> <p>Figure 1. A linear space</p> <p>There is only one consumption good and the demand in market <math>i</math> is, respectively,</p> $q_i(p_i) = A - p_i \tag{1}$

$$q_2(p_2) = \alpha A - p_2, \quad (2)$$

$A > 0$  measures the market size,  $\alpha > 0$  denotes the market asymmetry, and  $p_i$  is the delivered price. For now it is assumed that markets are separate.

The good is supplied by a monopolist with location  $x_f$  who produces with the only input from a fixed input source at  $x_G$  in a one-for-one relation. For simplicity, the input is assumed to be free. The firm's distance to the input source and market  $i$ ,  $d(x_f) = |x_f - x_G|$ ,  $d_1(x_f) = |x_f - x_1|$  and  $d_2(x_f) = |x_f - x_2|$ , are denoted by its shorthand  $d$  and  $d_i$  to save space.

Two costs are present: the constant per-unit per-distance product transportation cost,  $r > 0$  and the constant per-unit per-distance transportation cost of input,  $g > 0$ . They are bounded by values of  $A$  and  $\alpha$  such that both markets are profitable.

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The location and output of a monopolist under price discrimination and social welfare are re-examined with a spatial model a la Hwang and Mai (1990) and a fixed input source. In HM, price discrimination could lead to higher social welfare even as it reduces output, a result contradicting the conventional wisdom in the related literature. No economic intuition has been provided for this important finding since then.

In this paper the result recurs and an economic intuition based on pecuniary externality under mill pricing is provided. The externality is present for firm located between two markets of final good demand, but it is absent when firm stays with the input source and away from both markets.

Price discrimination, however, effectively aligns the interest of firm with the social interest so the externality is internalized. The accrued benefit could be so large that price discrimination improves social welfare even as it reduces output. This is the economic intuition for this interesting welfare effect of price discrimination in space.

	<p>In addition, the role of arbitrage is investigated. It is found that arbitrage makes it more likely for the firm to change location under price discrimination. Arbitrage improves welfare if the firm's location is not altered, but its welfare effect is ambiguous when the location is different.</p>
研究貢獻	<p>In this paper the result recurs and an economic intuition based on pecuniary externality under mill pricing is provided. In addition, the role of arbitrage is investigated.</p>
未來研究方向	<p>Re-examine the results if different production technologies are considered.</p>

篇名	<i>On the certification of credence goods in an oligopoly market</i>
作者	Ya Po Yang Institute of Business and Management, National University of Kaohsiung, Kaohsiung, Taiwan.
出處	Working paper
摘要	In an n-firm credence goods market where firms freely choose to be certified or not by a third party, I compare the effects of certification of NGOs (NC), the public sector (GC), and private institute (PC). The findings show that free entry to certification leads firms into a certification trap, in which they are worse off than having no certification. When the certification cost is low, all firms will take on certification, in which NC has the highest quality standard and GC has the highest social welfare. When the certification cost is high, only some firms enact certification; if quality improvement is more efficient, then GC has the highest quality standard and social welfare, and NC and PC have the same quality standard; if quality improvement is less efficient, then PC has the highest social welfare. The social welfares of NC and PC may be less than no certification due to serious damage from the certification trap.
研究動機	Certified goods and non-certified goods ubiquitously co-exist in different markets. This phenomenon has brought forth issues of concern to economists. What determines a firm's aspiration for certification? What are the certification standards set out by different certification parties? What are the social welfares of certification by different institutions? The main motivation of this paper is to establish a model representing an n-firm credence goods market where firms freely choose to be certified or not by the third party in order to compare the welfare effects of certification by NGOs (NC), the public sector (GC), and private institutes (PC).

模型	<p>The model includes a representative consumer with the utility function of: <math>U = a(\sum_{h=1}^n x_h) + \theta(\sum_{h=1}^n s_h x_h) - \frac{1}{2}(\sum_{h=1}^n x_h)^2 + z</math>, where <math>z</math> is a numeraire, <math>x_h</math> is the output of firm <math>h</math> (<math>h=1,2,\dots,n</math>), <math>s_h \geq 0</math> is the quality improvement of firm <math>h</math>, and <math>\theta \geq 0</math> represents the extent of awareness by the consumer on the improved quality. Such a utility function is similar to Manasakis et al. (2013). After utility maximization, the representative consumer's inverse demand function of good <math>i</math> is <math>a + \theta s_i - \sum_{h=1}^n x_h = p_i</math>, which displays that a consumer has a higher willingness to pay for good <math>i</math> if the consumer has positive awareness on the improved quality of good <math>i</math>.</p> <p>Every firm in the market has the same constant marginal production cost <math>c</math>; except for quality improving cost, there are no other fixed costs in production. Assume all the <math>n</math> firms can freely choose to be certified or not; firm <math>i</math> represents a certified firm, and firm <math>j</math> represents a non-certified firm. Besides production cost, certified firm <math>i</math> incurs quality improving cost <math>\frac{k(s_i)^2}{2}</math> and fixed certification fee <math>F_i</math>, where <math>k &gt; 0</math>, and a greater <math>k</math> represents the marginal cost of quality improvement is increasing fast; thus, quality improvement is less efficient. Such a quality improvement cost function can be seen in Motta (1993), Bottega and De Freitas (2009), and so on. Assume without a third party's certification, that a firm's investment on quality cannot be identified by the consumer.</p> <p>Based on the settings, certified firm <math>i</math>'s profit function is:</p>

$$\max_{x_i} \pi_i = (a + \theta s_i - \sum_{h=1}^n x_h) x_i - c x_i - \frac{k s_i^2}{2} - F_i.$$

Non-certified firm  $j$ 's profit function is:

$$\max_{x_j} \pi_j = (a - \sum_{h=1}^n x_h) x_j - c x_j.$$

There are three types of certification: 1) NGO provides the certification (NC); NC is for maximizing consumer surplus; 2) a public institute or government provides certification (GC); GC aims to maximize social welfare; and 3) a private institute provides certification (PC); PC is for maximizing certification rent. Certifying each firm entails a fixed certification cost  $C$ , which is the cost for monitoring whether the certified firms have stuck to the required quality standard and is the same for all three types of certification. To simplify the analysis, I assume the certifier offers a uniform quality standard and certification fee to all firms; i.e.  $s_i = s$  and  $F_i = F$ ,  $\forall i$ .

The game runs under three stages. In the 1<sup>st</sup> stage (quality and fee determination stage), the certification institute determines uniform quality standard  $s$  and certification fee  $F$  to maximize the objective function; in the 2<sup>nd</sup> stage (certification stage), given  $s$  and  $F$ , every firm decides to initiate certification or not; in the 3<sup>rd</sup> stage (market equilibrium stage), firms determine their Cournot competition output level to maximize profit. In the next section, I shall solve the subgame perfect equilibrium by backward induction under these three types of certification respectively.

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**Proposition 1:** Denote  $C^N \equiv \frac{2n^2\theta^2(a-c)[(n+1)^2k-2n(n+2)\theta^2]}{(n+1)^2[(n+1)^2k-4n\theta^2]^2}$ ; (i) if

$0 \leq C \leq C^N$ , then  $s^N = \bar{s}_n$ ,  $\frac{\partial \bar{s}_n}{\partial n} < 0$ ,  $\frac{\partial \bar{s}_n}{\partial C} < 0$ ,  $m^N = n$ ,  $\frac{\partial m^N}{\partial C} = 0$ , and

$\frac{\partial m^N}{\partial n} > 0$ ; (ii) if  $C^N \leq C < \bar{C}$ , then  $s^N = \sqrt{\frac{2(n+1)^2C}{(n+1)^2k-2n(n+2)\theta^2}}$ ,  $\frac{\partial s^N}{\partial C} > 0$ ,

$\frac{\partial s^N}{\partial n} > 0$ ,  $m^N = \frac{(a-c)}{\theta s^N} - \frac{(n+1)^2k-2n(n+2)\theta^2}{2n\theta^2}$ ,  $\frac{\partial m^N}{\partial n} < 0$ , and  $\frac{\partial m^N}{\partial C} < 0$ .

