科技部人文社會科學研究中心

補助學術研究群暨經典研讀班成果報告

貿易、產業與公共經濟理論學術研究群 4

計畫編號：MOST 107-2420-H-002-007-MY3-SG10910
MOST 110-2420-H-002-003-MY3-SG11003
執行期間： 109 年 7 月 1 日至 110 年 6 月 30 日
計畫召集人：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　110　年　6 月　30 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學術研究群 4

計畫編號：MOST 107-2420-H-002-007-MY3-SG10910
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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：楊雅博、吳世傑、李仁耀、蔡建樹、鄭義暉、佘志民、許淑瑛、蔡穎義
兼任助理：郭毓妮

中 華 民 國 110 年 6 月

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：研究群成員在補助期間共發表 10 篇論文

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）。

本研究群在自 2014 年連續接受中央研究院人文社會科學研究中心補助經費四次以來，至今共發表或被接受 33 篇期刊論文，其中包含 20 篇 SSCI 期刊(包含經學門 **A 級：1 篇**，**B^+ 級：6 篇**，B 級：6 篇，其它：9 篇。)，TSSCI 經學門第一級：4 篇，其它期刊 8 篇。根據以上成果，足見研究群多年的努力已達到預期提升南部地區經濟學學術研究水準的效果。

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：**MOST 107-2420-H-002-007-MY3-SG10910 MOST 110-2420-H-002-003-MY3-SG11003
計畫名稱：貿易、產業與公共經濟理論學術研究群 4	

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	3		
		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	
國外	學術性論文	期刊論文	9	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	5	人次	
		副教授	3		
		助理教授			
		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。)					

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 10 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 年起連續接受科技部人文社會科學研究中心經費補助，近五年內至今共發表或被接受 **33** 篇期刊論文，其中包含 20 篇 SSCI 期刊(包含經學門 A 級：**1 篇**，B+ 級：**6** 篇，B 級：**6** 篇，其它：**7** 篇。)，TSSCI 經學門第一級：4 篇，其它期刊 9 篇。研究群成員發表的文章涵蓋科技部經濟學門認可的 **A** 級及 B 級以上期刊，足見研究群的努力達到預期的成效，希望研究群能夠繼續獲得經費的補助，在更多及更好的期刊發表，以提升南部的研究水準。

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 33 economic journal papers, including 20 in SSCI Journals (1 classified as level A, 6 classified as B^+, 6 classified as B and 7 others), 4 in TSSCI economic journals (classified as level A) and 9 in others.

Keywords：International Trade、Industrial Organization、Public Economics

目錄

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 10 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 10 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 3 位、高雄科技大學 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、中山大學政治經濟所、高雄科技大學國際企業所及高雄大學應用經濟所共 16 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	高苑科技大學觀光事業管理系	副教授	社群成員
許淑嫕	南台科技大學國際企業系	教授	社群成員
佘志民	高雄大學應用經濟學系	副教授	社群成員

三、研究群的運作方式

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

本研究群計畫執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 46 週，報告 49 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

項次	日期	報告人	篇名	出處
1	2020/7/6	郭毓妮	Tax incidence on competing two-sided platforms	Journal of Public Economic Theory. 2017;1–13.
2	2020/7/13	蔡冠緯	Managerial Delegation of Competing Vertical Chains with Vertical Externality	The B.E. Journal of Theoretical Economics. 2020; 20190029
3	2020/7/20	楊雅博	Cartels and tacit collusion	Industrial Organization - Markets and Strategies
4	2020/7/27	楊雅博	Cartels and tacit collusion	Industrial Organization - Markets and Strategies
5	2020/8/3	郭毓妮	Economic integration and the sustainability of multimarket collusion	Economics Letters 117 (2012) 42–44
6	2020/8/10	蔡冠緯	Multi-market collusion with territorial allocation	International Journal of Industrial Organization Volume 41, July 2015, Pages 42-50
7	2020/8/17	李依潔	Trade liberalization, forward-looking firms, and	Review of International

			welfare	Economics 25.5 (2017): 999-1016.
8	2020/8/31	吳世傑	Horizontal mergers	Industrial Organization - Markets and Strategies
9	2020/9/7	陳彥蓉	Taxation and the sustainability of collusion: ad valorem versus specific taxes	Journal of Economics,125(2), 173-188.
10	2020/9/14	郭毓妮	Free entry under common ownership	Economics Letters 195 (2020) 109489
11	2020/9/21	蔡冠緯	Profit taxation and the mode of foreign market entry	Canadian Journal of Economics/Revue canadienne d'économique, 43(2), 704-727.
12	2020/9/28	佘志民	Strategic incumbents and entry	Industrial Organization - Markets and Strategies
13	2020/10/5	佘志民	Strategies affecting cost variables	Industrial Organization - Markets and Strategies
14	2020/10/12	李依潔	Optimal cross-licensing arrangements: Collusion versus entry deterrence	European Economic Review 120 (2019): 103315.
15	2020/10/19	高國峯	The Effects of Parallel Trade in Two-sided Markets	Economics Letters, 199, 109721.
16	2020/10/26	陳彥蓉	Aggressive leaders.	The RAND Journal of Economics, 37(1), 146-154.

17	2020/11/2	陳俐廷	Duopoly and quality standards.	European Economic Review, 39(1), 71-82.
18	2020/11/9	謝耀陞	Upstream horizontal mergers involving a vertically integrated firm	Journal of Economics (2020) 130:67–83
19	2020/11/16	郭毓妮	On the welfare impact of mergers of complements: Raising rivals' costs versus elimination of double marginalization	Economics Letters 195 (2020) 109429
20	2020/11/23	陳金盛	Input Price Discrimination and Allocation Efficiency	Working paper
21	2020/11/30	鄭義暉	Vertically related markets	Industrial Organization - Markets and Strategies
22	2020/12/7	蔡冠緯	Passive backward acquisitions and downstream collusion	Economics Letters, 197, 109611.
23	2020/12/14	鄭義暉	Exclusive dealing	Industrial Organization - Markets and Strategies
24	2020/12/21	蔡建樹	Innovation and R&D	Industrial Organization - Markets and Strategies
25	2020/12/28	蔡建樹	R&D cooperation and spillovers	Industrial Organization - Markets and Strategies
26	2020/1/4	沈彥孝 吳玖展	1.Endogenous vertical segmentation in a Cournot oligopoly	1.Journal of Economics, 131(2), 181-195.

			2. The optimal level of corporate social responsibility based on the duopoly model	2. Managerial and Decision Economics,42(1), 177-184
27	2020/1/11	莊佳芸 李東旭	1.Analysis of merger control in a network products market. 2. Quality–Price Competition and Product R&D Investment Policies in Developing and Developed Countries.	1.The Manchester School Vol 87 No. 5 2. Economic Record, 90(289), 197-206.
28	2021/1/18	蔡宛螢 王冠智	1.Endogenous third-degree price discrimination in Hotelling model with elastic demand 2. Fixed costs matter even when the costs are sunk	1.Journal of Economics, 127(2), 125-145 2. Economics Letters, 195, 109428.
29	2021/1/25	郭毓妮	Strategic corporate social responsibility, imperfect competition, and market concentration	Journal of Economics (2020) 129:79–101
30	2021/2/1	蔡冠緯	Product compatibility as a signal of quality in a market with network externalities	International Journal of Industrial Organization 20 (2002) 949–964
31	2021/2/22	郭毓妮	Intra-brand competition in a differentiated oligopoly	Journal of Economics (2021) 132:1–40
32	2021/3/8	郭文忠	Spatial Price Discrimination, Online Competition, and Optimal Zoning under an Urban-	Working paper

			Rural Framework	
33	2021/3/15	吳世傑	Markets with intermediated goods	Industrial Organization - Markets and Strategies
34	2021/3/22	吳世傑	Intermediaries as matchmakers	Industrial Organization - Markets and Strategies
35	2021/3/29	蔡建樹	多產品公營事業民營化的福利分析	Working paper
36	2021/4/12	蔡冠緯	Strategic inattention, delegation and endogenous market structure	European Economic Review 121(2010)103324
37	2021/4/19	蔡建樹	Intertemporal price discrimination	Industrial Organization - Markets and Strategies
38	2021/4/26	楊雅博	Markets with network goods	Industrial Organization - Markets and Strategies
39	2021/5/3	楊雅博	Markets for several network goods	Industrial Organization - Markets and Strategies
40	2021/5/10	陳彥蓉	Outsourcing, vertical integration, and price vs. quantity competition.	International Journal of Industrial Organization, 26(1), 1-16.
41	2021/5/17	李依潔	Transfer pricing regulation and tax competition.	Journal of International Economics, 127, 103367

42	2021/5/24	彭傳舜	Mergers and innovation sharing	Economics Letters Volume 202, May 2021, 109841
43	2021/5/31	李仁耀	Cross-ownership and corporate social responsibility	Manchester School, 24(2), 1–18
44	2021/6/7	鄭義暉	Dynamic aspects of imperfect competition	Industrial Organization - Markets and Strategies
45	2021/6/21	佘志民	Strategies for network goods	Industrial Organization - Markets and Strategies
46	2021/6/28	李中揚	Strategic trade policy with interlocking cross-ownership	Journal of Economics (2021), 1-28.

(二)邀請國內、外經濟學者互動

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 研究群邀請之國內外講員

來訪日期	姓名	任職單位與職稱	報告題目
2020/10/19	高國峯	淡江大學產業經濟系副教授	The Effects of Parallel Trade in Two-sided Markets
2020/11/23	陳金盛	東吳大學國際經營與貿易學系副教授	Input Price Discrimination and Allocation Efficiency
2021/3/8	郭文忠	國立台北大學經濟系教授	Spatial Price Discrimination, Online Competition, and Optimal Zoning under an Urban-Rural Framework

(三)研究群成員一年來的研究成果

本研究群成員的學術成果如下：

五年來發表期刊論文共 33 篇，SSCI 經學門 20 篇(含 A 級：**1 篇**，B^+ 級：**6** 篇，B 級：**6** 篇，其它：7 篇)，TSSCI 經學門第一級：**4** 篇，其它：9 篇。研討會論文共 12 篇。進行中論文共 8 篇。碩士論文 7 篇(含進行中 2 篇)。

(1) 期刊論文

i. 前一年內發表論文

1. Lee C-H., **Lee, J-Y.** and L. F. S. Wang (2021). Foreign Ownership and Optimal Discriminatory Tariffs under Oligopolistic Competition" , ***Economia Internazionale*** (International Economics), 74(1), 97-114. **(Econlit)**
2. Hsiu-Chin Hsieh, Huynh Xuan Nguyen, Tien-Chin Wang* and **Jen-Yao Lee** (2020). Prediction of Knowledge Management for Success of Franchise Hospitality in a Post-Pandemic Economy, ***Sustainability***, 12, 8755. Doi:10.3390/su12208755 **(SSCI)**
3. Lee, C.-H., Ko, P.-S., Wang, Y.-L., **Lee, J.-Y**. and Kwo, J.-H. (2020) Centralized and Decentralized Recycle Policy with Transboundary Pollution. ***Environments*** 7, 40. doi: 10.3390/environments7050040 **(ESCI)**
4. **Ya Po Yang, Ying Yi Tsai and Su Ying Hsu** (2021). Technology licensing, entry mode, and trade liberalization. ***Review of Development Economics,*** 25(2)**,** 834-853**(SSCI B)** (Accepted).
5. 陳宏易、楊雅博、王穎達（2020）。關稅簡化、垂直差異化產品和社會福利。***經濟論文叢刊***。本人為通訊作者(**TSSCI經濟學門一級**) (Accepted)
6. **Wu, Shih-Jye** and Chang, Yang-Ming (2020). Insecure Resources, Bilateral Trade, and Endogenous Predation: A Game-Theoretic Analysis of Conflict and Trade. ***Southern Economic Journal.*** (Accepted). **(SSCI B+).**
7. Novak, Marko and ***Su-Ying Hsu*** (2020). Productivity of Banks in Croatia. ***Empirical Economics Review.*** **(Econlit)** (Accepted).
8. Novak, Marko and Su-Ying Hsu (2020, Dec). Efficiency of Banks in Croatia.

Economic Insights-Trends and Challenges. **(Econlit)** (Accepted).

9. Qidi Zhang and Leonard F.S. Wang and Yapo Yang2 (2020). Indirect taxation with shadow cost of public funds in mixed oligopoly. ***Managerial and Decision Economics*****,** 41(3), 415-425. (**SSCI**)
10. Chiang-Ming Chen, Chih-Min She and Yu-Chen Lin (2020). The effect of travel experience on price-satisfaction link - evidence from group package tours. ***Current Issues in Tourism***. 23(3). 317-322 (**SSCI**).

ii. 前二至五年發表論文

1. Ku-ChuTsao, **Shih-Jye Wu**, Jin-Li Hu and Yan-Shu Lin (2019).Subcontracting Bargaining Power and the Trade Policy. ***The Journal of International Trade & Economic Development*** , 28(1), 82-100.**(SSCI)**
2. Sajal Lahiri, **Yingyi Tsai** (2019). Foreign Penetration and Domestic Competition. ***Journal of Economics*** *128, 27-45.* **(SSCI B+).**
3. Tsai, Ting-Chung., Cheng, Kuang-Feng., Hsu, Chu-Chuan., Tsai, Chien-Shu., Chen, Chien-chih. and **Lee, Jen-Yao**. (2019), Does Uniform Wage Decline the Welfare in a Budget-Constraint Mixed Market? ***Modern Economy,*** 10, 474-483. **(EconLit)**
4. Tsai, C.S., Tsai, T.C., Ko, P.S., Lee, C.H., **Lee, J.Y.** and Y.L. Wang. (2019), On the Sustainability of Technology Licensing Under Asymmetric Information Game, ***Sustainability***, 11, 6959. **(SSCI)**
5. Jingjing Zhang, Riccardo Leoncini, **Yingyi Tsai** (2018). Intellectual property rights protection, labour mobility and wage inequality. ***Economic Modelling***, 70, 239-44. **(SSCI B)**.
6. Cheng, K.F., C.S. Tsai, C.C. Hsu, S.C. Lin, T.C. Tsai, and **J.Y. Lee**, (2018), Emission Tax and Compensation Subsidy with Cross-Industry Pollution,

Sustainability, 11, 998. **(SSCI)**

7. Chen, D., L.F.S. Wang, and **J.Y. Lee**, (2018), Foreign Ownership, Privatization and Subsidization with Shadow Cost of Public Funds, ***North American Journal of Economics and Finance.*** **(SSCI)**
8. **Hsu, Su-Ying** and Chu-Ping Lo (2018), "Market Concentration and Licensing Royalty inAsymmetric Oligopoly," ***Academia Economic Papers***, 46(4), 637-670. ***(TSSCI經濟學門一級)***
9. Tsung-Kai Chu, Han-Yu Liu and Su-Ying Hsu (2018), "A Comparative Study of CustomerBehaviors in Brand Image and Peer Pressure-the Case of S University," ***Journal of Advertising and Public Relations***, 1(2), 1-8.
10. Hui-Chen Tsai, Jin-Li Hu, **Su-Ying Hsu** (2018). Population Size, Infrastructure Quality, and Tax Competition. ***Agriculture and Economics***, 61,1- 22.
11. Novak, Marko and **Su-Ying Hsu** (2018), "Profitability of Banks in the Serb Republic," ***Applied Science and Management Research*** 5(1).
12. **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一級)***
13. 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+**)
14. **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+**)
15. 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**)
16. 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**).