**Proposition 2:** Under GC, (i) when quality improvement is more efficient,

	<p>there exists a critical certification cost <math>C^G</math> such that if <math>0 \leq C \leq C^G</math>, then <math>s^G = s_n^G = \frac{(n+2)(a-c)\theta}{(n+1)^2k - (n+2)\theta^2}</math>, <math>\frac{\partial s_n^G}{\partial n} &lt; 0</math>, and <math>\frac{\partial s_n^G}{\partial C} = 0</math>; if <math>C^G &lt; C &lt; \bar{C}</math>, then <math>s^G = s_m^G</math>, <math>\frac{\partial s_m^G}{\partial n} &lt; 0</math>, and <math>\frac{\partial s_m^G}{\partial C} &gt; 0</math>; (ii) when quality improvement is less efficient, if <math>0 \leq C \leq C^0</math>, then <math>s^G = s_n^G = \frac{(n+2)(a-c)\theta}{(n+1)^2k - (n+2)\theta^2}</math>, while if <math>C \geq C^0</math>, there is no GC.</p> <p><b>Proposition 3:</b> Under PC, denote <math>C^P \equiv \frac{2n^2\theta^2(a-c)^2[(n+1)^2k^2 - 2n(n+2)\theta^2]}{(n+1)^2[(n+1)^2k^2 + 2n(n-2)\theta^2]}</math>; (i) if <math>0 \leq C \leq C^P</math>, then <math>s^P = s_n^P = \frac{2n\theta(a-c)}{[(n+1)^2k + 2n(n-2)\theta^2]}</math>, <math>\frac{\partial s_n^P}{\partial n} &lt; 0</math>, and <math>\frac{\partial s_n^P}{\partial C} &lt; 0</math>, <math>m^P = n</math>, <math>\frac{\partial m^P}{\partial n} &gt; 0</math>, <math>\frac{\partial m^P}{\partial C} = 0</math>; (ii) if <math>C^P \leq C \leq \bar{C}</math>, then <math>s^P = s_m^P = \sqrt{\frac{2(n+1)^2C}{(n+1)^2k - 2n(n+2)\theta^2}}</math>, <math>\frac{\partial s_m^P}{\partial C} &gt; 0</math>, <math>\frac{\partial s_m^P}{\partial n} &gt; 0</math>, <math>m^P = \frac{(a-c)}{2\theta s_m^P} - \frac{(n+1)^2k - 2n(n+2)\theta^2}{2n\theta^2}</math>, <math>\frac{\partial m^P}{\partial n} &lt; 0</math>, and <math>\frac{\partial m^P}{\partial C} &lt; 0</math>.</p> <p><b>Proposition 4:</b> (i) When the certification cost is low, all firms join certification in these three types of certification; if quality improvement is more efficient, then the quality standard ranking is <math>s^N &gt; s^G &gt; s^P</math>; if quality improvement is less efficient, then the ranking is <math>s^N &gt; s^P &gt; s^G</math>; (ii) when the certification cost is high, all firms join certification in these three types of certification; if quality improvement is more efficient, then the quality standard ranking is <math>s^G &gt; s^N = s^P</math>; if quality improvement is less efficient, then the public institute does not provide certification and <math>s^N = s^P</math>.</p>
研究 貢獻	<p>The findings show that free entry to certification leads firms to a so-called certification trap, which makes firms worse off than having no certification. When the certification cost is low, all the n firms will initiate certification, with NC having the highest quality standard and GC the highest social welfare. When the certification cost is high, only some firms join certification. If quality improvement is more efficient, then GC has the highest quality standard and social welfare, with NC and PC having the same quality standard. If quality improvement is less efficient, then PC has the highest social welfare. Moreover, the social welfare of NC and PC may be less than no certification due to the serious damage from the certification trap.</p>

未來 研究 方向	If the certification institutes take into account the constraint that the profits of certified firms should not be less than those of firms under no certification, or if manufacturer asymmetry and cost asymmetry are introduced into the model, then problems caused by the prisoner's dilemma may be resolved.
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篇名	<i>Menu Auctions, Resource Allocation, and Economic Influence</i>
作者	B. Douglas Bernheim and Michael D. Whinston
出處	The Quarterly Journal of Economics, Vol. 101, No. 1 (Feb., 1986), pp. 1-32
摘要	In many examples of competitive bidding (e.g., government construction contracting) the relevant object is either partially divisible or ill-defined, in contrast to much of the recent theoretical work on auctions. In this paper we consider a more general class of auctions, in which bidders name a "menu" of offers for various possible actions (allocations) available to the auctioneer. We focus upon "first-price" menu auctions under the assumption of complete information, and show that, for an attractive refinement of the set of Nash Equilibria, an efficient action always results. Our model also has application to situations of economic influence, in which interested parties independently attempt to influence a decision-maker's action.
研究動機	Economists have recently focused a great deal of attention upon the study of auctions and competitive bidding (see, for example, Milgrom and Weber [1982] and the references contained therein). Nearly all of this literature has concerned the allocation of a single, well-defined, indivisible object. <sup>1</sup> In many circumstances, however, the relevant object may be either ill-defined or divisible. Large government construction projects are, for example, often composed of several distinct component contracts that the government awards simultaneously. During the process of competitive bidding, bidders may submit offers on more than one component and may condition offers upon the set of contracts received (this would be desirable, for example, if they perceive economies or diseconomies of scale or scope). Furthermore, the government typically allows some flexibility in construction specifications. Thus, a contractor may submit several offers with price dependent upon specification.

模型	<p>Pendent upon specification. In this paper we consider a more general class of auctions, in which bidders name a "menu" of offers for the various possible actions available to the auctioneer (e.g., allocations of the components of a construction project). This set of possible actions (allocations) is represented by an abstract choice set over which the bidders and the auctioneer have preferences. Our investigation focuses upon "first-price" menu auctions. By first-price, we mean that bidders pay their announced offers for the allocation ultimately chosen by the auctioneer and that this choice is made to maximize the auctioneer's payoff, given the menus of offers bidders name. Such auctions seem to appear in a variety of contexts</p>
研究結果	<p>In first-price complete information auctions of a single indivisible object, the question of allocational efficiency entails no subtlety whatsoever: equilibrium requires that the auctioneer sell the good to the individual who values it most highly.<sup>2</sup> In general, however, the Nash Equilibria of first-price menu auctions need not be efficient (we consider an example in Section II). Our central results establish that, for a certain attractive refinement of the Nash Equilibrium set (in which bids correctly reflect relative preferences for the various alternatives), first-price menu auctions always implement efficient actions; furthermore, these "truthful" equilibria possess a strong stability property and are essentially the only equilibria that possess this property. In addition, we characterize the net payoffs that arise in these equilibria.</p>
研究貢獻	<p>The model that we develop here can also be applied to a much broader class of problems in which a single individual is endowed with the power to make an important decision, and several affected parties (whose interests conflict) offer rewards or bribes in an attempt to obtain personally desired outcomes. We refer to these situations as instances of "economic influence."</p>
未來研究方向	<p>We have already described the application our menu auction model to situations of contract bidding. In this section, we briefly discuss the implications of our results for some of the other problem areas outlined in the introduction. A. Share Auctions B. Economic Influence</p>

篇名	<i>Market power of the input supplier, technology transfer and consumer welfare</i>
作者	<i>Jiyun Cao &amp; Arijit Mukherjee</i>
出處	CESifo Working Paper No. 5093
摘要	<p>It is believed that market power of the input supplier, charging a linear price, is detrimental for the consumers since it creates the double marginalisation problem. They show that this view may not be true if the final goods producers can adopt strategies to reduce rent extraction by the input supplier. Market power of the input supplier may encourage a final goods producer either to license its technology to a competitor or to adopt a less distortionary technology licensing contract. Both these effects may create higher consumer welfare under market power of the input supplier compared to a competitive input market.</p>
研究動機	<p>It is usually believed that market power of the input supplier, charging a linear price, is detrimental for the consumers, since it creates the “double marginalisation” problem, thus creating a concern for the antitrust authorities. In the United States, buyer power enters merger control as an effective defense via the 1992 Horizontal Merger Guidelines, with the revisions to Section 4 on efficiencies in 1997. The buyer power defense asserts that lower input prices due to higher purchasing power are passed (partially) on to consumers.”</p> <p>In this paper that the above view may not be true if the final goods producers can adopt strategies to reduce rent extraction by the input supplier. More specifically, in this era of globalization where firms are engaged in several profit raising activities such as international technology transfer, it would be more appropriate to consider the effects of market power of the input suppliers in conjunction with strategic technology transfer by the final goods producers. They focus on considering the input supplier as a labour union, they analysis that the presence of the labour union as well as the labour union’s preference over wage and employment may be responsible for different types of licensing contracts.</p>
模型	<p>Consider two countries, called domestic and foreign, and the world market for a homogeneous good. There is a firm, firm 1, in the domestic country, which has a patented technology for the product. They assume that production requires only labour and firm 1 requires <math>\lambda(0 &lt; \lambda &lt; 1)</math> workers to produce one unit of the output. They assume that the competitive wage in the domestic country is <math>c</math>.</p> <p>They consider two labour market situations in the domestic country. 1.</p>

	<p>Competitive labour market: In this situation, the domestic labour market is perfectly competitive and the equilibrium domestic wage is equal to the competitive wage, <math>c</math>.</p> <p>2. Unionized labour market: In this situation, a labour union in the domestic country sets the wage, <math>w</math>, to maximise its utility <math>= (w - c)^\alpha L^{1-\alpha}</math>, where <math>L</math> is employment and <math>\alpha, 0 &lt; \alpha &lt; 1</math>, (resp. <math>(1 - \alpha)</math>) shows the labour union's preference for wage.</p> <p>They consider the union determines the wage and the firm hires workers according to its requirement. One may prefer to consider a wage bargaining between the firm and the union.</p>
研究結果	<p>They show that market power of the input supplier may induce a final goods producer either to license its technology to a competitor or to charge a less distortionary technology licensing contract (more on this later), which, in turn, increases consumer surplus compared to the situation with a competitive input market.</p> <p>The presence of a labour union may make the consumers better off by changing the royalty only licensing contract under no labour union to either a fixed-fee only licensing contract or a two-part tariff licensing contract, with positive fixed-fee and output royalty, under a labour union. Hence, the presence of a labour union may reduce the marginal cost of the licensee, although it increases the marginal cost of the licensor.</p> <p>Their analysis shows that the presence of the labour union as well as the labour union's preference over wage and employment may be responsible for different types of licensing contracts.</p>
研究貢獻	<p>They further show that, in the case of a duopoly market structure, the presence of a labour union may make the consumers better off compared to a situation with no labour union by inducing the technologically efficient firm to charge a less distortionary technology licensing contract. In this situation, the presence of a labour union makes the consumers better off if the market size is not large and the labour union's preference for wage over employment is moderate.</p> <p>Their results hold even if the input supplier is not a labour union but it is a profit maximizing input producer. Thus, this paper provides important implications about curbing market power of the input suppliers.</p>
未來研究方向	None.

篇名	<i>The deterrence of collusion by a structural remedy</i>
作者	<i>Joseph E. Harrington Jr.</i> <i>Department of Business Economics &amp; Public Policy, The Wharton School,</i> <i>University of Pennsylvania, 3620 Locust Walk, Philadelphia, PA</i> <i>19104, United States</i>
出處	Economics Letters 160 (2017) 78–81
摘要	As a penalty for illegal collusion, this paper shows that a structural remedy makes collusion unprofitable when collusion is most stable, and that it can be a greater deterrent than fines or damages.
研究動機	Though the primary rationale of a structural remedy is to make future collusion less likely, it would also generally have the effect of lowering competitive profits in the post-conviction environment. Here, this paper explores this latter effect and the extent to which it offers an effective deterrent distinct from the traditional penalties of government fines and customer damages.
模型	<p>Consider an infinitely repeated oligopoly game where firms have a common discount factor <math>\delta \in (0,1)</math>. If firms do not collude, they achieve a stage game Nash equilibrium that yields firm profit <math>\pi^n &gt; 0</math>. If firms were instead to collude, each would earn profit <math>\pi^c (&gt; \pi^n)</math>. Let <math>\pi^d (&gt; \pi^c)</math> denote a firm's maximal static profit if it were to deviate from the collusive outcome. In each period that firms are colluding, there is an exogenous probability <math>\alpha \in (0,1)</math> that the cartel is discovered, prosecuted, and convicted. In that event, firms are levied a penalty and are assumed not to collude thereafter. For each period the cartel has existed, a firm is assessed an amount <math>f &gt; 0</math>.</p> <p>If <math>F_t</math> is the penalty that a firm would have to pay if caught and convicted in period <math>t</math> then <math>F_{t+1} = (1 - \beta)F_t + f</math>, where <math>\beta \in (0,1)</math> is the depreciation rate.</p> <p>If firms collude forever (without having been caught) then the steady-state value for the penalty is defined by: <math>F^{SS} = (1 - \beta)F^{SS} + f \Rightarrow F^{SS} = f/\beta</math>. As it is assumed the cartel starts operating in period 1, <math>F_0 = 0</math> and <math>F_t \in [0, f/\beta], \forall t \geq 1</math>. The only property of that remedy which we will use here is that the post-cartel environment is more competitive than the pre-cartel environment, as reflected in each of the former cartel members earning profit <math>\pi^P \in [0, \pi^n)</math>. <math>\pi^P</math> is defined to include both post-divestiture product market profits plus the (amortized) payment for the</p>

	assets divested.
研究 結果	When there is the prospect of a structural remedy, collusion presents firms with an intertemporal trade-off: higher profits in the near-term while colluding, possibly lower profits in the long-term after having been caught and convicted. If firms sufficiently value future profits then the long-term loss from divestiture will weigh heavier in their calculus and that could deter cartel formation. In those same circumstances, fines and damages would not necessarily be effective. Given that collusion is most stable when firms highly value future profits, a structural remedy delivers a severe penalty when it is most needed.
研究 貢獻	The takeaway from this paper should not be that a structural remedy is always more deterrent than financial penalties, but rather that it is more deterrent under certain circumstances and, therefore, it enriches the set of penalties. This deterrence benefit is considered as part of a more comprehensive examination of the costs and benefits of a structural remedy for illegal collusion in Harrington (2017a), where the broader case is made for competition authorities to add structural remedies to their toolkit in the fight against cartels.
未來 研究 方向	None.

篇名	<i>Delegation in a Mixed Oligopoly: The Case of Multiple Private Firms</i>
作者	<i>John S. Heywood<sup>a</sup> &amp; Guangliang Ye<sup>b</sup></i> a. Department of Economics, University of Wisconsin-Milwaukee, Milwaukee, WI, USA b. Southwestern University of Finance and Economics, Ch
出處	Managerial and Decision Economics, Vol. 30, No. 2 (Mar., 2009), pp. 71-82
摘要	Previous research examining mixed duopolies shows that the use of an optimal incentive contract for the public firm increases welfare and that privatization reduces welfare. This paper demonstrates that these results do not generalize to a mixed oligopoly with multiple private firms. They derive the optimal incentive contract for a public firm that weighs both profit and welfare and show that its use may either increase or decrease welfare depending on the number of private firms and the exact nature of costs. They also identify the conditions that determine whether or not privatizing the public firm facing an optimal incentive contract reduces welfare.
研究動機	Theoretical analysis of private firm oligopolies confirms that owners should often provide managers an incentive contract based on both profit and sales. The logic of incentive contracts has not been widely applied to the growing literature on mixed oligopoly.  This literature has been used to examine the welfare consequences of strategic trade policies, privatization, open-door policies, international acquisitions and location decisions. By modeling incentive contracts for a public firm and m private firms in a mixed oligopoly this paper derives the circumstances in which a delegated objective function for the public firm can increase social welfare. In doing so, they show that previous conclusions taken from duopoly models do not generalize.
模型	$Q_0$ : be the output of the public firm, $Q_i$ : be the output of the private firm i (i= 1,2,...,m)  Total output of private firms $Q = \sum_{i=1}^m q_i$ . A linear inverse demand curve is  $P = a - Q - q_0$ , and give consumer surplus as $CS = \frac{1}{2}(Q + q_0)^2$ .  A private firm's profit is $\pi_i = q_i(a - q_0 - \sum_{i=1}^m q_i) - \frac{1}{2}kq_i^2, i = 1, 2, \dots, m$ .  A public firm's profit is $\pi_0 = q_0(a - q_0 - \sum_{i=1}^m q_i) - \frac{1}{2}kq_0^2$ .

	<p>Social welfare, the sum of consumer surplus and total profits, is the public owner's (the government's) objective function <math>W = CS + \pi_0 + \sum_{i=1}^m \pi_i</math>. Private owners offer their managers an incentive contract that is a linear combination of profit and sales revenue <math>INC_i = \lambda_i \pi_i + (1 - \lambda_i) P q_i</math>. The public owner offers its manager an incentive contract that is a linear combination of welfare and the public firm's profit <math>INC_0 = \lambda_0 W + (1 - \lambda_0) \pi_0</math>.</p>
研究結果	<p>Such contracts always improve welfare and privatizing firms with such contracts always harm welfare. This paper expands the model to allow for multiple private firms. A series of important conclusions emerge. First, when only the public firm has the possibility of an incentive contract, the contract continues to increase welfare. Second, when private firm managers face their own incentive contracts, the government should always provide an incentive contract in the case of duopoly but not when there exist multiple private firms. In this last case, whether or not welfare increases with a public firm incentive contract depends on the specifics of the market structure and the cost function.</p>
研究貢獻	<p>They show that incentive contracts for a public firm will improve welfare, and privatization will harm welfare only when the number of private firms is small and the marginal cost slope is steep. Importantly, it will generally be the case that when the use of an incentive contract for the public firm fails to increase welfare, the welfare superior alternative will be privatization not retaining a public firm without an incentive contract.</p>
未來研究方向	<p>First, the addition of foreign firms that compete in the single market may well alter the optimal incentive contract and the policy conclusions. Second, the government may be able to use taxation and subsidies to influence market outcomes. Again, the optimal incentive contract and policy conclusions are likely to change with this realization. Third, one might consider how the incentive contracts alter firm decisions beyond simply their output choices. Thus, Lu and Poddar (2005) considered a mixed oligopoly making capacity choices as well as quantity choices, and the role of incentive contracts could be explored in this context.</p>

篇名	<i>Union bargaining power, subcontracting and innovation</i>
作者	<i>Hamid Beladi<sup>a</sup>, Arijit Mukherjee<sup>b,c,d,e</sup></i> <i>a University of Texas at San Antonio, USA</i> <i>b Nottingham University Business School, UK</i> <i>c CESifo, Germany</i> <i>d INFER, Germany</i> <i>e GRU, City University of Hong Kong, Hong Kong</i>
出處	Journal of Economic Behavior & Organization Volume 137, May 2017, Pages 90-104
摘要	If a firm can subcontract production to an informal sector, an increase in union power may either increase or decrease innovation. An increase in union power makes the firm worse off irrespective of its effect on innovation. However, in contrast to the usual belief, an increase in union power may increase consumer surplus and decrease union utility by affecting innovation, thus suggesting that a union may not want to be too powerful. An increase in union power may create an ambiguous effect on social welfare. This analysis provides new insights to the relation between union power and innovation.
研究動機	Given the widespread evidence of subcontracting or outsourcing of production, they provide a new perspective to the literature on union power and innovation by considering subcontracting as a production strategy of the firm. A few literatures consider how bi-sourcing, which is affected by the in-house input supplier's bargaining power, affects innovation and welfare.
模型	First, they try the benchmark model with no subcontracting. Assume that there is a monopolist producer, called firm M, producing a product that requires only labor. Firm M can invest an amount F in R&D to reduce the labor coefficient. If firm M undertakes R&D, it can produce q units of output by using $\lambda q$ units of labor, where $\lambda \in (0, 1)$ Second, they extend the model of the above by incorporating the possibility of subcontracting by firm M. Production requires labor and firm M can produce the product either in-house and/or can subcontract production to the informal sector. Hence, the cost of producing through subcontracting is increasing and convex. Under subcontracting, firm M needs to contact with each supplier in the informal sector separately, which may create diseconomies of scale.