17. Alireza Naghavi, Shin-Kun Peng, **Yingyi Tsai** (2017). Relationship-specific Investments and Intellectual Property Rights Enforcement with Heterogeneous Suppliers. ***Review of International Economics***, 25(3), 626-648. (**SSCI B+**)
18. **Yingyi Tsai** and Arijit Mukherjee (2017). Domestic patenting systems and foreign licensing choices. ***Journal of Economics,*** 121 (2); 173-191. (**SSCI B+**).
19. Lei Yang, **Yingyi Tsai** and Arijit Mukherjee (2016). Intellectual Property Rights and the Quality of Transferred Technology in Developing Countries. ***Review of Development Economics,*** 20(1), 239-249. (**SSCI B**). .
20. Lo, C. P. and **Hsu, S. Y.** (2016). International Outsourcing, FDI, and Middleman Strategy. ***Transylvanian Review ,*** Vol 14 (5), 421-431.
21. **Yingyi Tsai**, Arijit Mukherjee, Jong-Rong Chen (2016). Host market competition, foreign FDI and domestic welfare. ***International Review of Economics and Finance***, 42(1), 13-22. (**SSCI, B**).
22. 蔡明芳與**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 一級)**。
23. **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**)

(2) 研討會論文

1. **Ya-Po Yang**, Leonard F.S. Wang and Qidi Zhang, (2020). Ad Valorem vs. Specific Tariff and Welfare Superiority in Mixed Oligopoly with Foreign Competition: 台灣經濟學會 2020 年年會(淡江大學主辦)。
2. **鄭義暉、吳世傑與蔡建樹**(2020)。多產品公營事業民營化的福利分析。台灣經

濟學會 2020 年年會(淡江大學主辦)。

3. **Shih-Jye Wu** and Chung-Hsing Hsieh (2020).Mixed Market Structure, Concentration and Welfare.台灣經濟學會 2020 年年會(淡江大學)。
4. **Chih-Min She, Y. P. Yang, and Wu, Shih-Jye**,(2019). "Fixed Cost, Location and Social Welafre ." 第八屆網路與貿易研討會議程,中央研究院人社中心制度與行為研究專題中心暨國立臺灣大學經濟學系。
5. **Ya-Po Yang**, Li-Cheng Chen (2019), Certification of Green goods and Export Policy : Tokyo 38th International Conference on " Business, Economics, Social Science & Humanities- BESSH-2019".
6. **Ya-Po Yang**, Chih-Yung Wang, (2019), Trade Policies, Collusion and Welfare : Tokyo 38th International Conference on " Business, Economics, Social Science & Humanities- BESSH-2019"
7. **楊雅博**與廖鈺琳(2019)，混合寡占與進口政策, 2019 國際商務研討會(淡江大學)。
8. **吳世傑、楊雅博與佘志民**(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。
9. **佘志民與楊雅博**(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。
10. 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。
11. **Chih-Min She** (2016). Endogenous Location and Spatial Price Discrimination with Public Infrastructure. PET 2016 (Association of Public Economics Theory)
12. **Chih-Min She and Ya Po Yang** (2016)，Uniform vs Discriminatory Pricing in Spatially Separate Market. 2016 International Conference on Business and

Information.

(3) 成員進行的 works in progress

1. **Ya-Po Yang** and Hung-Yi Chen “Pollution Abatement, Eco-firm, and Privatization”.
2. **I-Hui Cheng** and **Ya-Po Yang**, “Corporate Social Responsibility and Trade Policy”.
3. **Ya-Po Yang** and Leonard F.S. Wang, “Sustainability of Trade Agreement, Import Tariff and Global Welfare”
4. Leonard F.S. Wang., **Ya-Po Yang** and Qidi Zhang. “Ad Valorem vs. Specific Tariff and Welfare Superiority.”
5. **Chih-Min She, Shih-Jye Wu** and **Ya-Po Yang**, “Pricing Internal Trade, Licensing External Rivals, and Market Performance.”
6. **Ya-Po Yang**, “On the Certification of credence in an Oligopoly market,”
7. **Chih-Min She**. “Effects of Spatial Price Discrimination with an Input Source.”
8. **Shih-Min She** and Leonard F.S. Wang, “Market Structure, Private Goods and Public Goods”

(4) 研究群培育的博碩士論文

1. 郭毓妮(2021)，"政府合作、廠商勾結與貿易政策"，2021國立高雄大學經營管理碩士論文，指導教授楊雅博。
2. 蔡冠緯(2021)，"產品間的關係、廠商勾結與社會福利"，2021國立高雄大學經營管理碩士論文，指導教授楊雅博(進行中)。
3. 李依潔(2021)，"跨國企業的移轉訂價、避稅行為與區位選擇"，2021國立中山大學經濟研究所碩士論文，指導教授吳世傑。

4. 陳彥蓉(2021)，"垂直相關市場、移轉訂價與廠商市場競爭模式的選擇"，2021 國立中山大學經濟研究所碩士論文，指導教授吳世傑。

(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	2020/7/20	楊雅博	Cartels and tacit collusion	Industrial Organization - Markets and Strategies
2	2020/7/27	楊雅博	Cartels and tacit collusion	Industrial Organization - Markets and Strategies
3	2020/8/31	吳世傑	Horizontal mergers	Industrial Organization - Markets and Strategies
4	2020/9/28	佘志民	Strategic incumbents and entry	Industrial Organization - Markets and Strategies
5	2020/10/5	佘志民	Strategies affecting cost variables	Industrial Organization - Markets and Strategies
6	2020/11/30	鄭義暉	Vertically related markets	Industrial Organization - Markets and Strategies

7	2020/12/14	鄭義暉	Exclusive dealing	Industrial Organization - Markets and Strategies
8	2020/12/21	蔡建樹	Innovation and R&D	Industrial Organization - Markets and Strategies
9	2020/12/28	蔡建樹	R&D cooperation and spillovers	Industrial Organization - Markets and Strategies
10	2021/3/15	吳世傑	Markets with intermediated goods	Industrial Organization - Markets and Strategies
11	2021/3/22	吳世傑	Intermediaries as matchmakers	Industrial Organization - Markets and Strategies
12	2021/3/29	蔡建樹	多產品公營事業民營化的福利分析	Working paper
13	2021/4/19	蔡建樹	Intertemporal price discrimination	Industrial Organization - Markets and Strategies
14	2021/4/26	楊雅博	Markets with network goods	Industrial Organization - Markets and Strategies
15	2021/5/3	楊雅博	Markets for several network goods	Industrial Organization - Markets and Strategies
16	2021/5/31	李仁耀	Cross-ownership and corporate social responsibility	Manchester School, 24(2), 1–18

17	2021/6/7	鄭義暉	Dynamic aspects of imperfect competition	Industrial Organization - Markets and Strategies
18	2021/6/21	佘志民	Strategies for network goods	Industrial Organization - Markets and Strategies

五、結論

從本研究群成員在計畫執行期間，共報告 46 篇文章，自 2014 獲得人社中心研究群的經費補助以來，共有 33 篇文章刊登或接受刊登於經濟學專業期刊，其中 SSCI 期刊有 20 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 6 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。

附件一：研究群歷次討論會議紀錄

國立高雄大學貿易與產業經濟理論討論會　報告人：郭毓妮　　2020/07/06

篇名	***Tax incidence on competing two-sided platforms***
作者	*Paul Belleflamme, Eric Toulemonde*
出處	Journal of Public Economic Theory. 2017;1–13.
摘要	Analyze the effects of various taxes on competing two-sided platforms. First, we consider non discriminating taxes. We show that specific taxes are entirely passed to the agents on the side on which they are levied; other agents and platforms are left unaffected. Transaction taxes hurt agents on both sides and benefit platforms. Ad valorem taxes are the only tax instrument that allows the tax authority to capture part of the platforms' profits. Second, regarding asymmetric taxes, we show that agents on the untaxed side benefit from the tax. At least one platform, possibly the taxed one, benefits from the tax.
研究動機	The objective of this paper is precisely to deepen our understanding of tax incidence on competing, and potentially asymmetric, two-sided platforms.
模型	Model the competition between two two-sided platforms in environments where agents of both sides can join at most one platform (so-called "two-sided single homing"). Two platforms are located at the extreme points of the unit interval: platform U (for Upper case, identified hereafter by upper-case letters) is located at 0, while platform l (for lowercase, identified by lower-case letters) is located at 1. Platforms facilitate the interaction between two groups of agents, noted a and b. Both groups are assumed to be of mass 1 and uniformly distributed on $[0,1]$. Analyze the subgame-perfect equilibria of the following two-stage game: first, platforms simultaneously set their access fees; second, agents decide which platform to visit. Define the net utility functions for an agent of group a and for an agent of group b, respectively, located at x and $y \in [0,1]$ as follows: $U_a(x) = R_a + \sigma_a N_b - \theta_a x - P_a$ if joining platform U, $u_a(x) = R_a + \sigma_a n_b - \theta_a(1-x) - p_a$ if joining platform l, $U_b(y) = R_b + \sigma_b N_a - \theta_b y - P_b$ if joining platform U, $u_b(y) = R_b + \sigma_b n_a - \theta_b(1-y) - p_b$ if joining platform l,.

研究結果	Specific taxes are entirely passed to the agents on the side on which they are levied; the agents on the other side and the platforms are left unaffected. Transaction taxes hurt agents on both sides and benefit platforms. As for ad valorem taxes, the only clear result is that a tax levied on one side hurts the agents on the other side; the taxed agents may benefit from the tax. This paper assume that one of the two platforms has to pay a specific tax per agent on one side. The main results we derive from this setting are the following. All agents on the untaxed side benefit from the tax. The sum of platforms' profits is increased so that at least one platform benefits from the tax. Interestingly, the taxed platform could welcome the tax because of the strategic commitment it confers. We also show that agents on the taxed side may suffer from the tax but they may also benefit. In the latter case, the introduction of the tax improves welfare.
研究貢獻	This analysis bears a clear connection with the (scarce) literature studying cost pass-through for multisided platforms or multiproduct firms (the specific tax we consider is indeed equivalent to a cost increase). To this date, the issue of tax incidence on competing two-sided platforms is largely underexplored. In this paper, we have tried to advance our knowledge on this issue within a specific setting.
未來研究方向	In future research, it would be useful to give a deeper microfoundation of the users' utilities. Second, in some important platform markets, users on one side multihome and platforms are not able (or allowed) to set negative fees. It would thus be interesting to reconsider our analysis under such features. On the one hand, multihoming modifies the competitive game between platforms: competition is relaxed on the multihoming side and intensified on the single homing side. On the other hand, the restriction to nonnegative fees may prevent platforms from transferring the burden of a tax from one side to the other.

篇名	*Managerial Delegation of Competing Vertical Chains with Vertical Externality*
作者	*Kangsik Choi/ Ki-Dong Lee/ Seonyoung Lim*
出處	The B.E. Journal of Theoretical Economics. 2020; 20190029
摘要	We examine that the bilateral supplier affects the incentive contracts that owners of retailers offer their man-agers, assuming that the manufacturer sets the input price after observing the terms of the incentive contracts offered to management in the downstream market. Thus, we compare the two models: (1) decentralized bar-gaining between manufacturers and retailers including two-part tariff contract (2) linear input pricing without bargaining. Contrast to previous studies, we find that in equilibrium, the owners of retailers offer delegation contracts to managers for output restriction regardless of competition modes when offering linear input pricing, which implies that owners do not face a prisoners' dilemma situation and Pareto superior profit is obtained for retailer. Thus, managerial delegation of retailer is not socially desirable due to the output restriction. Furthermore, decentralized bargaining allows to equalize all the equilibrium outcomes in the different delegation structure under both Bertrand and Cournot competition and leads no delegation for the endogenous delegation problem.
研究動機	This paper examines how vertical structures affect the managerial delegation that owners of retailers hire managers to delegate output level. Thus, we compare the two models: (i) bargaining between manufacturer and retailers including two-part tariff contract with input prices (ii) linear input pricing.
模型	utility function of the representative consumer as follows. $U = a\,(q_i + q_j) - \frac{q_i^2 + q_j^2 + 2dq_iq_j}{2} + m;\ i, j = 1, 2,\ i \neq j,$ where a is the choke price; m denotes the consumption of all other goods, measured in terms of money; qi denotes the quantity of final product i; $d \in (0, 1)$ represents the degree of product differentiation. From the utility function of the representative consumer, the inverse and direct demand function of goods i can be derived as follows: $p_i = a - q_i - dq_j$, and $q_i = \frac{a\,(1-d) - p_i + dp_j}{1-d^2}$; $i, j = 1, 2,\ i \neq j$. (1) where pi is the retail price charged for product i. Consider a vertically related industry in which each upstream firm (i. e. manufacturer), sells its product to its own downstream firm (i. e. retailer), which produces the final goods. The downstream market is characterized by Cournot or Bertrand duopoly producing

	a differentiated good qi or differentiated price pi. Each retailer has one owner and one manager. For simplicity, we assume that the marginal production cost for each manufacturer is c. Thus, the profit of the manufacturer ui is given by $u_i = (w_i - c)\, q_i$ (2) $\pi_i = (p_i - w_i)\, q_i$. (3) The manager of retailer i is paid as an increasing function of his objective $O_i = \pi_i + \theta_i\, q_i$. (4)
研究結果	The major finding of this paper is that the owner of retailer chooses managerial delegation on output level by offering output restriction contracts under vertical structures. This is in contrast to conventional wisdom and we find the implication that vertical structures have significant effects on incentive design of retailer for their managers. Thus, managerial delegation of retailer is not socially desirable due to the output restriction. Furthermore, decentralized bargaining allows to equalize all the equilibrium outcomes in the different delegation structure under both Bertrand and Cournot competition and leads no delegation for the endogenous delegation problem.
研究貢獻	The conclusions of our paper depend largely on critical assumptions of sales delegation, including an exclusive dealing contract between the manufacture and retailer in the case of vertical separation, competition mode of Cournot or Bertrand, and a two-part tariff contract as a contracting form. It needs to check what happens in a case with market share delegation and the relative performance delegation. Generally, according to Jansen, Lier, and Witteloostruijn (2007) and Ritz (2008), the market-share based contracts has demonstrated that the competition among firms is less intense than under revenue- or output-based contracts and, hence, profits are higher. With imperfect substitutability under examining market-share delegation, we have estimated that those calculations are very complicated under vertically related market due to the imperfect substitutability and those results may be the similar when comparing market-share delegation with revenue- or output-based contracts
未來研究方向	Another worthy extension examines whether our results are robust or not when incorporating network externalities as in Scrimitore (2018) into a model. The extension of our model in these directions remains an agenda for future research.

篇名	***Economic integration and the sustainability of multimarket collusion***
作者	*Eric W. Bonda, Constantinos Syropoulos*
出處	Economics Letters 117 (2012) 42–44
摘要	This paper examines the impact of (and links between) two types of economic integration on the stability of multimarket collusion when firms interact in quantities in segmented markets: (1) multilateral trade liberalization, captured by a reduction of trade costs across all markets; and (2) preferential trade liberalization, captured by an expansion in the size of individual markets while holding the level of external trade costs (tariffs) constant. In general, collusive stability is non-monotonically related to economic integration. In the case of multilateral liberalization, the effect depends on the initial level of trade costs and the extent of liberalization. However, on the average, the complete elimination of trade costs is pro-competitive when these costs are sufficiently high initially. In the case of regional integration, the effect of liberalization is pro-competitive when external trade barriers are sufficiently high, but anticompetitive when these barriers are sufficiently low.
研究動機	Does economic integration facilitate or hinder the sustainability of multimarket collusion? This issue is of interest to policymakers because, to the extent that globalization facilitates collusion, it may have to be accompanied by the allocation of additional resources to antitrust enforcement.
模型	Examine a homogeneous good oligopoly model with n segmented markets and m domestic firms per market. There is a trade cost $t > 0$ of shipping goods between any two markets, but no trade costs for local shipments. All firms have an identical and constant marginal cost c of production, which we normalize to 0. The demand curve for the product in each market is $Q = m(A - p)$ and the total number of firms $S(= nm)$ constant. Focus on the minimum discount factor capable of sustaining the maximum global cartel profit, which occurs when the cartel sells $Q^C = mA/2$ (produced by m local firms) in each market. Assume that, in order to be sustainable, the above cartel allocation must be an equilibrium of the repeated game in which members employ trigger strategies that punish deviators with permanent reversion to the Nash equilibrium of the (Cournot oligopoly) stage game. The average global payoff of a deviating firm is $(1 - \delta)\Pi^D(m, S, t) + \delta\Pi^N(m, S, t)$, where δ is the discount factor, Π^D is the payoff obtained during the period of defection, and Π^N is the Nash equilibrium payoff. Collusion is sustainable if the cartel payoff, $A^2/4$, is at least equal to the average payoff from a deviation, which is equivalent to the requirement that δ be at least as large as the minimum

	discount factor $$\delta^*(m,S,t) = \frac{\Pi^D(m,S,t) - A^2/4}{\Pi^D(m,S,t) - \Pi^N(m,S,t)}$$
研究結果	A higher trade cost reduces the deviation payoff because it reduces the profitability of exporting. If $t \geq \bar{t}^D$, trade costs are so high that exporting becomes unprofitable to a deviating firm. A higher value of m raises the appeal of a deviation in the home market because there are more firms to steal market share from. A higher value of t reduces profits in export markets but raises profit domestically. For low values of t the former effect dominates, while for high values of t the latter effect dominates. Both preferential trade liberalization and multilateral trade liberalization will be pro-competitive when the initial tariffs are sufficiently large.
研究貢獻	This paper investigates the sustainability of multimarket collusion by exploring how the minimum discount factor associated with the monopoly output varies with economic integration when firms interact repeatedly in quantities.
未來研究方向	None

國立高雄大學貿易與產業經濟理論討論會　報告人：蔡冠緯　2020/08/10

篇名	*Multi-market collusion with territorial allocation*☆
作者	*Aditya Bhattacharjea, Uday Bhanu Sinha*
出處	**International Journal of Industrial Organization** Volume 41, July 2015, Pages 42-50
摘要	We develop a supergame model of collusion between price-setting oligopolists located in different markets sep- arated by trade costs. The firms produce a homogeneous good and sustain collusion based on territorial allocation of markets. We first show, in a much more general framework than some earlier literature, that a reduction in trade costs can paradoxically increase the sustainability of collusion. Then we prove a new paradox in which the scope for collusion may be enhanced by an increase in the number of firms. The paper thus highlights several hitherto unknown theoretical implications of collusion under price competition.
研究動機	We depart from this tradition and analyze the issue in a framework of price setting firms with homogenous goods and constant marginal costs. Our approach helps us to understand some of the issues in greater depth and derive some additional results that were hitherto not known in the theoretical literature. Price competition in a homogenous goods market where firms have constant symmetric marginal costs gives rise to the famous Bertrand paradox. Perhaps due to the supposed triviality of this outcome, researchers have shied away from this framework as a special case. However, there is a large Industrial Organization literature that uses static games with price competition in homogenous products embedded in a multi-period model.