研究 結果	<p>Considering a right-to-manage model of labor union and ex-post bargaining, they show that an increase in union power may either increase or decrease a firm's incentive for innovation in the presence of subcontracting, which is an empirically observed phenomenon in today's world. They also show that an increase in union power makes the firm worse off irrespective of its effects on innovation. However, in contrast to the usual belief, an increase in union power may increase consumer surplus and decrease union utility by affecting innovation, thus suggesting that a union may not want to be too powerful. An increase in union power may either increase or decrease social welfare.</p>
研究 貢獻	<p>Show that the presence of subcontracting may explain the ambiguous relationship between union power and innovation under a right-to-manage firm-union bargaining. If there is an efficient bargaining where the firm and union bargain over wage and employment, the bargaining process tends to reduce distortion due to the union's rent-seeking motive.</p>
未來 研究 方向	<p>It is expected that if the firm-union bargaining is efficient. An increase in union power is likely to increase the possibility of a positive relationship between union power and innovation. Since this issue deserves a detailed analysis, they leave it for future research.</p>

篇名	<i>Social efficiency of entry in a vertically related industry</i>
作者	<i>DEBASMITA BASAK<sup>a</sup> &amp; ARIJIT MUKHERJEE<sup>bc,d,e</sup></i> <i>a. Swansea University, UK</i> <i>b. Nottingham University Business School, UK</i> <i>c. CFGE, Loughborough University, UK</i> <i>d. CESifo and INFER, Germany</i> <i>e. GRU, City University of Hong Kong, Hong Kong</i>
出處	Economics letters 139(2016)8-10
摘要	This paper provides a new perspective to the literature on social desirability of entry by showing that, if the input supplier has market power, social desirability of entry of the final goods producers depends on returns to scale. Entry in the final goods market can be socially insufficient under constant returns to scale technology, but it can be socially excessive under decreasing returns to scale technologies if the cost of entry is low so that the final goods market is sufficiently competitive. Hence, the anti-competitive entry regulation policies are more justifiable if the final goods market is characterized by decreasing returns to scale technologies.
研究 動機	This paper examines the social efficiency of entry in vertically related industry. The social desirability of entry depends on returns to scale. Entry is socially insufficient under constant returns to scale technology. Entry can be socially excessive under decreasing returns to scale technology.
模型	Consider the following game. At stage 1, the final goods producers decide whether or not to enter the market. At stage 2, the input supplier determines the input price. At stage 3, the final goods producers, which entered the market, produce outputs simultaneously by purchasing inputs according to their requirements and the profits are realised. They solve the game through backward induction.
研究 結果	The intuitions for Proposition 2 also follow from the tradeoff between the “business-stealing effect ”and “business-creation effect” as discussed in Proposition 1 with an exception that, under decreasing returns to scale technology, the input price increases with the number of final goods producers, thus strengthening the business-stealing effect. If the cost of entry is low so that the final goods market is sufficiently competitive.
研究 貢獻	They show that the production technology plays an important role in determining social efficiency of entry of the final goods producers if the input supplier has market power. Entry in the final goods market can be socially

	insufficient under constant returns to scale technology but it can be socially excessive if the cost of entry is low. Hence, the anti-competitive entry regulation polices are more justifiable in a vertically related industry if the final goods market characterized by decreasing returns to scale technologies.
未來 研究 方向	None.

篇名	工會議價能力與企業社會責任
作者	鄭光峰、蔡定中、李仁耀
出處	國立高雄大學貿易與產業經濟理論研究群 Working Paper
摘要	本研究利用具有生產外部性與工會的寡占市場模型，探討市場進入下對於在位者企業社會責任策略之選擇，以及其對社會福利分配的影響。結果發現：若允許產業結構由獨佔市場下，允許新的進入者加入。當工會具有完全議價能力時，在位者採行消費者導向之策略性社會責任，將不利於自身的利潤水準。因此，在位者並沒有動機去執行企業的社會責任。反之，當工會完全不具有議價能力時，採行消費者導向之策略性社會責任，將有助於企業的利潤水準上升。
研究動機	過去的研究顯示，企業採行消費者導向的企業社會責任策略時，雖有助於社會福利上升，但是對於企業本身卻往往會帶來利潤下降的效果；本研究認為，企業採取企業社會責任策略時，其利潤是否上升，可能與其工會議價能力有關。
模型	<p>假設本國之市場存在一家獨佔廠商，其產量為<math>q_i</math>。同時，市場之(逆)需求曲線為<math>p = a - Q</math>，市場供給量為<math>Q = q_i</math>。其中，<math>a</math>為市場規模，<math>p</math>為商品價格，<math>q_i</math>為廠商的供給量。假設獨佔廠商之生產函數為<math>q_i = L_i</math>，符合固定規模報酬性質。在企業成本方面，由於只有單一投入，所以其內容為勞動成本，進一步假設企業之勞動需求是由工會(labor union)所提供，工會對要素價格具議價能力，因此企業對於要素價格不能獨自決定。假設每單位產出需投入一單位的勞動，同時，需支付<math>w_i</math>的工資率，則企業之成本函數為<math>w_i L_i</math>。</p> <p>在此，可寫下廠商的利潤函數：</p> $\pi_i = (a - q_i - w_i)q_i, \quad (1)$ <p>其次，假設企業設有工會，所關心的不只是工資率，還在乎工會組織中的勞動就業量。工資決策方式採用同時議價(simultaneous bargaining setting)模型，工會</p>

對於工資率和勞動就業量之間具有相同的偏好程度，則工會的效用函數為：

$$U_i = (w_i - w_0)L_i(w_i, w_0), \quad (2)$$

其中， $w_0$ 是要素市場最低保留工資率， $L_i(w_i, w_0)$ 是企業雇用的勞動量，為簡化分析， $w_0$ 標準化為零。

若企業與工會處於工資談判情況，在工資議價過程中，企業與工會議價的標的報酬為利潤，同時，雙方採取 Nash 議價解(Nash bargaining solution)，企業與工會的 Nash 議價問題為：

$$w_i^c = \arg \max_{w_i} B_i = U_i^\beta \pi_i^{1-\beta} \quad (3)$$

其中 $\beta \in [0,1]$ ，為工會相對於企業經理人的議價能力，可能由談判技巧、時間偏好耐性等所衡量出，假設為外生給定(Binmore et al. 1986)。為簡化分析起見，在此僅考慮工會具有完全議價能力( $\beta = 1$ )及完全不具議價能力( $\beta = 0$ )兩種情況。

由於生產過程中，會造成環境污染，假設每單位消費所造成的污染量為 $e = \theta$ 。此時產業所造成的環境損害為 $ED = \theta q_i$ 。

社會福利為消費者剩餘(Consumer Surplus, CS)、廠商利潤以及環境損害的加總可表示為：

$$W = CS + \pi_i + U_i - ED \quad (4)$$

其中， $CS = \int_0^Q p(Q)dQ = Q^2 / 2$ 。

假設，工會先決定其最適的工資率，而後廠商決定市場上的最適產量。在此，遵循一般賽局理論的分析架構，假設市場的訊息為完全訊息，即賽局中的參與者對於市場中的需求、成本等各項訊息，皆能夠充分瞭解。因此，本賽局為訊息完全的動態賽局(dynamic game of complete information)，本研究將利用倒解法(backward induction)來求解此一賽局的子賽局完美那什均衡(Subgame-perfect Nash equilibrium, SPNE)。其決策時序如圖 1。