模型	To begin with, there are two identical markets, A and B, and two identical firms, 1 and 2, producing a homogeneous product. Firm 1 is located in market A, and firm 2 in market B. Each firm incurs a cost of c per unit to produce and sell within its own market, but must incur additional trade costs of t per unit to sell in the othermarket,so its delivered cost there is c* =c+t per unit. Competitive arbitrageurs can exploit price differences between markets by buying where the price is lower and reselling elsewhere, incurring the same trade costs of t per unit. We henceforth refer to markets A and B as countries. $Q_j = q(P_j)$ with the following standard assumptions $q'(P_j) < 0$ (A1) $(P^m - c)q'(P^m) + q(P^m) = 0$ (A2) $(P - c)q''(P) + 2q'(P) < 0$ (A3) $t \leq P^m(c) - c \equiv \bar{t}$ $(A4)$ $\pi_j^m \equiv (P^m - c)q(P^m)$
研究結果	**Proposition 1**. Asymmetry in the size of the firms‘ homemarkets increases the critical discount factor, and hence reduces the scope for collusion Proposition 2. Trade cost paradox: Under assumptions A1–A4, with one firm in each country a reduction in trade costs facilitates collusion with SOI, that is, $\partial\delta_A^*/\partial c^* > 0$. Proposition 3. For any n_A, $n_B \geq 2$, the range of discount factors that can support collusion is decreasing in max $\{n_A, n_B\}$. Proposition 4. Competition paradox:When the number of firms increases from one in each country to any number n=max$\{n_A, n_B\}$, (where n_A, $n_B > 1$), there exists a level of trade costs $\tilde{t}(n) < \bar{t}$ such that for $t \in (\tilde{t}(n), \bar{t})$ the increase in the number of firms to n reduces the critical discount factor and makes collusion with SOI more likely.
研究貢獻	We have generalized the existing result that a reduction in trade costs can paradoxically increase the scope for collusion,which we have called the trade cost paradox. However, in Section 5 we have shown that the trade cost paradox holds with many firms if punish- ment takes the form of reversion to a domestic cartel when the international cartel breaks down. We have shown that the competition paradox also holds in this context, if the participating firms decide on the course of the punishment path in order to maximize the scope for collusion.
未來研究方向	In our future work we also intend to pursue the possibility of foreign direct investment (FDI) and its interaction with trade in shaping international cartel arrangements.

篇名	Trade liberalization, forward-looking firms, and welfare
作者	Kuo-Feng Kao, Cheng-Hau Peng
出處	*Review of International Economics* 25.5 (2017): 999-1016.
摘要	We set up an oligopolistic model with two exporting firms selling to a third market to investigate the welfare implications of trade liberalization when the exporting firms are forward-looking. The results show that with cost asymmetry trade liberalization encourages the exporting firms to engage in tacit collusion, which may not only be detrimental to the domestic welfare, but also to the consumer surplus of the importing country. Moreover, we find that tacit collusion is less sustainable if the government of the importing country imposes a lower (higher) tariff on the more (less) efficient exporting firm. If a nonforward-looking or a forward-looking cost-efficient domestic firm exists in the importing country, then trade liberalization also encourages tacit collusion.
研究動機	Tariff protection has always been criticized as a policy that makes domestic consumers worse off by forcing them to pay higher prices for imports. Therefore, if firms behave noncollusively, it is commonly believed that trade liberalization will favor consumers in importing countries owing to the more intense rivalry between firms. This pro-competition effect may well characterize the reality in some industries. In other industries, firms may have incentives to engage in tacit collusion. We also observe that some exporting firms have fixed or raised their export prices despite the fact that trade costs have been gradually decreasing around the world. These observations motivate us to investigate how an importing country's trade liberalization affects the incentives of exporting firms to collude when selling to that market.
模型	We develop a model to investigate how exporting firms' incentives to tacitly collude are affected by the importing country's trade liberalization policy. Assume that there are two foreign countries, A and B, which host one firm each, Firm A and Firm B. The two exporting firms produce differentiated products and compete in Bertrand fashion in a third market (hereafter, the domestic country). The variables with an asterisk indicate that they are associated with country B. The marginal production costs of Firm A and Firm B are c and c*, respectively. Without loss of generality, we assume that Firm A is more efficient in production (i.e., $c<c^*$). The domestic country imports products q and q* from country A and country B, respectively. We assume that there are no fixed costs of production. Therefore, the cost functions of Firm A and Firm B can be specified as cq and c*q*, respectively. For simplicity, we assume that this commodity is not produced in the domestic country. The utility function of

	a representative consumer in the domestic country is specified as follows: $$\mathrm{U} \equiv \alpha(\mathrm{q} + q^*) - \frac{1}{2}\left(q^2 + 2rqq^* + q^{*2}\right) + m$$
研究結果	we show that trade liberalization makes tacit collusion between the two exporting firms more sustainable. This tacit collusion will raise the equilibrium prices of the importing country, which is not only detrimental to the domestic welfare, but also to the domestic consumer surplus. Moreover, this result is robust to different competition modes (Bertrand and Cournot), different tariff policies (specific and ad valorem tariffs), and to discriminatory tariffs. We have also shown that a larger tariff reduction is required to sustain tacit collusion if the cost asymmetry of the firms is more pronounced or the products are less differentiated. Finally, if there is a nonforward-looking or a forward-looking cost-efficient domestic competitor in the importing country, then trade liberalization encourages tacit collusion, which in turn may lead to a deterioration in the domestic consumer surplus and social welfare.
研究貢獻	We have also found that it is welfare-improving for the importing country to impose a lower (higher) tariff on the more (less) cost-efficient exporting firm if it succeeds in ensuring that the outcome is not tacit collusion between the two exporting firms. This tariff schedule reduces the likelihood of tacit collusion on the part of the two exporting firms, which in turn increases not only the domestic consumer surplus but also welfare. This finding runs counter to the finding in the existing literature, in which firms play a one-shot game and it is optimal to impose a higher (lower) tariff on the more (less) efficient exporting firm.
未來研究方向	This paper is related to Kabiraj and Marjit (2003) in which trade liberalization may hurt domestic consumers owing to the absence of new technology transferred from aboard. In this paper, we derive a similar result, but present a departure from a different angle: trade liberalization may hurt both domestic consumers and welfare because it induces the exporting firms to engage in tacit collusion.

篇名	Taxation and the sustainability of collusion:ad valorem versus specific taxes
作者	Helmuts Azacis1 & David R Collie(2017)
出處	Journal of Economics,125(2), 173-188.
摘要	Assuming constant marginal cost, it is shown that a switch from specific to ad valorem taxation that results in the same collusive price has no effect on the critical discount factor required to sustain collusion. This result is shown to hold for Cournot oligopoly when collusion is sustained with Nash-reversion strategies or optimal-punishment strategies. In a Cournot duopoly model with linear demand and quadratic costs, it is shown that the critical discount factor is lower with an ad valorem tax than with a specific tax that results in the same collusive price. However, in contrast to Colombo and Labrecciosa (J Public Econ 97:196–205, 2013) it is shown that the revenue is always higher with an ad valorem tax than with a specific tax.
研究動機	An early analysis of taxes under Cournot oligopoly with homogeneous products is provided by Dierickx et al. (1988), but the systematic comparison of ad valorem and specific taxes under oligopoly began with the article by Delipalla and Keen (1992). In a conjectural variation oligopoly model they demonstrate that an ad valorem tax is superior to a specific tax by considering a tax reform that reduces the specific tax and increases the ad valorem tax in such a way that the first-round effect on tax revenue, at the initial equilibrium price, is zero (denoted as a P-shift). Skeath and Trandel (1994a) demonstrate that a specific tax can be replaced by a Pareto superior ad valorem tax under monopoly that yields higher consumer surplus, profits and tax revenue, and under oligopoly if the tax rate is sufficiently high.
模型	Consider an infinitely-repeated Cournot oligopoly where firms produce a homogeneous product, and the firms have identical and constant marginal cost. There are two or more firms, n ≥ 2, in the industry. All firms have the same cost function: c (q_i) = κq_i , where qi is the output of the ith firm and its marginal cost is c (q_i) = κ > 0, which is constant.3 The inverse demand function is: P = P (Q), where P is the consumer price and Q=$\sum_{j=1}^{n} q_j$ is the total output of the firms, and it is assumed to be downward sloping so $p'(Q)$<0. The government imposes either an ad valorem consumption tax: τ (expressed as a proportion of the producer price), or a specific (per unit) consumption tax: t at the beginning of the game (stage zero), where τ ≥ 0 and t ≥ 0. The Cournot oligopoly stage game is played an infinite number of times by the firms with profits discounted by the discount factor: δ, where 0 <δ< 1. It will be shown that the critical discount factor required to sustain collusion

	using :(1)Nash-reversion strategies or(2) optimal-punishment strategies is the same with an ad valorem tax as with a specific tax that results in the same price.(3) Using particular functional forms, linear demand and quadratic costs, it will be shown that it is easier to sustain collusion with an ad valorem tax than with a specific tax that results in the same price when marginal cost is increasing.
研究結果	The analysis has compared the effects of ad valorem and specific taxes that result in the same price on the sustainability of collusion in infinitely repeated oligopoly models. Assuming constant marginal cost, it was shown that a switch from specific to ad valorem taxation has no effect on the critical discount factor required to sustain collusion. This result was shown to hold for Cournot oligopoly with homogeneous products and general demand functions. It can also be shown for Bertrand oligopoly with differentiated products and general demand functions when collusion is sustained with Nash-reversion strategies or optimal-punishment strategies. The intuition for these results is that, although both taxes have different effects on profits, they have the same effect on relative profits because profits with an ad valorem tax are always proportional to profits with a specific tax. Finally, a counterexample to the result of Colombo and Labrecciosa (2013) shows that it is possible that collusion is easier with a specific tax than with an ad valorem tax. This counterexample demonstrates the difficulty of obtaining general results in infinitely-repeated games.
研究貢獻	This analysis has compared the effects of ad valorem and specific taxes that result in the same price on the sustainability of collusion in infinitely repeated oligopoly models. Assuming constant marginal cost, it was shown that a switch from specific to ad valorem taxation has no effect on the critical discount factor required to sustain collusion. This result was shown to hold for Cournot oligopoly with homogeneous products and general demand functions. It can also be shown for Bertrand oligopoly with differentiated products and general demand functions when collusion is sustained with Nash-reversion strategies or optimal-punishment strategies.
未來研究方向	If the inverse demand function is changed to be: $P = (\alpha - \beta (q1 + q2))2$, and the cost function is the same as above then the model can be solved explicitly for the case of Nash-reversion punishments using the same steps as in Sect. 3.1.13 Figure 3 shows the critical discount factors as a function of the ad valorem tax rate, and it can be seen that the critical discount factor is higher with an ad valorem tax than with a specific tax.

國立高雄大學貿易與產業經濟理論討論會　報告人：郭毓妮　　2020/09/14

篇名	***Free entry under common ownership***
作者	*Susumu Sato, Toshihiro Matsumura*
出處	Economics Letters 195 (2020) 109489
摘要	This study investigates the equilibrium and welfare properties of free entry under common ownership. We formulate a model in which incumbents under common ownership choose whether to enter a new market. Using a circular-market model, we find that an increase in common ownership reduces entries, which may or may not improve welfare. Welfare has an inverted-U shaped relationship with the degree of common ownership, which implies that there is a strictly positive optimal degree of common ownership.
研究動機	In some markets, co-ownership can affect the company's entry decision. Due to the substantial increase in the degree of co-ownership, it has also become a core issue of recent antitrust laws. But the reduction in entry induced by common ownership seems undesirable, the welfare effects of common ownership in free-entry markets is unclear because entry incentives in oligopoly are often excessive. So this paper want to consider the welfare effects of co-ownership in free market entry.
模型	Assume that each firm i has the following post-entry objective function $$\psi_i = \pi_i(p) + \lambda \sum_{j \neq i} \pi_j(p)$$ $\pi_i(p) := d_i(p)(p_i - c) - F$ is the profit of firm i；price profile $p := (p_j)_j = 1, \ldots, n,$； c is the constant marginal cost；F is the entry cost；λ is the degree of common ownership.
研究結果	$n^*(\lambda, F/t)$ decreases with λ and F/t (i) The equilibrium welfare decreases with λ if and only if $n^*(\lambda, F/t) < n^O$ (insufficient entry). (ii) There exists $\bar{\lambda} \in (0, 3/7)$ such that $n^*(\lambda, F/t) < n^O$ holds (i.e., insufficient entry emerges) if and only if $\lambda > \bar{\lambda}$. An increase in common ownership always reduces entries, which may or may not improve welfare. An inverted-U shaped relationship between the degree of common ownership and welfare.
研究貢獻	Using a circular-market model, this paper investigates how the degree of common ownership affects the equilibrium and welfare properties in free-entry markets.
未來研究方向	Extends to the analysis of free entry under common ownership with general elastic demand functions.This paper presume that results hold under quantity competition because quantity competition also yields excessive entry without

	common ownership and common ownership may reduce entry incentives. This paper also leave a robustness check under quantity competition for future research.

篇名	*Profit taxation and the mode of foreign market entry*
作者	*Ronald B. Davies, Hartmut Egger, Peter Egger*
出處	The Canadian Journal of Economics / Revue canadienne d'Economique Vol. 43, No. 2 (May / mai 2010), pp. 704-727 (24 pages)
摘要	This paper studies the role of profit taxation for an international firm's decision upon how to penetrate a foreign market – through exports or through foreign direct investment (FDI) and local supply. We show that with harmonized taxes the international firm may choose FDI even though this has welfare costs from a global point of view. With tax competition, the host country can enforce exporting instead of FDI. This leads to a Nash equilibrium associated with higher world welfare than harmonized taxes. Thus, because of the effect on entry mode, tax competition provides heretofore unexplored benefits as compared to tax harmonization.
研究動機	The goal of this paper has been to demonstrate a heretofore unexplored benefit of non-cooperative profit taxation, when an international producer is free to choose its mode of foreign-market penetration.
模型	Consider a world with two countries, $i = A,B$, which do not differ in technology, factor endowments and preferences. These countries are populated by L units of labour, which are inelastically supplied in perfectly competitive and internationally segmented factor markets. There are two sectors of production. The first sector produces good Y, using labour in a constant-returns-to-scale technology. To facilitate our analysis, we assume that the unit labour requirement of Y is one. Y is supplied under perfect competition and can be traded internationally without any impediments (such as transport costs, tariffs, etc.). Hence, focusing on equilibria with diversified production throughout our analysis and choosing good Y as the numeraire, the equilibrium wage rate in either country is constant and equal to one In the second (industrial) sector, three imperfectly competitive firms produce a homogeneous good X, which is sold under Cournot competition. These firms share the same production technology and use c units of labour to produce one unit of

output. Two of these firms are national in scope and are exogenously assigned to each of the two countries (with one per country). They produce and sell their output only in a single location. The third firm, which is of particular interest in the following analysis, acts as an international producer. For our baseline model, we assume that this firm is headquartered in country *A* and, hence, countries differ in the number of firms. Unlike its national competitors, the international firm operates in both markets. It can do so either by choosing to be an exporter (the EXP-organization) or a multinational enterprise (the MNE-organization). As has been widely discussed in the FDI literature, there are advantages and disadvantages to both of these strategies.