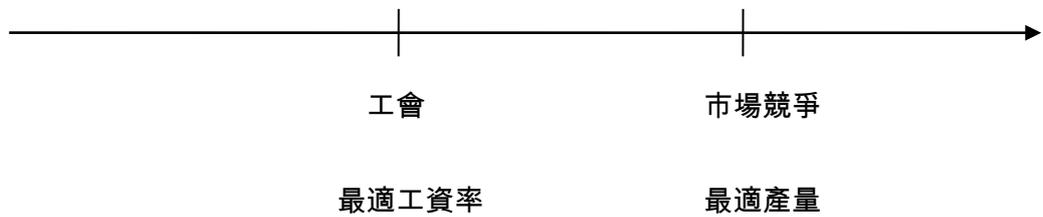


圖 1 賽局之決策時序

## 2.1 獨佔均衡

假設此一廠商的目標則為極大化自身利潤，則廠商最優產量選擇應滿足：

$$\frac{\partial \pi_i}{\partial q_i} = a - 2q_i - w_i = 0. \quad (5)$$

其二階條件可表示為：

$$\frac{\partial^2 \pi_i}{\partial q_i^2} = -2 < 0$$

上述條件表示，表示此一產量決策下，所求取之均衡產量，可保證廠商得到利潤最大的解。

利用式(5)可求解出

$$q_i^R(w_i) = \frac{1}{2}(a - w_i), \quad (6)$$

### 2.1.1 工會具有完全議價能力( $\beta = 1$ )

在工會具有完全議價能力下，工資的訂定為極大化工會效用決定，將式(5)代入式(2)，其一階條件為：

$$\frac{\partial U_i}{\partial q_i} = \frac{1}{2}(a - 2w_i) = 0 \quad (7)$$

同時，可以求解出工會的最優資工率為(以下標**M1**表示工會具有完全議價能力且無企業社會責任下之獨佔 Nash 均衡)：

$$w_{iM1}^* = \frac{a}{2} \quad (8)$$

此時，利用式(8)代入各式中，我們可以得到輔助定理 1。

**輔助定理 1:** 在工會具有完全議價能力且不考慮企業社會責任下，獨佔市場均衡為

$$p_{M1}^* = \frac{3a}{4}, \quad Q_{M1}^* = \frac{a}{4}, \quad \pi_{iM1}^* = \frac{a^2}{16},$$

$$U_{M1}^* = \frac{a^2}{8}, \quad CS_{M1}^* = \frac{a^2}{32}, \quad ED_{M1}^* = \frac{a\theta}{4},$$

$$W_{M1}^* = \frac{1}{32} a(7a - 8\theta)。$$

### 2.1.2 工會完全不具議價能力( $\beta = 0$ )

在工會完全不具議價能力下，工資的訂定為極大化企業利潤決定，此時，工資率將定在保留工資水準(以下標**M0**表示工會完全不具議價能力且無企業社會責任下之獨佔 Nash 均衡)：

$$w_{iM0}^* = 0 \quad (9)$$

此時，利用式(9)代入各式中，我們可以得到輔助定理 1。

**輔助定理 2:** 在工會完全不具議價能力且不考慮企業社會責任下，獨佔市場均衡為

$$p_{M0}^* = \frac{a}{2}, \quad Q_{M0}^* = \frac{a}{2}, \quad \pi_{iM0}^* = \frac{a^2}{4},$$

$$U_{M0}^* = 0, \quad CS_{M0}^* = \frac{a^2}{8}, \quad ED_{M0}^* = \frac{a\theta}{2},$$

$$W_{M0}^* = \frac{1}{8}a(3a - 4\theta)。$$

比較輔助定理 1 與 2，可以發現在工會不具議價能力下，其工資水準較低，但是產量較高，獨佔廠商利潤較高，消費者福利與社會福利也較高。主要是由於當工會不具備議價能力下，市場中的雙重邊際性效果消除，所得到的結果。

## 2.2 市場進入均衡

在考慮市場進入下，假設進入者與在位者的生產技術具備一致性，且其產量為  $q_j$ 。此時，市場供給量為  $Q = q_i + q_j$ 。同時，進入者必須支付給工會  $w_j$  的工資率，並假設兩者之工會結構為企業工會。可得進入廠商之利潤與工會效用函數為：

$$\pi_j = (a - Q - w_j)q_j, \quad (10)$$

$$U_j = w_j L_j, \quad (11)$$

在兩家廠商的目標則為極大化自身利潤下，廠商最優產量選擇應滿足：

$$\frac{\partial \pi_i}{\partial q_i} = a - 2q_i - q_j - w_i = 0. \quad (12)$$

$$\frac{\partial \pi_j}{\partial q_j} = a - q_i - 2q_j - w_j = 0. \quad (13)$$

其二階條件可表示為：

$$\frac{\partial^2 \pi_i}{\partial q_i^2} = -2 < 0$$

$$\frac{\partial^2 \pi_j}{\partial q_j^2} = -2 < 0$$

$$\frac{\partial^2 \pi_i}{\partial q_i \partial q_j} = \frac{\partial^2 \pi_j}{\partial q_i \partial q_j} = -1 < 0$$

$$\begin{vmatrix} \frac{\partial^2 \pi_i}{\partial q_i^2} & \frac{\partial^2 \pi_i}{\partial q_i \partial q_j} \\ \frac{\partial^2 \pi_j}{\partial q_i \partial q_j} & \frac{\partial^2 \pi_j}{\partial q_j^2} \end{vmatrix} = -2 \times -2 - (-1) \times (-1) = 3 > 0$$

上述條件表示，表示此一產量決策下，所求取之均衡產量，可保證廠商得到利潤最大的解。

利用式(12)與式(13)可求解出

$$q_i^R(w_i) = \frac{1}{3}(a - 2w_i + w_j), \quad (14)$$

$$q_j^R(w_j) = \frac{1}{3}(a + w_i - 2w_j), \quad (15)$$

### 2.1.1 工會具有完全議價能力( $\beta = 1$ )

在工會具有完全議價能力下，工資的訂定為極大化工會效用決定，將式(14)與式(15)代入式(2)與式(11)，求取其一階條件為：

$$\frac{\partial U_i}{\partial q_i} = \frac{1}{3}(a - 4w_i + w_j) = 0 \quad (16)$$

$$\frac{\partial U_i}{\partial q_i} = \frac{1}{3}(a + w_i - 4w_j) = 0 \quad (17)$$

同時，可以求解出工會的最優資工率為(以下標D1表示無企業社會責任下之雙占 Nash 均衡)：

$$w_{iD1}^* = w_{jD1}^* = \frac{a}{3} \quad (18)$$

此時，利用式(18)代入各式中，我們可以得到輔助定理 3。

**輔助定理 3:** 在工會具有完全議價能力且無企業社會責任下，雙占市場均衡為

$$p_{D1}^* = \frac{5a}{9}, \quad Q_{D1}^* = \frac{4a}{9}, \quad \pi_{iD1}^* = \pi_{jD1}^* = \frac{4a^2}{81},$$

$$U_{iD1}^* = U_{jD1}^* = \frac{2a^2}{27}, \quad CS_{D1}^* = \frac{8a^2}{81}, \quad ED_{D1}^* = \frac{2a\theta}{9},$$

$$W_{D1}^* = \frac{2}{81}a(14a - 9\theta)。$$

輔助定理 3 為雙佔市場下，廠考量未採取企業社會責任策略的均衡福利分配。比較獨佔均衡與雙佔均衡下的在位者的產量、利潤與工會效用可知

$$q_{iD1}^* - q_{iM1}^* = \frac{2a}{9} - \frac{a}{4} < 0$$

$$Q_{D1}^* - Q_{M1}^* = \frac{4a}{9} - \frac{a}{4} > 0$$

$$\pi_{iD1}^* - \pi_{iM1}^* = \frac{4a^2}{81} - \frac{a^2}{16} = -\frac{17a^2}{1296} < 0$$

$$U_{iD1}^* - U_{iM1}^* = \frac{2a^2}{27} - \frac{a^2}{8} = -\frac{11a^2}{216} < 0$$

此一結果表示，當新的廠商進入市場時，將會促使在位者的產量降低，市場的總產量增加，市場價格下降；在位者由於其產量下降，市場價格下降，因此利潤也會下降；在工會效用部分，由於在位者的產量與利潤下降，因此雇用數與工資率將同步下降，工會效用也隨之下降。

在此，比較廠商進入前後，市場總利潤、工會總效用及社會福利水準可得

$$(\pi_{iD1}^* + \pi_{jD1}^*) - \pi_{iM1}^* = 2 * \frac{4a^2}{81} - \frac{a^2}{16} = \frac{47a^2}{1296} > 0$$

$$(U_{iD1}^* + U_{jD1}^*) - U_{M1}^* = 2 * \frac{2a^2}{27} - \frac{a^2}{8} = \frac{5a^2}{216} > 0$$

$$W_{D1}^* - W_{M1}^* = \frac{2}{81} a(14a - 9\theta) - \frac{1}{32} a(7a - 8\theta) = \frac{a(329a+72\theta)}{2592} > 0$$

此一結果表示，當廠商進入市場後，市場總產量將會提高，因此消費者福利上升，社會總汙染量增加。同時，由於市場競爭程度提高，因此，工會以及廠商雙重邊際化的情況將會獲得改善，市場的總雇用增加，工資率下降，工會總效用以及廠商總利潤均獲得提升，此時，社會福利將會提高。