Under the EXP-organization the international producer must pay transport costs of $\rho > 0$ per unit exported. Under the MNE-organization, the international producer establishes a second plant abroad to avoid transport costs. The set-up of a second plant requires a fixed cost investment of *f* units of *Y*-output.

$$U_i = aD_i - \frac{D_i^2}{2} + Y_i, \tag{1}$$

where *Di* is *i*'s consumption of *X* and *Yi* is *i*'s consumption of the numeraire good. Denoting the price of good *X* in country *i* by *pi*,

$$p_i D_i + Y_i = M_i, \tag{2}$$

Where *Mi* denotes total income, that is, the sum of labor income, profits of firms headquartered in *i*, and tax revenue that is redistributed by the government in a lump-sum fashion. Using the consumer's first-order conditions, we derive inverse demand for *X* in country *i*:

$$p_i = a - D_i. \tag{3}$$

assumption $a > c$, Substituting equations (2) and (3) into (1) utilitarian welfare measure

$$V_i = (a - p_i)^2/2 + M_i. \tag{4}$$

$$\pi_i^N = (1 - t_i)(p_i - c)x_i, \tag{5}$$

where *xi* indicates its production level and superscript *N* refers to 'national.' The international producer's profits are conditional on its organizational structure and are given by

$$\pi_A = \begin{cases} \pi_A^{EXP} = (1 - t_A)[(p_A - c)q_A + (p_B - c - \rho)q_B] & \text{if } \pi_A^{EXP} > \pi_A^{MNE} \\ \pi_A^{MNE} = (1 - t_A)(p_A - c)q_A + (1 - t_B)[(p_B - c)q_B - f] & \text{if } \pi_A^{EXP} < \pi_A^{MNE}, \end{cases} \tag{6}$$

研究結果	PROPOSITION 1.: CONSIDER A HARMONIZED TAX RATE $t \in [0, 1)$. IF $p < p_I$, THE INTERNATIONAL PRODUCER CHOOSES THE EXP-ORGANIZATION. IN CONTRAST, IF $p \geq p_I$, THE INTERNATIONAL PRODUCER CHOOSES THE MNE-ORGANIZATION. PROPOSITION 2. THE NASH EQUILIBRIUM TAX RATE FOR COUNTRY A IS $t_A = 0$, IRRESPECTIVE OF THE SIZE OF TRANSPORT COSTS. FURTHERMORE, THE NASH EQUILIBRIUM TAX RATE FOR COUNTRY B IS $t_B = \bar{t}(0)$ IF $p \geq p_V$, WHILE IT IS $t_B > \bar{t}(0)$ IF $p < p_V$. IN THE FORMER CASE, THE INTERNATIONAL PRODUCER CHOOSES THE MNE-ORGANIZATION AND IN THE LATTER CASE IT CHOOSES THE EXP-ORGANIZATION.
研究貢獻	In a setting with Cournot competition, the entry mode of the international firm affects profits of its local competitors in the foreign market and thus welfare in the host country. As the international producer does not account for its impact on host-country welfare, its entry mode decision is not, in general, second-best efficient. In particular, we show that without profit taxation or in the case of harmonized taxes there exist transport cost regimes for which the international firm prefers foreign investment to exporting even though this is detrimental from a global point of view. In a non-cooperative policy game, however, the host country can use its profit tax strategically in order to enforce a more desirable entry mode, thereby correcting for this externality. Thus, contrary to many recommendations by both policy makers and researchers, tax harmonization may actually lower welfare relative to tax competition.
未來研究方向	null

篇名	*Optimal cross-licensing arrangements : Collusion versus entry deterrence*
作者	Jay Pil Choi, Heiko Gerlach
出處	*European Economic Review* 120 (2019): 103315.
摘要	This paper analyzes optimal cross-licensing arrangements between incumbent firms in the presence of potential entrants. The optimal cross-licensing royalty rate trades off incentives to sustain a collusive outcome vis-a-vis incentives to deter entry with the threat of patent litigation. We show that a positive cross-licensing royalty rate, which would otherwise relax competition and sustain a collusive outcome, dulls incentives to litigate against entrants. Our analysis can shed light on the puzzling practice of royalty free cross- licensing arrangements between competing firms in the same industry as such arrangements enhance incentives to litigate against any potential entrants and can be used as entry-deterrence mechanism.
研究動機	This paper analyzes optimal cross-licensing arrangements between incumbent firms in the presence of potential entrants. It is increasingly common in today's high-tech industries that commercialization of new products requires applications of multiple technologies. In addition, these technologies are often proprietary and patented by different patent owners. As a result, firms often need to engage in cross-licensing arrangements to successfully market the products without infringing other firms' intellectual property (IP) rights. In such a case, it is a well-known result that cross-licensing firms have incentives to sustain a collusive outcome by including a positive royalty rate to soften competition in the product market (Shapiro, 1985; Jeon and Lefouili, 2018). By contrast, we consider probabilistic IP and show that a positive cross-licensing royalty rate dulls incentives to litigate against entrants as litigation entails the risk of IP being invalidated.
模型	Consider two incumbent firms, A and B , who are monopolist in a captive market (market A and market B , respectively) and compete in a common market (market C). Demand in the common market is given by $D(p)$ while the size of the captive market for each firm is $sD(p)$. The parameter $s \geq 0$ represents the relative size and importance of the captive market for each firm compared to the common market C in which they compete. As s increases, the relative importance of the captive market increases vis-a-vis the competitive market. We assume that the two incumbents have the same production technology. The constant marginal cost of production for both firms in each market is identical and given by c . Let $q^m(c)$ be the monopoly output associated with an inverse market demand of $\mathrm{P(q)} = D^{-1}(q)$ when the monopolist's marginal cost is c , that is, $q^m(c) = \arg max_q (P(q) - c)q$. When firms compete, we use a reduced form approach rather than assuming any specific duopoly model. More specifically, let $q^d(a, b)$ denote the

	equilibrium output when its cost is a and the rival firm's cost is b . The associated profits are denoted as $\pi^d(a,b)$. When both firms have the same marginal cost of c , we denote the symmetric equilibrium duopoly output and profit as $q^d(c,c) = q^d(c)$ and $\pi^d(c,c) = \pi^d(c)$, respectively. We make the following standard assumptions about the duopoly equilibrium outcomes.
研究結果	We analyze patent pools and their effects on litigation incentives, overall royalty rates, and social welfare when patent rights are probabilistic and can be invalidated in court. We show that patent pools can be used to discourage infringement by depriving potential licensees of the ability to selectively challenge patents. As a result, patent pools even with complementary patents can re- duce social welfare if patents are sufficiently weak. We refer to Lemley and Shapiro (2005) for an overview of the literature and important issues associated with probabilistic patent protection.
研究貢獻	We consider optimal cross-licensing arrangements between incumbent firms in the presence of potential entrants. Cross- licensing allows the firms to clear blocking positions as the incumbents would infringe on each other's IP in the absence of an arrangement. However, the terms of the cross-licensing agreement also affect the incentives to litigate entrants infringing on the incumbents' patents. An incumbent litigating against an entrant faces the risk of having its patents invalidated by a court. We show that this leads to a trade-offfor incumbents between setting collusive license fees and deterring entry by maintaining a credible litigation threat against new competitors. In this framework, a cross-licensing arrangement with a very low royalty rate (or even a royalty-free contract) may not be as benign as it appears if it is used as an entry deterrence mechanism.
未來研究方向	As in Jeon and Lefouili (2018) , our analysis provides some caution against simplistic rules regarding cross-licenses. In fact, the presence of potential entry adds another layer of subtlety to antitrust policies concerning cross- license agreements. Constraining cross-licensing royalties may lead to the exclusion of potential and actual competitors from the market.

篇名	Aggressive leaders.
作者	Etro, F. (2006).
出處	*The RAND Journal of Economics, 37(1), 146-154.*
摘要	I characterize the incentives to undertake strategic investments in markets with Nash competition and endogenous entry. Contrary to the case with an exogenous number of firms, when the investment increases marginal profitability, only a "top dog" strategy is optimal. For instance, under both quantity and price competition, a market leader overinvests in cost reductions and overproduces complement products. The purpose of the strategic investment is to allow the firm to be more aggressive in the market and to reduce its price below those of other firms. Contrary to the post-Chicago approach, this shows that aggressive pricing strategies are not necessarily associated with exclusionary purposes.
研究動機	In many market settings, a firm can have an incentive to undertake preliminary investments to gain advantage over its competitors. For instance, when Cournot competition takes place between two firms, one of them will usually gain by overinvesting to reduce costs, which allows it to be aggressive in the market, expanding production and inducing its rivals to produce less. Under Bertrand competition, however, the same firm would prefer to underinvest in cost reductions so as to be accommodating, increasing its price so as to induce its rivals to raise their price.
模型	Consider *n* firms choosing a strategic variable ,x_i> 0 wit i=1.2…n. They all compete in Nash strategies, that is, taking as given each other's strategies. These strategies deliver for each firm *i* the net profit function: $\pi_i = (x_i, \beta_i, k) - F$, where F > 0 is a fixed cost of production. The second argument represents the effects (or spillovers) induced by the strategies of the other firms on firm i's profits, summarized by $\beta_i = \sum_{k=1,k\neq i}^{n} h(x_k)$. These spillovers exert a negative effect on profits, $\pi_2 < 0$. In general, the cross effect π_{12} could be positive, so that we have strategic complementarity (SC), or negative, so that we have strategic substitutability (SS). In Section 2, I develop a simple example where leadership is associated with a simple first-mover advantage rather than a proper strategic investment; it serves to show, in a simple way, the source of the aggressive behavior of leaders. In Section 3, I present the general model of strategic investment and Nash competition, and in Section 4, I solve it with and without barriers to entry. In Section 5, I study some applications under quantity and price competition with alternative forms of strategic commitments. Section 6 concludes.

研究結果	I have studied market structures with market leaders engaging in preliminary investments. When there are barriers to entry, the optimal behavior of the leaders depends on whether strategic investment makes the followers more or less aggressive, which is ultimately an empirical question for each single market. However, when entry is endogenous, the optimal behavior of leaders is much simpler: they should always adopt preliminary investments that allow them to be more aggressive in the market.
研究貢獻	In this article I show that when entry is endogenous, a firm would always like to undertake investments to be aggressive in the market, that is, to expand production under Cournot competition and decrease prices under Bertrand competition. For instance, a leader will always find it optimal to overinvest in cost reductions (or adopt a similar top dog strategy) to be able to produce more and to reduce its price belowthe price of its competitors. This outcome emerges in many other contexts with surprising results about investments in quality improvements, production of complementary goods, dumping to exploit a learning curve or create network externalities, strategic vertical restraints, bundling of goods, and so on.
未來研究方向	A market can be dominated by a leader and yet be competitive. I have shown that, under price competition, in the presence of barriers to entry a leader would underinvest in cost reduction so as to maintain high prices in the market, while the opposite happens if entry is endogenous. This kind of result suggests that the priority of antitrust authorities should be fighting barriers to entry rather than aggressive market leaders.

篇名	*Duopoly and quality standards.*
作者	*Crampes, C., & Hollander, A. (1995).*
出處	*European Economic Review, 39(1), 71-82.*
摘要	In the absence of sunk costs, a low-quality producer benefits from a mildly restrictive quality standard whereas a high-quality producer suffers from it. Consumers' welfare increases if the firm producing the higher quality does not increase its quality significantly in response to the increase in quality by its rival. A sufficiently severe standard causes exit from the industry. When there are no sunk cost, the high-quality producer exits first.
研究動機	In this paper, the cost of quality is a variable cost. This appears to us as the empirically more relevant case. Indeed, most quality standards in manufacturing pertain to materials and ingredients to be included or left out, packaging, thickness, flexibility, flammability, bio-degradability, etc. These seem to affect variable rather than fixed costs. As a result, quality determines prices directly through cost, and not only indirectly through shifts in demand. When fixed costs are either absent or unaffected by quality, convexity in quality of the variable cost function becomes necessary for the existence of internal duopoly equilibria.
模型	There are no more than two firms in the market and each produces a single quality of a good. Both firms share a common cost function which is assumed to be of the form $C(q,s) = qc(s)$ where q and s respectively denote quantity and quality. It is assumed that $c'(\cdot) > 0$ and $c''(\cdot) > 0$ for all $s \in [0,\infty)$. Consumers -who differ from each other with respect to their taste for quality - may purchase either a single unit of the good from one of the firms or none at all. The consumer indexed θ derives a surplus $\theta s - p$ from a good of quality s purchased at the price p. The demand faced by each firm originates from a continuum of such consumers whose indices θ are distributed uniformly on the interval $[\underline{\theta}, \overline{\theta}]$. Firms compete in two stages. In the first stage, they simultaneously choose their quality levels denoted s_h and s_l where$s_h \geq s_l$. In the second stage, they concurrently determine prices - given the qualities already chosen - and produce the output which satisfies consumers' demands. The price established by the high-quality firm is denoted p_h, while p_l represents the price set by its low-quality rival. Suppose that a directive prescribing a minimum quality $\hat{s}$ higher than s_l^* is in force. The low-quality firm now sets a quality equal to $\hat{s}$.

研究結果	The paper shown that setting a mildly restrictive minimum quality requirement in a duopoly market where firms' unit costs are increasing in quality raises the profits of the firm producing the lower quality. A high-quality firm, by contrast, loses whenever a quality standard is enforced. Only when the response of the high-quality firm to the quality choice of its rival is weak, can it be said that all consumers gain. Otherwise, some of them - those with little appreciation of quality - will lose. Still, we find that if the quality response by the high-quality firm is less than the increase in quality by the low-quality firm, implementing a mildly restrictive standard raises net welfare.
研究貢獻	Our result that a minimum quality requirement raises the profits of the low-quality firm while lowering those of its rival is counter-intuitive. It also appears to contradict observed industry behavior. Indeed, when support for quality regulation is found within an industry, it is not found among manufacturers at the low end of the quality spectrum, but among producers at the higher end. It is possible to show that the low-quality producer loses when a mandatory standard is imposed provided that the high-quality firm does not raise its quality. The high-quality producer will refrain from raising it when the cost of quality contains a large component which is sunk. Sunkenness implies that the marginal cost of quality at the level initially chosen by the firm exceeds the marginal cost at the same quality level for a new firm. The origin of sunk cost could be found in machinery with no resale value having to be scrapped and replaced by new equipment when quality is increased. Another possibility is that a once-and-for-all fixed expenditure must be incurred whenever quality is changed..
未來研究方向	If the firm's competitive strategy changes from price competition to quantity competition, does the result remain the same when the cost is variable cost ?

國立高雄大學貿易與產業經濟理論討論會　報告人：謝耀陞　　2020/11/9

篇名	*Upstream horizontal mergers involving a vertically integrated firm*
作者	*Ioannis N. Pinopoulos*
出處	Journal of Economics (2020) 130:67–83
摘要	We study upstream horizontal mergers when one of the merging parties is vertically integrated. Under observable contracting in the pre-merger case, we show that such type of mergers always harm consumers. However, under unobservable contracting in the pre-merger case, the input price may decrease and consumer surplus may increase as a result of the merger even in the absence of exogenous cost-synergies between merging firms. A necessary condition for this finding is that the unintegrated downstream firm is more cost-efficient than the downstream division of the integrated firm.
研究動機	A classic topic of antitrust economics is the welfare effects of horizontal mergers— that is mergers between competitors. Nowadays, a large number of nations worldwide have laws or regulations which call for merger control. Since vertical relations are ubiquitous in real-world markets, it is widely acknowledged, by both economic theorists and antitrust agencies, that the vast majority of horizontal mergers take place in either the upstream or the downstream sector of vertically related industries. In this paper, we study upstream horizontal mergers. A key aspect of our analysis is that one of the merging parties is vertically integrated. In other words, one insider party to the upstream merger is also present in the downstream market. To the best of our knowledge, a formal economic model of upstream horizontal mergers involving a vertically integrated firm has not been developed yet. Filling this gap is the main objective of this paper. In doing so, we show that such type of upstream mergers may benefit consumers even in the absence of exogenous cost-synergies between merging firms, depending on contract (un) observability and the degree of downstream cost-asymmetry.

模型	We consider a vertically related market initially consisting of two competing vertical chains. In each chain, i = 1, 2 , there is a single upstream firm, U_i , that produces an input which a single downstream firm, D_i , uses in one-to-one proportion in the production of a differentiated final good. We assume that chain 1 is vertically integrated, whereas chain 2 is vertically separated, i.e., there is the vertically integrated firm $U_1 - D_1$, one independent upstream supplier U_2 and one independent downstream firm D_2. Constant marginal production costs in the upstream market are denoted by c_{Ui}. We assume $c_{U1} = c_{U2} = c_U$, so the upstream division of the integrated firm and the independent upstream supplier are equally efficient as input providers. Constant marginal transformation costs in the downstream market are denoted by c_{Di} . No further assumptions are made with respect to the relationship between c_{D1} and c_{D2}. We then consider the case where U_2 and $U_1 - D_1$ contemplate merging to form a new entity, denoted as firm I . Such merger is qualified as horizontal because both firms are present in the upstream market, it has nevertheless an important vertical aspect in that U_2 is the input supplier of $U_1 - D_1$'s rival in the downstream market. We assume an inverse demand (q_i,q_j),$i \neq j$, which is twice continuously differentiable with $(\partial p_i)/(\partial q_i) < 0$ and $(\partial p_i)/(\partial q_j)=(\partial p_j)/(\partial q_i) <0$: inverse demand functions are downward sloping and symmetric cross effects are negative. We also assume that own effects are larger than cross effects, i.e.,$|(\partial p_i)/(\partial q_i)|>|(\partial p_i)/(\partial q_j)|$, which implies that final-goods are imperfect substitutes. We model market interactions as a three-stage game with timing of moves as follows. In the first stage, $U_1 - D_1$and D_2 decide whether to or not to merge horizontally. In the second stage, U_2 (if the merger does not occur) or *I* (if the merger occurs) makes D_2 a take-it-or-leave-it, two-part tariff contract offer; the contract consists of an input price *w* and a fixed fee . If there is no merger, we assume that the contract stipulated in the vertically separated chain is observable by $U_1 - D_1$. By construction of the model there is no issue with respect to contract observability post-merger. In the last stage, downstream competition takes place à la Cournot. For notational reasons, we use superscripts S or M to denote, respectively, the pre- and the post-merger case.
研究結果	In this paper, we have studied upstream horizontal mergers when one of the merging parties is a vertically integrated firm. We have considered a vertically related market consisting of two competing vertical chains, with one up- and one downstream firm in each chain, assuming that one chain is vertically integrated whereas the other chain is vertically separated. We have also assumed downstream Cournot competition and that firms in the vertically separated

	chain trade through a two-part tariff contract. Under observable contracting in the pre-merger case, we have shown that a merger between the vertically integrated firm and the independent upstream firm always harm consumers. We have also shown that, under unobservable contracting in the pre-merger case, the input price may decrease and consumer surplus may increase as a result of the merger even in the absence of exogenous cost-synergies between merging firms. A necessary condition for this finding is that the unintegrated downstream firm is more cost-efficient than the downstream division of the integrated firm.
研究貢獻	In our framework, since the vertically integrated firm does not procure the input from the independent upstream firm, and the latter contracts with only one downstream firm, out-of-equilibrium beliefs play no role. Thus, under both Cournot and Bertrand competition, marginal input prices are set equal to upstream marginal cost in the pre-merger case. Post-merger, the output-shifting effect can result in below-cost pricing under downstream Cournot competition, thereby rendering the upstream merger beneficial for consumers, however, it cannot result in below-cost pricing under downstream Bertrand competition, which implies that the upstream merger hurts consumers.
未來研究方向	Vetter(2017) considers the case where an upstream monopolist contracts with two downstream firms and shows that when the latter produce under a soft capacity constraint, then input pricing co-determines downstream market conduct. In light of this finding, it would be interesting to extend the present model by considering the case of a soft downstream capacity constraint and re-examine the effects of the upstream merger through its impact on downstream firms' strategy (price vs. quantity).

篇名	***On the welfare impact of mergers of complements: Raising rivals' costs versus elimination of double marginalization***
作者	*Uğur Akgün, Cristina Caffarra, Federico Etro, Robert Stillman*
出處	Economics Letters 195 (2020) 109429
摘要	A common view in antitrust analysis is that mergers of complements can have raising rivals' costs and elimination of double marginalization effects, with the net effect on consumer welfare thus unclear. This paper revises this view in the context of a merger between a monopolist in one market and a duopoly producer of a complement good. With linear demand and imperfect substitutability, while such a merger increases the price of the monopolized component, elimination of double marginalization dominates any raising rivals' costs effects, increasing consumer welfare. This paper discuss a variety of extensions.
研究動機	A common view is that while such mergers can create beneficial effects for consumers when they lead to the elimination of double marginalization (EDM effect), they can also harm consumers through raising rivals' cost (RRC) effects, and thus the net effect on consumer welfare is unclear.
模型	The composite goods 1 and 2 are sold at final prices P_i, demand functions $Q_i = Q_i(P_i, P_j)$ for $i, j = 1, 2$, decreasing in the own price and increasing in the other price. Firms 1 and 2 sell two substitute components at prices p_i for $i = 1, 2$ and the monopolistic firm 3 sells the complement component at price w, so that the final prices of the two goods $i = 1, 2$ are $P_i = w + p_i$. The profits of the three firms are: $\pi_1 = Q_1(P_1, P_2)p_1$ $\pi_2 = Q_2(P_2, P_1)p_2$ $\pi_3 = [Q_1(P_1, P_2) + Q_2(P_2, P_1)]w$ Consider a representative consumer with symmetric quasilinear quadratic preferences and inverse demand $P_i = \alpha - Q_i - \gamma Q_j$ where $\alpha > 0$ and $\gamma \in [0, 1]$ parametrizes substitutability, which is null for $\gamma = 0$ and perfect for $\gamma \to 1$, so that the direct demand is: $Q_i(P_i, P_j) = \frac{1}{1+\gamma}\left[\alpha - \frac{1}{1-\gamma}(P_i - \gamma P_j)\right]$
研究結果	The impact on consumers of a merger between a monopolist and a producer of a complement good in competition with others is positive in standard models of competition with product differentiation. This happens even if the merger generates a raising rivals' cost effect, and the reason is that the elimination of double marginalization strengthens competition, which creates benefits for consumers.

研究貢獻	The merged firm reduces the price of its final composite good (EDM effect). Due to strategic complementarities in prices, the price of the final composite good of the rival is also lower despite an increase in the price of the monopolized good (RRC effect) and this benefits consumers. In all intermediate cases with this demand system, the merger reduces the total price paid by consumers for the two complements (regardless which of the duopoly products is purchased), with the net downward effect being larger when there is less substitutability between the competing goods. Contrary to a related widespread view in antitrust analysis, mergers of complements when there is a monopolist in one of the markets tend to be more beneficial for consumers when competition in the duopoly market is weaker and pre-merger profit margins are higher
未來研究方向	Extend the analysis to multiple firms and more general demand systems.

篇名	Belleflamme, Paul, and Martin Peitz, 2010, "Vertically related markets", Industrial *Organization Markets and Strategies*, Ch. 17, UK: The Cambridge University Press. **(Class I)**
作者	Belleflamme, Paul, and Martin Peitz (2010)
出處	UK: The Cambridge University Press.
摘要	The authors take the whole vertical supply chain into account to understand how markets function. For instance, can upstream firms deny competitors access to their distribution channel, e.g., because they have signed an exclusive dealing contract with their retailers? Also, what are the effects of vertical mergers?
研究動機	Firms that sell products usually require inputs, which are produced by other firms in an upstream industry (which again may require inputs from other firms). This leads to a vertical supply chain that is needed to produce a final product. Up until now (Ch.1 –Ch.16), the authors have analysed various forms of competition at one level of the vertical supply chain. This approach is appropriate if inputs are provided in a perfectly competitive way under constant marginal costs. In this case, the input price is equal to the marginal cost that is incurred upstream and this input price does not vary with input supply. However, inputs are often also provided by firms with market power.
模型	The authors start in Section 17.1 with the traditional double marginalization problem within a monopoly context and explore the consequences of allowing contracts between the upstream and downstream firm that differ from linear pricing. In Section 17.2, the authors analyse the role of resale-price maintenance and exclusive territories. In Section 17.3, we address the role of exclusive dealing contracts. Finally, in Section 17.4, the authors analyse a model with an oligopolistic industry upstream and downstream. The authors examine the effects of vertical mergers in such markets.
研究結果	This book chapter illustrates the fundamental models of vertically related markets, and provides decent discussions on the related extensive. These include: **(Class I)** 1. Suppose that an industry consists of two upstream monopolists who exclusively sell at a linear price to one downstream duopolist each. What would be the effect of vertical integration (so that each upstream monopolist owns its retail outlet) on the final good price? 2. What are possible efficiency-defences of the use of resale-price maintenance? 3. For which reasons can it be profitable for manufacturers to grant exclusive territories to their retailers?

研究貢獻	This book chapter provides a broad review on the studies of vertically related markets, which serves as a good reference to our further research on the related studies of vertically related markets.
未來研究方向	1. The comparison of different competition structures of the upstream and downstream firms. 2. The decision of innovation by the upstream and downstream firms. 3. The policy management of environmental goods.

篇名	*Passive backward acquisitions and downstream collusion*
作者	Shiva Shekhar , Tim Paul Thomes
出處	Economics Letters
摘要	We investigate the effects of passive backward acquisitions in their efficient upstream supplier on downstream firm's ability to collude in a dynamic game of price competition with homogeneous goods. We find that passive backward acquisitions impede downstream collusion. The main driver of our finding is that a passive backward acquisition secures an acquirer from zero continuation profits after a breakdown of collusion. This anti-collusive effect cannot be outweighed by a lower collusive price that is set by the cartel to increase the acquirer's profit from its claim on the upstream margin
研究動機	Our analysis identifies new effects on collusion incentives arising exclusively from passive backward acquisitions. We first confirm that an upstream firm increases the nominal wholesale price for a downstream acquirer in such a way that its rebate on own input purchases is neutralized. After collusion broke down, an acquirer therefore optimally abstains from entering perfect Bertrand competition downstream, which allows it to secure the largest possible profit obtained through its claim on the efficient upstream firm's profit from selling to its rivals. This makes a grim trigger punishment less harsh, therefore spurring incentives to deviate from collusion.
模型	Consider n > 2 downstream firms denoted by Ri (i = 1,2, . . . , n), which purchase a homogeneous input produced by two upstream suppliers U and M. We assume that U's marginal cost is normalized to 0, while that of M equals c > 0 (we abstain from fixed production costs). For the sake of tractability, M is a competitive fringe that offers the good always at marginal cost. Denote U's wholesale price charged to a representative downstream firm Ri by w_i^k, with K ∈ {C, P} indicating whether downstream firms collude (C) or compete (P). 1. Upstream Stage. U sets its public wholesale prices w_i^k and downstream firms individually decide whether to buy from U or M. 2. Downstream Stage. Downstream firms simultaneously set consumer prices and order the quantities demanded by consumers from the upstream firm they decided to purchase the input from at the relevant wholesale prices. the collusive market sharing rule is defined by the share α ∈ [0, 1] of the consumer demand allocated to R1 (while each unintegrated cartel member supplies $\frac{(1-\alpha)}{(n-1)}D(p^c)$

研究結果	Lemma 2. The set of U's equilibrium wholesale prices is given by $\widetilde{w}_1^* = \frac{c}{(1-s_1)}$ And $\widetilde{w}_j^*$ = c, which is subgame perfect irrespective of whether downstream firms collude or compete. Proposition 1 states that this latter anti-collusive effect of a positive punishment profit dominates, implying that collusion becomes harder to sustain if R1 has a passive acquisition in U. As demonstrated in the Appendix, this can be seen by the collusive market sharing arrangement. In particular, any market sharing arrangement α > 1/n implies that each unintegrated firm's discount factor increases above the minimum joint discount factor Similarly, any α ≤ 1/n implies that R1's critical discount factor is raised above δ∗. Hence, there exists no market sharing arrangement α ∈ [0, 1] at which the critical discount factors of all firms mutually fall below the (joint) one under vertical separation.
研究貢獻	The upstream and the downstream firms charge linear prices. The industry may encompass a passive acquisition held by a downstream firm in the efficient upstream firm. Downstream firms may collude on the consumer price and collusion is sustained by Nash reversion trigger strategies. In this setting, we find that a passive backward acquisition makes downstream collusion harder to sustain.
未來研究方向	null

國立高雄大學貿易與產業經濟理論討論會　報告人：鄭義暉　2020/12/14

篇名	Belleflamme, Paul, and Martin Peitz, 2010, "Vertically related markets", Industrial *Organization Markets and Strategies*, Ch. 17, UK: The Cambridge University Press. **(Class II)**
作者	Belleflamme, Paul, and Martin Peitz (2010)
出處	UK: The Cambridge University Press.
摘要	The authors take the whole vertical supply chain into account to understand how markets function. For instance, can upstream firms deny competitors access to their distribution channel, e.g., because they have signed an exclusive dealing contract with their retailers? Also, what are the effects of vertical mergers?
研究動機	Firms that sell products usually require inputs, which are produced by other firms in an upstream industry (which again may require inputs from other firms). This leads to a vertical supply chain that is needed to produce a final product. Up until now (Ch.1 –Ch.16), the authors have analysed various forms of competition at one level of the vertical supply chain. This approach is appropriate if inputs are provided in a perfectly competitive way under constant marginal costs. In this case, the input price is equal to the marginal cost that is incurred upstream and this input price does not vary with input supply. However, inputs are often also provided by firms with market power.
模型	The authors start in Section 17.1 with the traditional double marginalization problem within a monopoly context and explore the consequences of allowing contracts between the upstream and downstream firm that differ from linear pricing. In Section 17.2, the authors analyse the role of resale-price maintenance and exclusive territories. In Section 17.3, we address the role of exclusive dealing contracts. Finally, in Section 17.4, the authors analyse a model with an oligopolistic industry upstream and downstream. The authors examine the effects of vertical mergers in such markets.
研究結果	This book chapter illustrates the fundamental models of vertically related markets, and provides decent discussions on the related extensive. These include: **(Class II)** 4. Provide two reasons why the Chicago school argument on exclusive dealing (namely that, whenever exclusive dealing is observed, it must be welfare improving) is wrong. 5. Should competition authorities prohibit vertical mergers that lead to higher input prices? 6. What are possible coordinated effects of vertical mergers?

研究貢獻	This book chapter provides a broad review on the studies of vertically related markets, which serves as a good reference to our further research on the related studies of vertically related markets.
未來研究方向	1. The comparison of different competition structures of the upstream and downstream firms. 2. The decision of innovation by the upstream and downstream firms. 3. The policy management of environmental goods.

篇名	*Innovation and R&D*
作者	Paul Belleflamme and Martin Peitz
出處	Industrial Organization: Markets and Strategies
摘要	In this chapter, our goal is to examine the interplay between market structure and innovation. This is clearly a two-way relationship: on the one hand, firms' incentives to invest in R&D depend on the structure of the product market they are acting in (i.e., on the number of rival firms and on the way they compete); on the other hand, firms are likely to use R&D to shape the structure of their market (e.g., by using R&D to increase their market share or to keep potential competition at bay). As the two effects are complex and intertwined, we simplify the analysis by assuming that firms can somehow appropriate the return from their R&D investments.
研究動機	To examine the interplay between market structure and innovation. And analyse the pros and cons of 'patent races'. To understand how R&D investment decisions change when firms recognize the strategic nature of these decisions, and when they are allowed to coordinate them.
模型	Process innovation: generation, introduction and diffusion of a new production process (with the products remaining unchanged). Product innovation: generation, introduction and diffusion of a new product (with the production process being unchanged). Drastic (or major) innovation: allows the innovator to behave as a monopolist without being constrained by price competition in the industry. Nondrastic (or minor) innovation: innovator may gain some cost advantage over its rivals but competition constrains the innovator. And model assumptions as following: 1. Homogeneous product market 2. Firms produce at c_0 and compete in prices. 3. Innovation reduced cost below c_0
研究結果	***Lesson 1****: A competitive firm places a larger value on a minor process innovation than a monopoly does.* ***Lesson 2****: In a Cournot industry with a homoge-neous product, the market structure that gives the largest profit incentive to innovate is monopoly when the innovation size is not too large; it is oligopoly otherwise (and the 'ideal' number of firms in the industry increases with the innovation size).* ***Lesson 3****: A monopoly threatened by entry is willing to pay more for a minor innovation than a potential entrant who can produce a close substitute to the monopolist's product.*

	Lesson 4*: In a patent race, it is in general ambiguous whether the incumbent or the entrant has a stronger incentive to invest.* ***Lesson 5****: Since a firm ignores the effect of its R&D efforts on the rival's profits, imperfectly competitive firms tend to overinvest.* ***Lesson 6****: The strategic effect of an increase in the R&D of one firm on its own profit is (1) positive for small spillovers and negative for large spillovers under quantity competition, (2) always negative under price competition.* ***Lesson 7****: When firms behave strategically, R&D cooperation leads to more (less) R&D when spillovers are large (small).*
研究貢獻	1. R&D investment determines (instantaneously and for sure) the size of the innovation; only a single firm ends up using the innovation. 2. Timing of innovation is uncertain and depends on the R&D investments of all firms; size of the innovation is fixed. 3. The size of innovation depends on the intensity of the firm's R&D investment (and potentially on the other firms' investments as well); firms have simultaneous opportunities to achieve competing innovations.
未來研究方向	The analysis can be extended in several directions, essentially with respect to (i) the nature of R&D spillovers, (ii) the design of R&D cooperation, and (iii) the potential effect of R&D cooperation on product market collusion.