**推論 1：**在工會具有完全議價能力且市場進入下，若在位者不採取策略性企業責任，則市場總產量與污染總量均會增加，但是，由於競爭程度提高，工資率與產品價格均會下降，此時，消費者剩餘，廠商總利潤以及社會福利均獲得提高。

### 2.1.2 工會完全不具議價能力( $\beta = 0$ )

在工會完全不具議價能力下，工資的訂定為極大化企業利潤決定，可以求解出工會的最優資工率為(以下標D0表示無企業社會責任下之雙占 Nash 均衡)：

$$w_{iD0}^* = w_{jD0}^* = 0 \quad (19)$$

此時，利用式(19)代入各式中，我們可以得到輔助定理 4。

**輔助定理 4：**在工會完全不具議價能力且無企業社會責任下，雙占市場均衡為

$$p_{D0}^* = \frac{a}{3} , Q_{D0}^* = \frac{2a}{3} , \pi_{iD0}^* = \pi_{jD0}^* = \frac{a^2}{9} ,$$

$$U_{iD0}^* = U_{jD0}^* = 0 , CS_{D0}^* = \frac{2a^2}{9} , ED_{D0}^* = \frac{a\theta}{3} ,$$

$$W_{D0}^* = \frac{1}{9} a(4a - 3\theta) .$$

輔助定理 4 為雙佔市場下，在工會完全不具議價能力且廠商家考量未採取企業

社會責任策略的均衡福利分配。比較獨佔均衡與雙占均衡下的在位者的產量、利潤與工會效用可知

$$q_{iD0}^* - q_{iM0}^* = \frac{a}{3} - \frac{a}{2} < 0$$

$$Q_{D0}^* - Q_{M0}^* = \frac{2a}{3} - \frac{a}{4} > 0$$

$$\pi_{iD0}^* - \pi_{iM0}^* = \frac{a^2}{9} - \frac{a^2}{4} < 0$$

$$U_{iD0}^* - U_{M0}^* = 0 - 0 = 0$$

此一結果表示，當新的廠商進入市場時，將會促使在位者的產量降低，市場的總產量增加，市場價格下降；在位者由於其產量下降，市場價格下降，因此利潤也會下降；在工會效用部分，由於工會完全不具議價能力，因此僅能獲得保留水準的效用。

在此，比較廠商進入前後，市場總利潤、工會總效用及社會福利水準可得

$$(\pi_{iD0}^* + \pi_{jD0}^*) - \pi_{iM0}^* = 2 * \frac{a^2}{9} - \frac{a^2}{4} = -\frac{a^2}{36} < 0$$

$$(U_{iD0}^* + U_{jD0}^*) - U_{M0}^* = 2 * 0 - 0 = 0$$

$$W_{D0}^* - W_{M0}^* = \frac{1}{9}a(4a - 3\theta) - \frac{1}{8}a(3a - 4\theta) = \frac{1}{72}a(5a + 12\theta) > 0$$

此一結果表示，當廠商進入市場後，市場總產量將會提高，因此消費者福利上升，社會總污染量增加。同時，由於市場競爭程度提高，在工會完全不具議價能力，僅能獲得保留水準的工資，此時，廠商總利潤會下降，此時，社會福利將會提高。

推論 2：在工會完全不具議價能力且市場進入下，若在位者不採取策略性企業責任，則市場總產量與污染總量均會增加，產品價格與廠商總利潤會下降，此時，消費者剩餘以及社會福利均獲得提高。

### 參、企業社會責任策略效果分析

假設，在位者意識到企業社會責任的重要性，並可表現在消費者權益的重視方面。本研究的設定如同 Wang *et al.*(2012) 與 Chang *et al.* (2014)的處理，將消費者福利納入廠商的決策考量，在廠商重視消費者權益下，廠商會將消費者剩餘納入其決策目標之中。此時，廠商的目標函數可分別表示為：

$$\Omega_i^C = \pi_i + \rho_C CS, \quad (20)$$

其中， $\rho_C$  表示廠商對於消費者福利的關心程度。本研究的設定如同 Wang *et al.*(2012) 與 Chang *et al.* (2014)的處理，將消費者福利納入廠商的目標，不同的是，上述文獻設定為 $\rho_C = 1$ 。

在廠商的極大化其目標下，廠商最優產量選擇應滿足：

$$\frac{\partial \Omega_i^C}{\partial q_i} = a - w_i - q_i(2 - \rho_C) - q_j(1 - \rho_C) = 0. \quad (21)$$

$$\frac{\partial \pi_j}{\partial q_j} = a - q_i - 2q_j - w_j = 0. \quad (22)$$

其二階條件可表示為：

$$\frac{\partial^2 \Omega_i}{\partial q_i^2} = -(2 - \rho_C) < 0$$

$$\frac{\partial^2 \pi_j}{\partial q_j^2} = -2 < 0$$

$$\frac{\partial^2 \Omega_i}{\partial q_i \partial q_j} = -(1 - \rho_C) < 0$$

$$\frac{\partial^2 \pi_j}{\partial q_i \partial q_j} = -1 < 0$$

$$\begin{vmatrix} \frac{\partial^2 \Omega_i}{\partial q_i^2} & \frac{\partial^2 \Omega_i}{\partial q_i \partial q_j} \\ \frac{\partial^2 \pi_j}{\partial q_i \partial q_j} & \frac{\partial^2 \pi_j}{\partial q_j^2} \end{vmatrix} = -(2 - \rho_C) \times -2 - [-(1 - \rho_C)] \times (-1) = 3(1 - \rho_C) > 0$$

，當  $\rho_C < 1$

上述條件表示，表示此一產量決策下，所求取之均衡產量，可保證廠商得到利潤最大的解。

利用式(20)及式(21)可求解出

$$q_i^R(w_i) = \frac{a(1+\rho_C)-2w_i+w_j(1-\rho_C)}{3-\rho_C}, \quad (23)$$

$$q_j^R(w_j) = \frac{a(1-\rho_C)+w_i-w_j(2-\rho_C)}{3-\rho_C}, \quad (24)$$

### 3.1 工會具有完全議價能力

在工會具有完全議價能力下，工資的訂定為極大化工會效用決定，將式(22)及式(23)代入式(2)及式(11)，其一階條件為：

$$\frac{\partial U_i}{\partial q_i} = \frac{4a-4w_i-2w_j}{3-\rho_C} - a + w_j = 0 \quad (25)$$

$$\frac{\partial U_j}{\partial q_j} = a - 2w_j - \frac{2a-w_i-2w_j}{3-\rho_C} = 0 \quad (26)$$

同時，可以求解出工會的最優資工率為(以下標C1表示消費者導向企業社會責任下之均衡)：

$$w_{iC1}^* = \frac{a(5-\rho_C^2)}{15-7\rho_C} \quad (27)$$

$$w_{jC1}^* = \frac{a(5-3\rho_C)}{15-7\rho_C} \quad (28)$$

此時，利用式(27)及式(28)代入各式中，我們可以得到輔助定理 3。

**輔助定理 5:** 在工會具有完全議價能力且關注消費者導向之企業社會責任下，雙占市場均衡為

$$p_{C1}^* = \frac{a(-5+2\rho_C)(-5+3\rho_C)}{45-36\rho_C+7\rho_C^2}, \quad Q_{C1}^* = \frac{a(20+(-11+\rho_C)\rho_C)}{(3-\rho_C)(15-7\rho_C)},$$

$$\pi_{iC1}^* = \frac{2a^2(-10+(-5+\rho_C)(-4+\rho_C)\rho_C)(-5+\rho_C^2)}{(45-36\rho_C+7\rho_C^2)^2}, \quad \pi_{jC1}^* = \frac{a^2(-2+\rho_C)^2(-5+3\rho_C)^2}{(45-36\rho_C+7\rho_C^2)^2},$$

$$U_{iC1}^* = -\frac{2a^2(-5+\rho_C^2)^2}{(15-7\rho_C)^2(-3+\rho_C)}, \quad U_{jC1}^* = \frac{a^2(5-3\rho_C)^2(-2+\rho_C)}{(15-7\rho_C)^2(-3+\rho_C)},$$

$$CS_{C1}^* = \frac{a^2(20+(-11+\rho_C)\rho_C)^2}{2(15-7\rho_C)^2(-3+\rho_C)^2}, \quad ED_{C1}^* = \frac{a\theta(20+(-11+\rho_C)\rho_C)}{(-3+\rho_C)(-15+7\rho_C)},$$

$$W_{C1}^* = \frac{a(20+(-11+\rho_C)\rho_C)(70a-90\theta+\rho_C(-61a+72\theta+(13a-14\theta)\rho_C))}{2(15-7\rho_C)^2(-3+\rho_C)^2}.$$

輔助定理 5 為雙佔市場下，廠商考量消費者導向企業社會責任的均衡福利分配。在此，將均衡價格與總產量對消費者關心程度進行微分，可知：

$$\frac{\partial q_{iC}^*}{\partial \rho_C} = \frac{4}{3} a \left( \frac{5}{(15-7\rho_C)^2} + \frac{1}{(-3+\rho_C)^2} \right) > 0,$$

$$\frac{\partial q_{jC}^*}{\partial \rho_C} = \frac{1}{3} a \left( \frac{5}{(15-7\rho_C)^2} - \frac{2}{(-3+\rho_C)^2} \right) < 0,$$

$$\frac{\partial p_C^*}{\partial \rho_C} = \frac{1}{3}a \left( -\frac{25}{(15-7\rho_C)^2} - \frac{2}{(-3+\rho_C)^2} \right) < 0,$$

$$\frac{\partial Q_C^*}{\partial \rho_C} = \frac{1}{3}a \left( \frac{25}{(15-7\rho_C)^2} + \frac{2}{(-3+\rho_C)^2} \right) > 0。$$

此一結果表示，當在位者對消費者福利重視程度提高的情況下，將會促使自身產量增加，同時，降低進入者的生產水準，但是市場總產量將會上升，均衡價格會下降。

將廠商利潤、工會效用及社會福利對 $\rho_C$ 進行微分可得

$$\frac{\partial \pi_{iC}^*}{\partial \rho_C} = \frac{2a^2(-900+\rho_C(-1850+\rho_C(4125+\rho_C(-2650+\rho_C(768+\rho_C(-108+7\rho_C))))))}{(45-36\rho_C+7\rho_C^2)^3} < 0 \quad , \quad \text{當}$$

$$\rho_C \in (0,1)$$

$$\frac{\partial \pi_{jC}^*}{\partial \rho_C} = -\frac{2a^2(-2+\rho_C)(-5+3\rho_C)(135+\rho_C(-130+31\rho_C))}{(45-36\rho_C+7\rho_C^2)^3} < 0, \quad \text{當 } \rho_C \in (0,1)$$

$$\frac{\partial U_{iC}^*}{\partial \rho_C} = \frac{2a^2(5-\rho_C^2)(285-\rho_C(285+\rho_C(-87+7\rho_C)))}{(3-\rho_C)^2(15-7\rho_C)^3} > 0, \quad \text{當 } \rho_C \in (0,1)$$

$$\frac{\partial U_{jC}^*}{\partial \rho_C} = \frac{a^2(5-3\rho_C)(-195-\rho_C(-180+41\rho_C))}{(3-\rho_C)^2(15-7\rho_C)^3} < 0, \quad \text{當 } \rho_C \in (0,1)$$

$$\frac{\partial W_C^*}{\partial \rho_C} = \frac{a(225+\rho_C(-190+41\rho_C))(5(5a-9\theta)+\rho_C(-25a+36\theta+(6a-7\theta)\rho_C))}{(45-36\rho_C+7\rho_C^2)^3} > 0,$$

$$\text{當 } 0 < \rho_C < \frac{25a-36\theta+\sqrt{25a^2-20a\theta+36\theta^2}}{12a-14\theta}。$$

此一結果表示，當在位者關心消費者福利時，其產量將會提高，生產行為變得較為積極，因此，在位者的在工資率不變下，利潤應該要提高，同時，進入者的利潤會下降，此為企業社會責任的策略性效果。然而，在存在工會的情況下，在工資不變下，在位者利潤將會提高，但是工會將會提高工資，藉以剝奪其超額

利潤，在位者的利潤反而會隨著對消費者福利的關心程度上升而惡化。而進入者的利潤水準與工會效用，則會由於產量減少，市場價格下降，皆會出現隨著在位者對消費者福利的關心程度上升而惡化。

至於，在位者對於消費者福利的關心提高，一開始能夠促進社會福利的提高，但是，當在位者對於消費者福利太過於關心時，將使得社會的總汙染量提高，此時，社會福利反而下降。

**推論 3：**在工會具有完全議價能力，當在位者對於消費者福利關心程度上升時，消費者剩餘增加，廠商總利潤減少，工會效用增加，汙染總量增加；對於社會福利的影響將呈現先上升後下降的非線性關係。

### 3.2 工會完全不具議價能力

在工會完全不具議價能力下，工資的訂定為極大化企業利潤決定，可以求解出工會的最優資工率為(以下標 $CO$ 表示消費者導向企業社會責任下之均衡)：

$$w_{iCO}^* = w_{jCO}^* = 0 \quad (29)$$

此時，利用式(29)代入各式中，我們可以得到輔助定理 6。

**輔助定理 6：**在工會不具議價能力且不關注消費者導向之企業社會責任下，雙佔市場均衡為

$$p_{CO}^* = \frac{a(5-2\rho_C)(5-3\rho_C)}{45-36\rho_C+7\rho_C^2}, \quad Q_{CO}^* = \frac{2a}{3-\rho_C},$$

$$\pi_{iCO}^* = \frac{a^2(1-\rho_C^2)}{(3-\rho_C)^2}, \quad \pi_{jCO}^* = \frac{a^2(1-\rho_C)^2}{(3-\rho_C)^2},$$

$$U_{iCO}^* = 0, \quad U_{jCO}^* = 0,$$

$$CS_{CO}^* = \frac{2a^2}{(3-\rho_C)^2}, \quad ED_{CO}^* = \frac{2a\theta}{3-\rho_C},$$

$$W_{CO}^* = \frac{2a(2a-3\theta-(a-\theta)\rho_C)}{(3-\rho_C)^2}。$$

輔助定理 6 為雙佔市場下，廠商考量消費者導向企業社會責任的均衡福利分配。在此，將均衡價格與總產量對消費者關心程度進行微分，可知：

$$\frac{\partial q_{iC}^*}{\partial \rho_C} = \frac{4a}{(3-\rho_C)^2} > 0,$$

$$\frac{\partial q_{jC}^*}{\partial \rho_C} = -\frac{2a}{(3-\rho_C)^2} < 0,$$

$$\frac{\partial p_C^*}{\partial \rho_C} = \frac{1}{3}a\left(-\frac{25}{(15-7\rho_C)^2} - \frac{2}{(-3+\rho_C)^2}\right) < 0,$$

$$\frac{\partial Q_C^*}{\partial \rho_C} = \frac{2a}{(3-\rho_C)^2} > 0。$$

此一結果表示，當在位者對消費者福利重視程度提高的情況下，將會促使自身產量增加，同時，降低進入者的生產水準，但是市場總產量將會上升，均衡價格會下降。

將廠商利潤、工會效用及社會福利對  $\rho_C$  進行微分可得

$$\frac{\partial \pi_{iC}^*}{\partial \alpha_C} = \frac{2a^2(1-3\rho_C)}{(3-\rho_C)^3} > 0, \text{ 當 } \rho_C \in (0,1)$$

$$\frac{\partial \pi_{jC}^*}{\partial \alpha_C} = \frac{4a^2(-1+\rho_C)}{(3-\rho_C)^3} < 0, \text{ 當 } \rho_C \in (0,1)$$

$$\frac{\partial U_{iC}^*}{\partial \alpha_C} = 0, \text{ 當 } \rho_C \in (0,1)$$

$$\frac{\partial U_{jC}^*}{\partial \alpha_C} = 0, \text{ 當 } \rho_C \in (0,1)$$

$$\frac{\partial W_C^*}{\partial \alpha_C} = \frac{2a(a-3\theta-(a-\theta)\rho_C)}{(3-\rho_C)^3} > 0,$$

$$\text{當 } 0 < \rho_c < 3 - \frac{2a}{a-\theta} \text{。}$$

此一結果表示，當在位者關心消費者福利時，其產量將會提高，生產行為變得較為積極，因此，在位者的在工資率不變，利潤會提高，同時，進入者的利潤會下降，此為企業社會責任的策略性效果。而進入者的利潤水準與工會效用，則會由於產量減少，市場價格下降，皆會出現隨著在位者對消費者福利的關心程度上升而惡化。

至於，在位者對於消費者福利的關心提高，一開始能夠促進社會福利的提高，但是，當在位者對於消費者福利太過於關心時，將使得社會的總汙染量提高，此時，社會福利反而下降。

**推論 4：當工會不具議價能力且在位者對於消費者福利關心程度上升時，消費者剩餘增加，廠商總利潤減少，工會效用增加，汙染總量增加；對於社會福利的影響將呈現先上升後下降的非線性關係。**

研究結果

本研究利用具有生產外部性與工會的寡占市場模型，探討市場進入下對於在位者企業社會責任策略之選擇，以及其對社會福利分配的影響。結果發現：1、在工會具有完全議價能力且市場進入下，若在位者不採取策略性企業責任，則市場總產量與汙染總量均會增加，但是，由於競爭程度提高，工資率與產品價格均會下降，此時，消費者剩餘，廠商總利潤以及社會福利均獲得提高。2：在工會完全不具議價能力且市場進入下，若在位者不採取策略性企業責任，則市場總產量與汙染總量均會增加，產品價格與廠商總利潤會下降，此時，消費者剩餘以及社會福利均獲得提高。3、在工會具有完全議價能力，當在位者對於消費者福利關心程度上升時，消費者剩餘增加，廠商總利潤減少，工會效用增加，汙染總量增加；對於社會福利的影響將呈現先上升後下降的非線性關係。4、當工會不具議價能力且在位者對於消費者福利關心程度上升時，消費者剩餘增加，廠商總利潤減少，工會效用增加，汙染總量增加；對於社會福利的影響將呈現先上升後下降的非線性關係。

研究貢獻	<p>本研究發現：若允許產業結構由獨佔市場下，允許新的進入者加入。當工會具有完全議價能力時，在位者採行消費者導向之策略性社會責任，將不利於自身的利潤水準。因此，在位者並沒有動機去執行企業的社會責任。反之，當工會完全不具有議價能力時，採行消費者導向之策略性社會責任，將有助於企業的利潤水準上升。</p> <p>也就是說，工會議價能力將影響企業採行企業社會責任策略的意願。當工會議價能力不是太高時，企業才會有意願採行企業社會責任策略，同時獲致比較高的利潤。</p>
未來研究方向	<p>本研究為一特殊案例，即在工會具有完全議價能力(<math>\beta = 1</math>)及完全不具議價能力(<math>\beta = 0</math>)兩種情況進行討論；未來研究方向，希望能將工會議價能力的設定採取一般化的作法，即<math>\beta \in [0,1]</math>的情況進行討論，並進行相關的比較靜態分析，了解議價能力對於企業社會責任採行及其程度之影響。</p>