篇名	*Endogenous vertical segmentation in a Cournot oligopoly*
作者	Paul Belleflamme、Valeria Forlin(2019)
出處	Journal of Economics, 131(2), 181-195.
摘要	An arbitrary number of (ex ante symmetric) firms first choose whether to produce a highquality or a low-quality product and then, the quantity of product to put on the market. We establish the following results: (i) there exists competition within and across quality segments; (ii) firms may be better off producing the low quality if competition within this segment is sufficiently low; (iii) a firm's switch across qualities may benefit all the other firms; (iv) there exists a unique partition of the firms between the two quality segments; (v) if high quality has a larger cost-quality ratio, then the equilibrium exhibits vertical differentiation; (vi) there may be too much differentiation from the consumers' point of view
研究動機	Firms will base their decision on the relative profitability of producing one or the other quality. Yet, it is not clear how to determine this relative profitability, as it depends on both exogenous and endogenous factors. The exogenous factors are the consumers' willingness to pay for quality upgrades and the respective costs of producing the two qualities; the endogenous factors are the decisions of all firms, as they will jointly determine the level of competition that will prevail on each quality segment. This note aims at understanding better the interplay between these factors.
模型	A unit mass of consumers are identified by their valuation for quality improvement, θ, which is assumed to be uniformly distributed on the unit interval. A consumer of type θ obtains utility $\theta s_k - p_k$ from one unit of product k that has quality s_k, and is sold at price p_k. Two qualities are available: a high (s_h) and a low (s_l) quality, with $s_h > s_l > 0$. A unit of quality s_k is produced at a constant unit cost c_k, k = h, l. The industry is composed of N identical firms. At the first stage, firms simultaneously decide whether to produce the high or the low quality. At the second-stage, firms compete `a la Cournot; that is, they choose which quantity to produce given the market-clearing prices.

	At the third-stage, consumers observe the prices and decide to buy a unit of high quality, a unit of low quality, or nothing. We solve the game for its subgame-perfect equilibrium.
研究結果	(1)the existence of an 'own-competition' and a 'cross-competition' effect: entry in one quality segment reduces equilibrium profits not only in that segment but also in the other segment. (2)firms may be better off producing the low quality if competition within this segment is sufficiently low. (3) when a firm switches from one quality to the other, this moves has ambiguous impacts on the other firms: as expected, it could hurt the firms in the segment that is joined and benefit firms in the segment that is left, but it can also hurt–or benefit–all the other firms. (4) we prove the existence of a unique partition of the firms between the two quality segments. We further show that a sufficient condition for vertical differentiation (i.e., both qualities being chosen at equilibrium) is that the cost-quality ratio be larger for the high than for the low quality. (5) we illustrate the possibility of disagreement between firms and consumers: firms' decisions may lead to vertical differentiation while consumers would prefer the production of a single quality.
研究貢獻	This analysis contributes to the abundant literature on vertical differentiation. Following the seminal papers of Gabszewicz and Thisse (1979), and Shaked and Sutton (1982), has mostly focused on duopolistic Bertrand competition. We therefore chose to depart from the usual model by considering Cournot competition among an arbitrary number of firms. To the best of our knowledge, this model has not been solved so far; our characterization of the second-stage equilibrium is thus a novel result.
未來研究方向	Firms choose which quality to produce, anticipating the equilibrium of the ensuing Cournot competition. This game can be seen as a coalition game with simultaneous decisions and open membership. By choosing to produce either the high or the low quality, firms determine a 'coalition structure' (i.e., a partition of the set of firms into disjoint coalitions), with each firm's profit being a function of the whole coalition structure.

篇名	*The optimal level of corporate social responsibility based on the duopoly model*
作者	*Chen, J., Sun, C., Liu, J., & Huo, Y. (2021)*
出處	Managerial and Decision Economics,42(1), 177-184
摘要	This paper constructs a duopoly model considering corporate social responsibility (CSR) and market's sensitivity to CSR (*e*) and analyzes the equilibrium results, the condition of CSR implementation and the optimal CSR level (β^*) of Model CC (two enterprises implement CSR) and Model CN (only one enterprise implements CSR). The results show that β^* is affected by competitors and *e*. *e*, marginal cost (*c*) and cost difference affect the equilibrium results and the comparative results. Reducing *c* and improving *e* can promote social welfare. Consumer surplus under Model CC is highest. CSR has a negative effect on social welfare under certain conditions.
研究動機	In recent decades, with the emergence of a series of social, business management, environmental pollution, and other issues, corporate social responsibility (CSR) has received increasing attention. Related studies debate whether CSR is beneficial for increasing corporate performance. This paper attempts to examine the optimal CSR level by constructing three duopoly models. The equilibrium results under the models of NN, CN, and CC are compared in this paper, particularly focusing on the comparison of the optimal CSR level to reveal the influence factors. The effect of CSR can be revealed more effectively by taking the impact of CSR on market demand into account.
模型	Suppose there are three scenarios for enterprises to implement CSR: neither enterprise implements CSR (Model NN), only one company implements CSR (Model CN), and both companies implement CSR (Model CC). The inverse demand functions are: $p_i = a + \beta_i e - q_i - q_j, i \neq j, i, j, = 1,2$ where $\beta_i \in [0,1]$ is denoted the CSR level and e is a positive constant introduced to represent the sensitivity of the market to CSR, reflecting the impact of CSR on market price. Incorporating CSR into the enterprise utility function, enterprise utilities can be determined based on profit and consumer welfare: $U_i = \pi_i + \beta_i CS$. Corporate profit functions are assumed to be $\pi_i = p_i q_i - c q_i$, where *c* is the marginal cost and $a > c > 0$.Social welfare is defined as $SW = \pi_1 + \pi_2 + CS$, where $CS = \frac{{q_1}^2 + {q_2}^2 + 2q_1 q_2}{2}$

研究結果	When only one enterprise implements CSR, *e* has negative effects on the optimal CSR level, no effect on the profit of the enterprise without engaging in CSR and consumer surplus, and positive effects on the profits of the enterprise implementing CSR and social welfare. When only one enterprise implements CSR, the other enterprise will be eliminated from competition. Therefore, a monopoly is not conducive to a higher CSR level. Marginal cost has negative effects on the optimal level of CSR, profit, consumer surplus, and social welfare of enterprises implementing CSR. The profit of the firm without implementing CSR is not affected by marginal cost. As *c* decreases, the optimal level of CSR of Enterprise 1 increases. Hence, strengthening of cost management to reduce cost can promote the profit of enterprise with CSR, consumer surplus and social welfare, which should be encouraged. When all the firms conduct CSR, as the sensitivity of the market to CSR (*e*) increases, the optimal CSR level, consumer surplus and social welfare increases, while corporate profits decline. The relationship between *e* and the profit of enterprises may be contrary to the general perception. The possible reason is that when *e* increases, enterprises will take the initiative to improve their CSR level, but competition results in a failure of garnering more market share because both enterprises implement CSR. The policy implication is that it is irrational to implement high-level CSR blindly without considering the context of market. Improving market's sensitivity to CSR is beneficial for increasing consumer welfare and social welfare. Marginal cost is positively correlated with the optimal CSR level and negatively correlated with corporate profit, consumer surplus, and social welfare. It is reasonable for some low-cost companies with strong technical capabilities to undertake low-level CSR, and it is irrational to judge enterprise capacity just based on CSR level. Enterprises should focus not only on undertaking certain CSR activities but also improving technology innovation to reduce corporate costs.
研究貢獻	This paper establishes a duopoly model regarding CSR and market's sensitivity to CSR, studies three models to explore the optimal CSR level and extends the research by taking cost differences into account.
未來研究方向	Compared with related literature, this paper makes the following contributions. First, existing studies reveal the roles of CSR in various aspects, but few studies explore the optimal CSR level. Second, the existing literature assumes that two enterprises implement CSR or only one enterprise engages in CSR, but there are few comparative studies. Third, the existing research does not pay sufficient attention to the impact of CSR on market demand. However, customer

	awareness is objective and should be considered, which is an important reason for enterprises to implement CSR. The effect of CSR can be revealed more effectively by taking this effect into account.

篇名	*ANALYSIS OF MERGER CONTROL IN A NETWORK PRODUCTS MARKET*
作者	*TSUYOSHI TOSHIMITSU*
出處	The Manchester School Vol 87 No. 5
摘要	This paper used a horizontally differentiated three-firm model to consider horizontal mergers and antitrust policy in a network products market, where network externalities and compatibilities between products and services are observed. They focus on the role of network compatibilities as merger efficiencies, and consider a horizontal merger and an associated merger policy. In considering a horizontal merger and its welfare effects, the paper assumed the impacts of merger-related synergies on the demand-side in a network products market, i.e. improving levels of network externalities and compatibilities as a result of a merger. In this case, the proposed merger is allowed by antitrust authorities based on a consumer welfare standard. Furthermore, relating to a merger externality on an outsider, they examine the American Online and Time Warner case.
研究動機	Since the 1990s, waves of domestic and global mergers and acquisitions have been observed in various industries, including telecommunications, Internet businesses, banking, airlines and railways. These industries are commonly characterized as network product markets where we observe network externalities and compatibilities between products and services. There is a consensus that market concentration through M&A or collusive agreements reduces social welfare and should therefore be forbidden. But there are the network externalities and compatibilities between products and services in the network products market. They thought the market is different from the other products market. So they assumed the impacts of merger-related synergies on the demand-side in a network products market to find the effect of the network externalities and compatibilities in a network products market.
模型	They develop a three-firm $\{i,j,k\}$ model in a network market, where each firm provides a single horizontally differentiated product with a network externality. Applying the frameworks of Economides (1996) and Häckner (2000), they assume a linear inverse demand function of firm i's product as follows: $$p_i = A - q_i - \gamma Q_{-i} + N(S_i^e), \quad (1)$$ where $Q_{-i} = q_j + q_k$ is the sum of the rival firms' output, A is the intrinsic market size, q_i is the output of firm i and $\gamma \in (0,1)$ represents product substitutability. The expected network size of product i is given by: $$S_i^e \equiv q_i^e + \phi_h Q_{-i}^e, \quad h = C, M, \quad (2)$$

	And assuming that (1) Consumers form expectations regarding network sizes before firms'output decisions, i .e. the case of *ex ante* expectations. (2) $1 \geq \Delta \geq 0$, where $\Delta \equiv \phi M - \phi C$. (3) Production costs = 0. The initial situation, premerger, is where three firms compete on quantities à la Cournot in the market. Based on equation (1), the profit function of firm *i* is given by: $$\pi_i = \{A - q_i - \gamma Q_{-i} + N(S_i^e)\} q_i. \quad (3)$$ Assuming a symmetric equilibrium, $$q_C = \frac{A}{2 - n + 2(\gamma - n\phi_C)}, \quad (4)$$ The aggregate profit of the insider in the merger case (M) is expressed as: $$\begin{aligned} \Pi_M &= \pi_i + \pi_j \\ &= \{A - q_i - \gamma Q_{-i} + N(S_i^e)\} q_i + \{A - q_j - \gamma Q_{-j} + N(S_j^e)\} q_j. \end{aligned} \quad (5)$$ The profit of the outsider is given by: $$\pi_O = \pi_k = \{A - q_k - \gamma Q_{-k} + N(S_k^e)\} q_k. \quad (6)$$ Using the FOCs for the insider and outsider, and assuming a symmetric equilibrium, $$q_I = \frac{2 - n - (\gamma - n\phi_C)}{D} A, \quad (9)$$ $$q_O = \frac{2 - n - (\gamma - n\phi_C) + (\gamma - n\Delta)}{D} A, \quad (10)$$ where $D \equiv \{2 - n + 2(\gamma - n\phi C)\}\{2 - n - (\gamma - n\phi C)\} - (2 - n)(n\Delta - \gamma) > 0$. $n\Delta(\geq 0)$ is the degree of a merger-related network compatibility effect. In this case, the profit per a unit of the insider and that of the outsider are expressed as: $\pi_I = (1+\gamma)(q_I)^2$ and $\pi_O = (q_O)^2$
研究結果	*If the net degree of a merger-related network compatibility effect is larger than that of product substitutability, i.e. $n\Delta > \gamma$, from the perspective of a consumer welfare standard, an antitrust authority allows the proposed merger in a network industry.* *In this case, if the degree of a network compatibility effect in the premerger case is also larger than that of product substitutability, i.e. $n\phi C > \gamma$, a positive merger externality arises. Thus, the merger is Pareto improving for related economic parties.*

研究貢獻	Horizontal mergers lead to monopolization and market concentration; however, they can create various efficiencies. In this paper, assuming an improvement of the network compatibility level by a merger agreement, they have considered a horizontal merger and associated merger policy in a network industry. In particular, we have demonstrated that a social welfare-improving merger can arise in the industry if the net effect of merger-related network compatibility is sufficiently large. In this case, however, if the network effect in the premerger case is small, a negative merger externality on the profit of the outsider arises.
未來研究方向	The model with respect to a consumer's expectation of network sizes, they assumed the case of *ex ante* expectations, where firms cannot commit their output levels. However, the lemmas and proposition are not qualitatively changed even in the case of *ex post* expectations, where firms can commit to their output levels. In additional, this model has assumed that the improvement of the level of compatibility between merging firms' products is exogenously given. But they can also consider the endogenous decision of the level of compatibility in the merger case.

篇名	*Quality–Price Competition and Product R&D Investment Policies in Developing and Developed Countries.*
作者	*YASUNORI ISHII (2014)*
出處	*Economic Rrcord*, 90(289), 197-206.
摘要	This study establishes a third-country trade model where firms from developing and developed countries invest into product R&D under their governments' subsidization policies to analyze firms' quality–price choices and governments' optimal product R&D investment policies. We show that a rise in the developing (developed) country's product R&D subsidy makes firms' quality–price competition more (less) intense and that the governments' optimal product R&D policies, depending on the features of their quality and demand functions, can both be subsidies even under Bertrand price competition, contrary to the findings of previous studies.
研究動機	We found that Although Park's (2001) finding is noteworthy, it is curious because it implies that the optimal product R&D policy is uniquely determined simply by the competitive mode of the market (price or quantity competition) and that the optimal product R&D policy of the developing (developed) country is always a tax under quantity (price) competition. Moreover, real-world examples of governments always taxing their firms' product R&D investments are scarce. We argued that Park (2001) assumed the model's asymmetrical assumption about the customers in a final goods market is especially unrealistic because it presumes that no customers purchase multiple units of high- and low-quality goods, in contrast to the facts in the real world. Although this study follows his asymmetrical assumption about the firms in a market, it removes that about the customers to create a more generalized model.
模型	We assume that the utility function of a representative consumer in the third country is given by: $u(x,x^*,q,q^*) = e(x+x^*) + k(qx+q^*x^*) - \frac{m(x^2+x^{*2})}{2} - nxx^* + z, (n<m)$ Where x (x*) and q (q*) are the demand, and quality of the new (old) good respectively. utility maximization subject to the budget constraint yields the following demand functions for new and old goods: $x = A - ap + bp^* + \alpha q - \beta q^*$ $x^* = A - ap^* + bp + \alpha q^* - \beta q$ Where p (p*) is the price of the new (old) good,

	$\mathrm{A} = \frac{(m-n)e}{m^2-n^2}, a = \frac{m}{m^2-n^2}, b = \frac{n}{m^2-n^2}, \alpha = \frac{km}{m^2-n^2}$ and $\beta = \frac{kn}{m^2-n^2}$ Firms' product qualities, which rely on their product R&D investments, are given by the quality functions that are both strictly increasing and concave with respect to their R&D investments respectively: $q = q(I), \quad q'(I) > 0, \quad q''(I) < 0,$ $q^* = q^*(I^*), \quad q^{*'}(I^*) > 0, \quad q^{*''}(I^*) < 0.$ Using the assumptions and functions mentioned above, firm profits in the developing and developed countries are, respectively, defined as: $\pi = (\mathrm{p} - \mathrm{c})\{A - ap + bp^* + \alpha q(I) + \beta q^*(I^*)\} - P_I I + sI$ $\pi^* = (p^* - c^*)\{A - ap^* + bp + \alpha q^*(I^*) - \beta q(I)\} - P_I^* I^* + s^* I^*$ The economic welfare W of the developing country and the economic welfare W^* of the developed country are given as: $W = \pi - sI \quad and \quad W^* = \pi^* - s^* I^*.$ We assume that the developing and developed countries' firms and governments play a three-stage game. In the first stage, these governments set their optimal product R&D subsidies to maximize their levels of economic welfare. In the second stage, the two firms determine their product R&D investments to maximize their profits respectively. In the third stage, they decide their prices to maximize their profits, uncooperatively.
研究結果	We replaced restrictive Hotelling-type demand functions with more generalized demand functions. This was the most essential modification to analyze a firm's vertical quality decisions Among several propositions, we first showed that while a rise in the product R&D subsidy of each country raises the product quality (and price) of its firm, it reduces the product quality (and price) of its rival's firm, and vice versa. We also found that an increase in the product R&D subsidy of the developing (developed) country makes quality–price competition between the developing and developed countries' firms more (less) intense, and vice versa. We further demonstrated that the optimal product R&D policy of the developing (developed) country is not always a product R&D subsidy (tax) even if firms engage in Bertrand price competition and that it can be a product R&D tax (subsidy) in certain situations. Hence, we highlight the plausible case where developing and developed countries simultaneously subsidies their firms' product R&D investments even under Bertrand price competition. These findings are contrary to those provided by Park (2001), but, we believe, concur with intuition. Indeed, in the real world many governments of developed and developing countries provide subsidies through tax breaks and/or direct

	research grants to fund their firms' product R&D activities.
研究貢獻	This study created a third-country trade model of an international duopoly composed of a firm producing a high-quality good from a developed country and a new firm supplying a low-quality good from a developing country. These firms endogenously determine their product qualities through product R&D investments, while the governments of these countries subsidies (or tax) the product R&D subsidies of their firms. To remove the asymmetrical assumptions of the economy in the model, we replaced restrictive Hotelling-type demand functions with more generalized demand functions.
未來研究方向	The present model could be extended in several directions. In this study, we focused on the product R&D subsidy policies of developing and developed countries that display considerable technological differences. However, there are other ways to measure R&D, such as examining the complementary relationship between federal and private-sector R&D activities or assessing the effects of federal technology partnership programmes. Furthermore, we could examine the strategic R&D policies of developed countries that compete against each other at the cutting edge of technology. It would also be interesting to establish a dynamic model that could analyze dynamic product R&D policies.