篇名	<i>Optimal Privatization Policy with Asymmetry among Private Firms</i>
作者	<i>Junichi Haraguchi and Toshihiro Matsumura</i>
出處	MPRA Paper No. 77523, posted 15 March 2017
摘要	<p>This paper revisits the relationship between the optimal privatization policy and market competition indexes, such as the Hirschman–Herfindahl index. When HHI decreases, firms will less asymmetry which means less market concentration. The literature on mixed oligopolies suggests that the optimal degree of privatization is increasing with the number of private firms, assuming that all private firms are homogeneous. This paper investigates how the asymmetry among private firms affects the optimal degree of privatization, and propose the simplest and natural model formulation for discussing asymmetry among private firms. Find that the optimal degree of privatization is either nonmonotone or monopolistically increasing in the asymmetry among private firms.</p>
研究動機	<p>The literatures assumed that private firms are symmetric (homogeneous), and these results suggest that the lesser the market is concentrated, the more the government should privatize the public firms. However, in this paper considers that the market concentration index also depends on the heterogeneity among firms, and should more carefully investigate the relationship between the market concentration index and the optimal privatization policy when the heterogeneity among the firms is non-negligible.</p>
模型	<p>This paper uses mixed triopoly model and assumes that these firms produce homogeneous products, mkt demand function is <math>p(Q) = a - Q</math>, and the cost function is <math>(C_i) = \frac{k}{2m_i} q_i^2 + m_i F</math>, where <math>m_0=1</math>, <math>m_1+m_2=m</math> and <math>m_1 \geq m_2</math>. When <math>m_1</math> increases and means that firms are more asymmetric. And we can get <math>\pi_i = P(Q) q_i - C(q_i)</math>. Following the standard approach in the literature formulated by Matsumura (1998) assume that the public firm's objective function is a convex combination of social surplus and its respective profit, <math>\Omega = \alpha \pi_0 + (1 - \alpha) W</math>, where</p> $W = \int_0^Q p(q) dq - pQ + \sum_{i=0}^2 \pi_i = \int_0^Q p(q) dq - \sum_{i=0}^2 c_i(q), \alpha \in [0, 1] \text{ and}$ <p><math>\alpha</math> is degree of privatization. If <math>\alpha=0</math> which means full nationalization, and</p>

	<p>Public firm will maximize <math>W</math>; <math>\alpha=1</math> which means full privatization, and Public firm will maximize <math>\pi_0</math>. The government choose <math>\alpha</math> to max <math>W</math>. Each firm simultaneously choose <math>q_i</math> to maximize the objective function</p>
<p>研究 結果</p>	<p>This paper investigates the relationship between optimal degree of privatization and the asymmetry among private firms. And find two effects between them. First is the production–substitution effect which means as long as the marginal cost is higher in the public firm than in each private firm, this production substitution improves the production efficiency in the industry and thus improves welfare. When the number of private firms is larger, the output of each private firm is smaller, and thus, the marginal cost of each private firm is smaller. Therefore, the more private firms, the stronger this welfare-improving. And, proposition 2 states that an increase in <math>m_1</math> increases the price–cost margin in the larger firm (firm 1) and reduces it in the smaller firm (firm 2). Therefore, production substitution from firm 0 to firm 1 is more important than firm 2 as <math>m_1</math> increases.</p> <p>Second is the total output effect which is an increase in <math>\alpha</math> reduces the total output and reduces welfare. When the number of private firms is larger, the total output is larger, and thus, a welfare loss caused by a reduction of total output is smaller. And, Proposition 1 states that an increase in <math>m_1</math> reduces the total output. Thus, by the total output effect, the optimal degree of privatization is decreasing in <math>m_1</math>.</p> <p>Moreover, the slope of the reaction curve is more steep as <math>m_1</math> increases, and an increase in <math>\alpha</math> more significantly affects firm 1’s output. It implies that the production–substitution effect is more effective as <math>m_1</math> increases, and this effect dominates the total output effect, especially when <math>m_1</math> is large. Consequently, these two effects yield the result that the optimal degree of privatization is increasing with the number of private firms.</p>
<p>研究 貢獻</p>	<p>This paper find that the optimal degree of privatization of the public firm is either increasing with or has a nonmonotone (U-shape) relationship with the degree of asymmetry among private firms. Moreover, in the literature on mixed oligopolies, a cost difference between public and private firms is</p>

	<p>often assumed, most works do not consider a cost difference among private firms. The cost asymmetry among private firms may have a significant implication in mixed oligopolies, and future research needs to investigate this problem in other contexts in mixed oligopolies.</p>
<p>未來 研究 方向</p>	<p>The triopoly model is the simplest model allowing a cost difference among private firms. However, as Haraguchi and Matsumura (2016) showed, the property of mixed oligopoly may change as the number of private firms exceeds a critical value. Therefore, extending this analysis to an n-firm oligopoly may be a promising future research topic.</p> <p>In this study, they assume that both firms are domestic. In the literature on mixed oligopolies, the nationality of the private firms affects the equilibrium outcomes, especially affecting the optimal privatization policy. Extending this analysis to this direction remains a scope for future research.</p>

篇名	<i>Firms' Costs, Profits, Entries, and Innovation under Optimal Privatization Policy</i>
作者	<i>Junichi Haraguchi<sup>a</sup>, Toshihiro Matsumura<sup>b</sup></i> <i>a Faculty of Economics, Gakushuin University, Japan</i> <i>b Institute of Social Science, The University of Tokyo, Japan</i>
出處	MPRA Paper No. 80927, August 2017
摘要	<p>This paper investigates how cost conditions of private firms affect optimal privatization policy and private firms' profits. They find that the optimal degree of privatization is decreasing with the costs of private firms unless the public firm is fully privatized in equilibrium. A cost reduction in a private firm increases the degree of privatization and benefits for all private firms. Therefore, each private firm's profit is increasing with its rival private firms' costs, which is in contrast to the result when the degree of privatization is given exogenously. This interesting property yields two important results. The profit of each private firm can increase with the number of private firms, and the positive externality of innovation accelerates private firms' R&amp;D.</p>
研究動機	<p>For more than 50 years, they have observed a worldwide wave of the privatization of state-owned public enterprises. Nevertheless, many public and partially privatized enterprises are still active in planned and market economies in developed, developing, and transitional countries. While some public enterprises are traditional monopolists in natural monopoly markets, a considerable number of public and partially privatized enterprises competes with private enterprises in a wide range of industries. Optimal privatization policies in such mixed oligopolies have attracted extensive attention from economics researchers in such fields as industrial organization, international economics, public economics, financial economics, and development economics.</p>

<p>模型</p>	<p>In this study, they allow cost asymmetry among private firms. This enriches the analysis of mixed oligopolies. For example, suppose that a decrease in private firms' costs increases these firms' profits. If we allow asymmetric costs among private firms, they decompose this cost-reduction effect into the following two effects. The effect of the reduction of a firm's own cost and that of its rival's cost. Then, can investigate how the rival's cost affects profits and thus, the behavior of other private firms.</p> <p>In this study, they use the model of Pal (1998) with linear demand and constant marginal costs, and we allow cost differences among private firms. They adopt the partial privatization approach of Matsumura (1998) and endogenize the degree of privatization.</p>
<p>研究 結果</p>	<p>In this study, they introduce cost differences among private firms and investigate how a private firm's cost affects the optimal degree of privatization and profits of private firms. They find that a cost reduction of a private firm reduces the optimal degree of privatization, which is beneficial for all private firms. Therefore, a cost reduction of a private firm increases the profits of all private firms, which never holds when the degree of privatization is given exogenously. In addition, we find that the new entry of a private firm is beneficial for all incumbent private firms because it increases the degree of privatization. Finally, they discuss innovation of private firms and find that expecting future privatization accelerates innovation activities of private firms.</p>
<p>研究 貢獻</p>	<p>They investigate the relationship between the new entry of a private firm and the optimal degree of privatization. They find that the new entry of a private firm increases the degree of privatization, which increases the profits of all private firms. By contrast, if the degree of privatization is given exogenously, the new entry of a private firm decreases the profits of all incumbent private firms.</p> <p>They investigate an innovation incentive for private firms, and formulate a model in which private firms engage in cost-reducing R&amp;D investments with externality among private firms. They find that private firms more intensively engage in innovation when the degree of privatization is endogenous. In</p>

	<p>addition, they find that R&amp;D expenditure is increasing with the degree of spillover effect among private firms and the number of private firms when the degree of privatization is endogenous.</p> <p>These findings are because a decrease of one private firm's cost increases the profits of all private firms. These results suggest that the timing of privatization affects the entry decision and innovation activities of private firms.</p>
未來 研究 方向	<p>In this study, they assume that private firms are domestic. In the literature on mixed oligopolies, it is known that the nationality of private firms often affects the behavior of a public firm and the optimal privatization policy. To extend our analysis in this direction is difficult work and remains for future research.</p>