篇名	*Fixed costs matter even when the costs are sunk*
作者	Jurjen Kamphorst , Ewa Mendys-Kamphorst , Bastian Westbrock (2020)
出處	Economics Letters Volume 195, October 2020, 109428
摘要	How firms set prices is key to understanding markets. Standard economics dictates that the fixed costs of a firm should not affect its prices. Nonetheless, it is common practice for firms to raise their prices after a fixed costs increase. We show that firms are correct in doing so if two ubiquitous conditions apply: future profits increase in current sales and firms are liquidity-constrained.
研究動機	Economics textbooks teach us that the fixed costs of a firm should not affect its prices and quantities. Yet, there is considerable evidence that firms incorporate fixed costs in their pricing decisions (e.g., Govindarijian and Anthony, 1983, Shim and Sudit, 1995). In this note, we show that firms can be right in doing so. The basic idea is as follows. Consider a firm for which a higher output today means more profits in the future, for instance because of switching costs. Consequently, the lifetime profit of the firm is maximized at a lower price than the one that maximizes the firm's current profit. Suppose further that the firm is liquidity-constrained: it goes bankrupt if it incurs a loss during the current period. The firm is, now, hit by a fixed costs shock. If its costs increase to the point where the lifetime profit-maximizing price would lead to a loss, it is optimal for the firm to raise its price. This shifts profits from the future to the current period, and helps the firm to survive.

模型	Consider a monopolist, active in two periods. In each period $t \in \{1,2\}$, the monopolist chooses the quantity Q_t and earns the profit π_t that is equal to operational profits, π_t^o, minus fixed costs, F_t. Key to our story, the second-period profit depends positively on the first-period output, $\frac{\partial \pi_2^*(Q_1,Q_2)}{\partial Q_1} > 0.$ Also, the firm goes bankrupt unless it makes at least a profit of B in $t=1$ (where B may be negative). The lifetime profit function of the firm is thus given by $\Pi(Q_1,Q_2)=\begin{cases} \pi_1^o(Q_1)-F_1+\delta[\pi_2^o(Q_1,Q_2)-F_2] & \text{if } \pi_1 \geq B, \\ 0 & \text{otherwise,} \end{cases}$ where $0<\delta<1$ denotes the discount factor on profits made in $t=2$. Our plan is to show that the monopolist may rationally increase its price after an increase of F_1. To keep things simple, we therefore assume that the profit function has the following common properties. Each per-period profit function is twice differentiable, strictly concave, and single-peaked in that period's quantity. Hence, there exists a unique, positive Q_1^* that maximizes first-period profits. Similarly, for any Q_1 there exists a unique $Q_2^*(Q_1)$ that maximizes second-period profits. In addition, the unconstrained lifetime profit function, $\pi_1^o(Q_1)-F_1+\delta[\pi_2^o(Q_1,Q_2)-F_2]$, is twice differentiable, strictly concave, and single-peaked at a unique, positive pair (Q_1^{**},Q_2^{**}), where obviously $Q_2^{**}=Q_2^*(Q_1^{**})$. Our final assumptions restrict the attention to the most interesting case. First, there exists a Q_1 such that $\pi_1^o(Q_1)-F_1>B$. This ensures that the firm can survive the first period if it wants to. Second, there exists a pair (Q_1,Q_2) such that $\Pi(Q_1,Q_2)>0$. This ensures that the firm wants to survive if it can. Third, there exists a $Q_2>0$ such that $\pi_2^*(Q_1^*,Q_2)-F_2>0$. This ensures that the firm produces in the second period if it survives.
研究結果	Moreover, since $\partial\pi_1^o / \partial Q_1 < 0$ is negative, while $\partial r_2 / \partial D_2$ and D_2 are positive, we get $\partial\Pi' / \partial F_1 < 0$ if and only if $\frac{\partial^2 r_2}{\partial (D_2)^2} > -\frac{2}{D_2}\frac{\partial r_2}{\partial D_2}.$ As the right-hand side is negative, it follows that $\partial^2 r_2 / \partial (D_2)^2 \geq 0$ is a sufficient condition for $\partial\Pi' / \partial F_1 < 0$. This shows that our results do not require a hard liquidity constraint. As long as interest rates depend positively on a firm's debt and $\partial^2 r_2 / \partial (D_2)^2$ is not 'too negative', higher fixed costs lead to higher prices.

研究貢獻	Theories with a link between fixed costs and prices can be found at several places in the economics literature. The earliest theories date back to at least Baumol (1971). He showed that if fixed costs are not yet sunk, then an increase of these costs can cause the firm to choose a lower capacity and output, and a higher price.1 More recent explanations have been offered by Brander and Lewis (1986), Thépot and Netzer (2008), Janssen (2006), and Janssen and Karamychev (2007). Nevertheless, there are at least two important differences between these theories and ours. First, in contrast to Baumol (1971), fixed costs affect prices in our model even when they are sunk. Second, in contrast to all the other theories, our argument is not dependent on demand uncertainty, risk aversion, or the presence of multiple firms. We thus offer a concise explanation for why fixed costs may affect prices under quite general circumstances.
未來研究方向	In this note, we bridge a long-standing gap between standard economic theory, according to which a firm's fixed costs should not affect its prices, and business practice, where many firms do take fixed costs into account when setting prices. In contrast to earlier theories on the topic, ours also applies both in case of sunk costs and in the absence of competition.

篇名	*Endogenous third-degree price discrimination in Hotelling model with elastic demand*
作者	*Tong Zhang · Yixue Huo · Xin Zhang · Jie Shuai (2019)*
出處	Journal of Economics, 127(2), 125-145
摘要	We relax two common assumptions in the Hotelling model with third-degree price dis- crimination: inelastic demand and exogenously assumed price discrimination. Based on the constant elasticity of substitution representative consumer model, we allow firms to endogenously choose whether to acquire consumer information and price discriminate. We find that when the information cost is sufficiently low, there exist two symmetric sub-game perfect Nash equilibria irrespective of the demand elasticity: both firms acquiring information and price discriminating, and neither firm acquiring information and charging a uniform price. This implies that the widely discussed prisoners' dilemma, in which both firms are exogenously assumed to price discriminate, is not in fact a dilemma. A comparison of social welfare shows that when the demand elasticity is large enough, price discrimination improves social welfare. This is in contrast to the finding—price discrimination harms social welfare—in the existing literature assuming perfect inelastic demand.
研究動機	A common assumption made in the literature assuming simultaneous determination of discriminatory prices and uniform price is that, firms price discriminate despite the fact that they can choose uniform price. In other words, the possibility of a uniform price equilibrium is overlooked in this strand of literature. Much of the literature explores different ways of price discrimination based on this assumption (e.g., Shaffer and Zhang 1995, 2000; Bester and Petrakis 1996), finding that price discrimination usually leads to an all-out competition, which is concluded as a prisoners' dilemma. This conclusion is questionable though. Another assumption shared in the abovementioned literature is that consumers' demand is perfectly inelastic. Due to this assumption, the aggregate output is fixed. As a result, although price discrimination lowers equilibrium prices, it does not increase output. Combined with the fact that price discrimination induces inefficient travelling from those consumers buying from a distant store, social welfare is lowered. The literature thus reaches an agreement that price discrimination should be banned to improve social welfare. What if consumers' demand is elastic? In this case, the lowered prices resulting from price discrimination will increase the aggregate output, which tends to improve social welfare. Price

	discrimination thus has two opposite effects on social welfare, and its overall effect may be reversed.
模型	Two firms, A and B, located at the extremes of a unit interval $[0, 1]$, sell competing brands to a continuum of consumers who are uniformly distributed along this interval. A representative consumer whose location is $x \in [0, 1]$ is at a distance $d_A(x) = x$ from firm A and at a distance $d_B(x) = 1 - x$ from firm B. Consumer's transport cost is linear in distance and does not depend on the quantity purchased. Particularly, the transport cost to firm $i = A, B$ is $t \cdot d_i(x)$, where consumer's location x represents her preference, while $t > 0$ $\varepsilon = -q_i'(p_i)\frac{p_i}{q_i} \in [0, 1)$ measures how much she dislikes buying a less preferred brand. We assume that each consumer's demand is price-dependent. The $$\hat{x} = \frac{1}{2} + \frac{p_B^{1-\varepsilon} - p_A^{1-\varepsilon}}{2t(1-\varepsilon)}. \quad (1)$$ Gross demands for firm A and B are respectively: $$D_A = \hat{x} p_A^{-\varepsilon}, \quad D_B = (1-\hat{x}) p_B^{-\varepsilon}, \quad (2)$$ and their profits are $$\pi_A = \hat{x} p_A^{1-\varepsilon}, \quad \pi_B = (1-\hat{x}) p_B^{1-\varepsilon}. \quad (3)$$ (indirect) utility function for a representative consumer buying from firm i is: $V_i = Y + u(p_i) - td_i(x)$, where Y is the consumer's income and $u(p_i)$ is her consumer surplus (net of transport costs) if she buys from firm i at a price of p_i. The conditional demand for product i is $q_i = -u'(p_i) = p^{-\varepsilon}$, where is the constant elasticity of conditional demand. When $\varepsilon = 0$, the model simplifies to the standard perfectly inelastic demand model. It can be easily shown that the consumer indifferent between buying from firm A and B is located at Up to this point, we assume that what firms know about consumers is that they are uniformly distributed on the interval. We assume that the information is exogenous and once acquired, enables the firms to segment the consumers into different groups and price accordingly.

	The game is played in two stages. • Stage 1 Information acquisition stage. The two firms decide simultaneously and independently whether to acquire information. • Stage 2 Pricing stage. After observing both firms' information acquisition decisions from stage 1, firms simultaneously and independently decide their prices.
研究結果	In the literature, because price discrimination usually leads to all-out competition, it is believed to be a prisoners' dilemma. This argument implicitly relies on the fact that both firms price discriminating is the only SPNE, which has not been verified. Another common assumption made in the literature on spatial price discrimination with best response asymmetry is that consumers' demands are perfectly inelastic. Due to this assumption, price discrimination which induces inefficient switches by consumers, usually reduces social welfare. This paper relaxes these two assumptions of perfectly inelastic demand and exogenously assumed price discrimination. We find that there exist two SPNEs: both firms price discriminating and both firms choosing a uniform price. From the firms' perspective, uniform pricing dominates price discrimination. This indicates that the widely discussed prisoners' dilemma due to price discrimination is in fact not a dilemma. This result is robust to variation in demand elasticities. The introduction of demand elasticity brings a positive effect of price discrimination on social welfare, the out- put expansion effect. When the demand is sufficiently elastic, this output expansion effect outweighs the inefficient switching effect and social welfare is increased.
研究貢獻	First, although it is becoming easier for firms to collect consumers' information and price discriminate, there are many cases in which firms choose not to do so. Our results provide an explanation for this. Second, our result that price discrimination can improve social welfare implies that in some circumstances, price discrimination should be encouraged instead of being banned.
未來研究方向	We have assumed the market is divided into two segments when firms acquire information. What if the quality of the information is improved, so the market partition is further refined? What if the quality of the information can be determined (designed) by the firms or a regulator. This adds to the fast growing literature on information design. Another direction is to consider a different specification of elastic demand, such as a linear demand similar to Rath and Zhao (2001). A third direction is to introduce asymmetry between the two firms, and examine how the equilibria vary with the degree of asymmetry.

篇名	*Strategic corporate social responsibility, imperfect competition, and market concentration*
作者	*Lisa Planer-Friedrich, Marco Sahm*
出處	Journal of Economics (2020) 129:79–101
摘要	This paper examines the strategic use of corporate social responsibility (CSR) in imperfectly competitive markets. Before firms decide upon supply, they choose a level of CSR which determines the weight they put on consumer surplus in their objective function. First, this paper considers Cournot competition and show that the endogenous level of CSR is positive for any given number of firms. However, positive CSR levels imply smaller equilibrium profits. Second, this paper finds that an incumbent monopolist can use CSR as an entry deterrent. Both results indicate that CSR may increase market concentration. Finally, this paper shows that CSR levels decrease as the degree of product heterogeneity increases in Cournot competition and are zero in Bertrand Competition.
研究動機	Corporate social responsibility (CSR) has become a major concern for many firms, particularly large ones. It refers to all social and environmentally friendly activities of a firm beyond its legal requirements. Even pure profit-maximizing firms engage in CSR because it may serve as a commitment device for their strategy choices in oligopolistic environments. Based on this notion, our paper investigates the interplay between the market structure and the level of firms' social concern.
模型	Consider competition between $n \in \mathrm{N}$ profit-maximizing firms on the market for some homogeneous good with (normalized) linear inverse demand $p = 1 - \sum_{i=1}^{n} q_i$. where p denotes the price of the good and q_i denotes the output of firm $i \in \{1, \ldots, n\}$. Marginal costs of production are assumed to be constant and identical for all firms. For simplicity, normalize them to zero. Competition between firms is modeled as a two-stage game. In the first stage of the game, each firm $i \in \{1, \ldots, n\}$ publicly commits to a certain objective function V_i. In particular, firm i chooses its level of CSR, i.e., the weight $\theta_i \geq 0$ it puts on consumer surplus CS in addition to profits π_i: $V_i = \pi_i + \theta_i \cdot CS = \left(1 - \sum_{j=1}^{n} q_j\right) q_i + \frac{1}{2} \cdot \theta_i \cdot \left(\sum_{j=1}^{n} q_j\right)^2$. In the second stage of the game, firms decide simultaneously on their output levels $q_i \geq 0$ in order to maximize their objective functions V_i.

研究結果	Shown that the endogenous level of CSR is positive for any given number of firms active in symmetric Cournot competition. Demonstrated that an incumbent monopolist can profitably use CSR as an entry deterrent. Both results indicate that CSR may increase market concentration and possibly be anticompetitive. Identified circumstances in which CSR decreases consumer surplus, but mitigates the problem of excessive entry thereby increasing total welfare. Shown that, qualitatively, the results also hold in Cournot competition with heterogeneous goods. Firms will not engage in CSR if faced with Bertrand competition.
研究貢獻	First, we have shown that the endogenous level of CSR is positive for any given number of firms active in symmetric Cournot competition. Since positive CSR levels imply smaller equilibrium profits, however, consolidation of the market may result. Second, we have demonstrated that an incumbent monopolist can profitably use CSR as an entry deterrent. Both results indicate that CSR may increase market concentration and possibly be anticompetitive. Indeed we have identified circumstances in which CSR decreases consumer surplus, but mitigates the problem of excessive entry thereby increasing total welfare. Finally, we have shown that, qualitatively, the results also hold in Cournot competition with heterogeneous goods. The basic intuition is that the strategic use of CSR serves as a commitment to increase output. While this commitment leads to a kind of prisoner's dilemma in the case of substitutes, it helps to internalize the positive externalities in the case of complements. Such a commitment is, however, undesirable on markets with price competition because larger output implies lower prices. Consequently, firms will not engage in CSR if faced with Bertrand competition.
未來研究方向	None

篇名	Product compatibility as a signal of quality in a market with network externalities
作者	Jeong-Yoo Kim
出處	International Journal of Industrial Organization 20 (2002) 949–964
摘要	In this paper, I consider the compatibility decision as a signaling device of the quality of a newly introduced technology of which users are not informed. Provided that firms are located sufficiently far apart in Hotelling's [0,1] interval, I find separating equilibria where low compatibility signals high quality. This possible separation is due to the fact that low compatibility is more advantageous to the high-quality entrant than to the low-quality entrant, since it can prevent users of the established technology from enjoying network benefits from the new technology very much. 2002 Elsevier Science B.V. All rights reserved
研究動機	Many industries are characterized by the existence of network externalities. Prominent examples include the computer industry, the broadcasting industry, the telecommunications industry, and many consumer electronics industries such as video cassette recorders, compact disc players, etc. a firm attempts to make its product compatible with its competitor's to attract the consumers locked in to the competing product.
模型	Users are located uniformly on an interval [0,1]. The established firm A sponsoring technology A is located at one extreme of the interval, x=0. Another firm B, which has just developed a new technology B, is located at the other extreme x=1. Both technologies generate network externalities but they are not compatible with each other. Users know that the quality of technology A is r, but they are not sure of the quality of technology B, γ_B , which is private information of firm B. I assume that γ_B is either γ_H or γ_L where $\gamma_H > \gamma_L > \gamma$ and that Prob(γ_B= γ_H) =λ. Here, the quality of a technology reflects how well it performs the designated job. I define the type of firm B, ω, as its quality. If its quality is $\gamma_H(\gamma_L)$ firm B will be called to be of type H (L). Each firm is assumed to have identical, constant marginal cost. In fact, this assumption implies that the unit production cost of firm B is the same whether the type of firm B is either L or H. Without loss of generality, I will normalize it to 0. Then, the overall valuation of a user located at x on technology A is $\gamma - p_A - tx + \alpha z_A + \alpha\beta z_B$ B is $r_B - p_B - t(1-x) + \alpha z_B + \alpha\beta z_A$

研究結果	**Proposition 1.** (i)$\frac{\partial \pi_B^*}{\partial \beta} > 0$. (ii)$\frac{\partial^2 \pi_B^*}{\partial \beta^2} > 0$.(iii)$\frac{\partial \pi_B^*(\beta,H)}{\partial \beta} < \frac{\partial \pi_B^*(\beta,L)}{\partial \beta}$ Proposition 2. Under full information, either $\beta^*(H) < \beta^*(L)$or $\beta^*(H) = \beta^*(L) = 1$ **Theorem 1.** The following strategies and beliefs constitute separating equilibria: (i) H-type firm B chooses $B_H \in [B_H, B_H]$ where $B_H<\beta^*(H)$ and L-type firm B chooses $B_L=\beta^*(L)$. (ii) Firm A and users update their belief $\hat{\lambda}(\beta)=1$, or equivalently, $\sigma(\beta)=H$ if $\beta \leq B_H$ and $\hat{\lambda}(\beta)=0$, i.e. $\sigma(\beta)=L$ if $\beta > B_H$. (iii) At each period, firm i charges $p_i^*(\beta,\sigma)$,σ=L,H, i=A,B
研究貢獻	demonstrate that high quality can be signaled through low compatibility. This possibility comes from the fact that the cost of a change in compatibility is different between a high-quality firm and a low-quality firm. High compatibility is disadvantageous to the entrant who introduces a new high-quality technology, since it gives users of the established technology large network benefits from the new technology. Moreover, this disadvantage becomes more severe as the quality of the new technology increases. This is the main force that enables low compatibility to signal high quality.
未來研究方向	Most papers consider a firm's compatibility decision as a means of increasing its market share directly by allowing its users to enjoy the network benefits of the competitor's technology, but this paper suggests that it can be also used as a way of conveying its private information that it is of good quality

篇名	*Intra-brand competition in a differentiated oligopoly*
作者	*Michèle Breton, Lucia Sbragia*
出處	Journal of Economics (2021) 132:1–40
摘要	In this paper we consider a differentiated oligopoly with two product varieties that are supplied by two groups of firms. After computing the Cournot solution of the game, we study its sensitivity to different sources of competition, namely the degree of product substitutability and market composition. Market composition can change either via new firms entering one industry or via firms switching production techniques, thus modifying the intensity of intra-brand competition. After studying the welfare consequences of an intensification of competition, we identify the equilibrium market composition when firms are driven by profit considerations. All the results are expressed in terms of the degree of product substitutability and of what we define ‘‘weighted relative efficiency’’ (WRE), which is a parameter combining both firm characteristics and market conditions.
研究動機	In response to consumers’ increasing concern for the environment and interest in making greener choices, firms have started investing in production practices that allow them to receive a label certifying their compliance with certain set standards. Certified firms may also compete against each other. In this paper, we use the term inter-brand competition to designate competition among firms selling different but interchangeable products (substitute goods), and intra-brand competition to designate competition among firms selling the same (homogenous) product. Using the emergence of green production practices as a motivating example, the objective of this paper is to analyze various sources of competition in a differentiated oligopoly.
模型	Consider an industry populated by N firms. Producers are divided into two groups of similar types, and members of the same group use the same technology to produce a homogeneous product (e.g. with “high” and “low” ecological footprint). Let $k \in \{H, L\}$ index the product type and n_k denote the number of producers within group k, with $n_H + n_L = N$. Accordingly, assuming a linear cost function, the total production cost of a quantity q_{ki} of product $k \in \{H, L\}$ by producer $i \in \{1, \ldots, n_k\}$ is given by $C_{ki} = f_K + m_k q_{ki}$. where $m_k \geq 0$ and $f_k \geq 0$ are, respectively, the marginal and fixed production costs. Since goods produced by firms of a given type are homogeneous, consumers are offered two product varieties. we assume that the representative consumer has a taste for variety, and that her quadratic utility function is strictly concave and described by $U(Q_H, Q_L) = A_H Q_H + A_L Q_L -$

	$\frac{1}{2}(F_H Q_H^2 + 2SQ_H Q_L + F_L Q_L^2)$. where Q_H and Q_L are the total production of the firms of type H and L, respectively, and where $F_k > 0$, $A_k > 0$ and $S \geq 0$ for $k \in \{H, L\}$. The parameters A_k can be interpreted as the quality (vertical) differentiation between product varieties. The parameter $S \geq 0$ is the symmetric degree of substitutability between any pair of varieties.
研究結果	The asymmetry is encapsulated in a parameter called the weighted relative efficiency (WRE), with relative values symbolizing the advantage of a specific group of firms. After characterizing the equilibrium solution of the Cournot oligopoly, we analyze its response to the degree of product substitutability (horizontal product differentiation). We find that, due to intra-brand competition, a stronger horizontal competition may in some instance have a positive impact on quantities and profits of the industry. We also study the consequences and welfare impacts of changes in the industry composition. We analyze both unilateral (long-term) changes and changes resulting from industries switching from one group to the other. Such changes are to be understood as the possibility for a firm to adjust its production practice and join the group producing the alternative product variety when the total number of players in the industry is fixed. Assuming that such behavior is driven by profit considerations, we further characterize the equilibrium composition of the market. Our results depend on the relative WRE of the two types of firms, as well as on the market composition, making them very general and encompassing previous developments found in the literature. Finally, numerical simulations are provided in the context of brown and green production processes, and are used to illustrate theoretical results.
研究貢獻	1. a stronger horizontal product competition can have a positive effect on a firm's output in the presence of intra-brand competition, which is not possible in a simple differentiated duopoly. 2. the analysis of the social welfare impact of changes in the market composition due to either firm entry or to firms switching from one group to the other. We find that positive impacts are driven by two facets: an increase in the overall industry efficiency, and/or an increase in intra-brand competition. 3. the impact of intra-brand competition on the equilibrium supply of individual firms when the size of the industry is fixed, that is, when firms switch from one group to the other. An intensification of intra-brand competition in the smaller group always has a negative effect on the individual quantity produced in this group, no matter its WRE.

未來研究方向	None

國立高雄大學貿易與產業經濟理論討論會　報告人：　蔡建樹　2021/03/29

篇名	*多產品公營事業民營化的福利分析*
作者	鄭義暉、吳世傑與蔡建樹
出處	Working paper
摘要	本文建立一個多產品混合寡占競爭模型，分析存有一家公營與一家民營多產品廠商的產業中，廠商生產差異性產品並於市場上從事產品數量與產品種類競爭的經濟效果。探討公營事業(完全)民營化前後，其產業競爭、市場品牌類別與社會福利改變的大小，並檢視政府是否應推行民營化政策。研究結果發現：公營事業在未進行民營化前，其每一類別財貨的產出水準，都會大於民營廠商每一類別財貨的產出水準。若民營廠商每一類別財貨的單位成本，皆低於公營事業多產品的單位成本，則公營事業的財貨類別數量不一定會比民營事業多。當公營事業單一財貨的單位生產成本，高過民營廠商某一特定水準時，公營事業的財貨類別就會少於民營廠商的財貨類別。在公營事業民營化後，原先由公營事業轉變的民營廠商，其財貨類別一定比民營化前來得少，而民營廠商則會在公營事業進行民營化後，增加其財貨類別的數目。而且，整體產業的總產出與總類別財貨數量都會低於民營化前的水準。當原先公營事業的單位生產成本相對高時，推行民營化使得社會福利增加。當產品差異化程度相對較小，則民營化反而帶來福利的下降。
研究動機	以混合寡占理論模型，探討民營化對公營事業之產品線經營的影響，並討論一般民營公司應如何針對公營事業產品線的更動，策略性地修正其產出水準與產品種類，繼以對多產品公營事業的民營化問題，進行福利面的評估。
模型	設立了一個公民營混合寡占的賽局模型，其中假設在一差異性產品產業裡存在一家公營與一家民營的多產品廠商，在市場上同時從事產品數量與產品種類的競爭，而政府則會依據公營事業 (完全) 民營化前後產業競爭、市場品牌總類與社會福利改變的大小來決定是否應推行民營化政策。 考慮一個多產品廠商的混合寡占產業，包含一家公營事業 (廠商1)，與一家民營公司 (廠商2)。假設該混合寡占產業可提供N種財貨讓消費者選擇採購。其中，公營事業提供n_1個產品類別，民營廠商則提供n_2個產品類別，即$N=n_1+n_2$。假設這些財貨兩兩之間具有可辨識的差異，且該差異性為對稱的，而消費者對財貨的偏好，可以下列準線性二次形態的效用函數表示：

$$u = \alpha \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i(j) - \frac{\beta}{2} \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i^2(j) - \frac{\gamma}{2} \left[\sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i(j) \right]^2 + z \quad (1)$$

其中，z 為計價財貨，其貨幣價格標準化為1元，$q_i(j)$ 為個別消費者對於廠商 i $(i = 1,2)$ 第 j $(j = 1, \dots, n_i)$ 種財貨的消費量。參數 α、β、γ 均為正數，且$\gamma \leq \beta$，其中 α值愈大(或γ值愈小)，表示消費者相對於 z 財更偏愛於差異性的財貨，而 β 值代表消費者鍾愛於差異性財貨總類別 (love for variety) 的程度，且 $\beta \in [0,1]$，當 β 值越大，表示消費者愈偏好將其消費支出平均分攤在各不同類的商品上。

假設消費者每人提供 1 單位的勞動量，並且消費者的總人數標準化為 1，則消費者的預算限制條件可表示為：

$$\sum_{i=1}^{2} \sum_{j=1}^{n_i} p_i(j) q_i(j) + z = w, \quad (2)$$

其中，w 為工資，$p_i(j)$ 為廠商 i 第 j 財貨的市場價格。可知消費者對廠商 i 第 j 種財貨的市場 (反) 需求函數如下：

$$p_i(j) = \alpha - \beta q_i(j) - \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i(j) = \alpha - \beta q_i(j) - \gamma Q, \quad (3)$$

並且可得出消費者對於差異性產品的總支出是：

$$\sum_{i=1}^{2} \sum_{j=1}^{n_i} p_i(j) q_i(j) = \alpha Q - \beta \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i^2(j) - \gamma Q^2. \quad (4)$$

則消費者剩餘 CS (consumer surplus) 為：

$$CS = \frac{1}{2} \left[\beta \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i^2(j) + \gamma Q^2 \right]. \quad (5)$$

依據一般混合寡占產業模型的設定，假設公營事業 (廠商 1) 目標為追求社會福利極大，而民營廠商 (廠商 2) 目標則為追求利潤極大。社會福利包含消費者剩餘與市場上所有廠商的利潤，廠商 i $(i = 1,2)$ 的利潤水準為：

$$\pi_i = \sum_{j=1}^{n_i} [(p_i(j) - c_i) q_i(j) - f], \quad (6)$$

其中，f 為廠商維護生產線上每一類產品必須投入的成本總和，包含產品開發、行銷、物流、機器維修與人事行政等花費等 (以下簡稱「維護成本」)。可寫出下列的社會福利函數 (W)：

$$W = CS + \sum_{i=1}^{2} \pi_i$$

$$= \frac{1}{2} \left[\beta \sum_{i=1}^{2} \sum_{j=1}^{n_i} q_i^2(j) + \gamma Q^2 \right] + \sum_{i=1}^{2} \sum_{j=1}^{n_i} [(p_i(j) - c_i) q_i(j) - f], \quad (7)$$

研究結果	**定理1**　給定的效用函數如方程式 (1)，並假設多產品混和寡占產業的廠商可同時決定產品數量與產品類別，則公營事業與民營廠商其每一類財貨的均衡數量皆為一固定值，且公營事業單一財貨的產出皆大於民營廠商單一財貨的產出。 **定理2**　各類型廠商的產品類別數會隨著產品的維護成本與消費者對產品種類偏愛程度的增加而呈現遞減的現象。多產品民營廠商的生產效率必須優於多產品公營事業一定的水準，即 $c_2 < \bar{c}_2$，才能存活於混合寡占競爭的產業中。 **定理3**　若$\tilde{c}_1 \le c_1 \le \bar{c}_1$，則多產品民營廠商的產品類別數目會大於多產品公營事業的產品類別數目 $(n_2^M > n_1^M)$；但當$\underline{c}_1 \le c_1 < \tilde{c}_1$，則多產品民營廠商的產品類別數目會小於多產品公營事業的產品類別數目 $(n_2^M < n_1^M)$。 **輔理1**　若對多產品廠商所組成的混合寡占產業推行民營化，必然會使原先的公營事業體每一產品的產出數量減少，但民營廠商任一產品的產出水準則不受民營化政策的影響。 **輔理2**　若對多產品廠商所組成的混合寡占產業推行民營化，必然使得原先的公營事業體減少其產品類別數量，但卻使民營廠商增加其產品類別數量。但民營化後，產業所有產品類別數量則會減少。 **輔理3**　若對多產品廠商所組成的混合寡占產業推行民營化，則民營化後該產業的總產量必然減少。 **定理4**　在假設1與假設2成立下，當公營廠商每一財貨的單位成本 (c_1) 大於一定水準時，若對多產品的公營事業進行民營化，可增進社會福利水準。 **推論1**　當市場規模 (α) 越大，則公、民營廠商成本差距 (c_1) 越大，多產品的公營事業民營化，越能提高社會福利。 **推論2**　當多產品廠商每一產品線的維護成本 (f) 越大，則公、民營廠商成本差距 (c_1) 越大，多產品的公營事業民營化，越能提高社會福利。且當此維護成本高於某一水準，則沒有民營化可能。 **推論3**　當消費者偏好多樣性的程度 (β) 越大，則公、民營廠商成本差距 (c_1) 越大，多產品的公營事業民營化，越能提高社會福利。
研究貢獻	1.發展一個多產品國營事業民營化的理論模型，並提出與既存的(單一產品國營事業)民營化文獻相互補充或競爭的觀點，此為未來民營化議題研究必須著重發展的面向。 2.發現產品種類的多寡在推行民營化也扮演了中要角色。產品類別因民營化而減少，一旦公民營廠商的生產單位成本差距大於一定水準時，民營化帶來

	的成本節省效果，將高過於消費者因產品選擇類別變少的福利損失，此時推行民營化有利改善社會福利水準。這是先前的相關文獻中尚未被深入探討。
未來研究方向	多產品國營事業最適民營化政策探討

篇名	Strategic inattention, delegation and endogenous market structure
作者	Roberto Cellini a , Luca Lambertini b,* , Gianmarco I.P. Ottaviano
出處	European Economic Review 121(2010)103324
摘要	We model an industry in which a discrete number of firms choose the output of their differentiated products, deciding whether or not to consider the impact of their decisions on aggregate output. The firm's choice of ignoring the impact of its production on aggregate output, which is typical of monopolistic competition, is derived as an equilibrium choice rather than assumed upfront. Such a choice is labelled as 'strategic inattention'. We show that our model of "strategic inattention" is isomorphic to a model of 'strategic delegation' with managerial compensation based on relative profit performance. Thus, monopolistic competition and Cournot oligopoly are reconciled within a general model which can lead to either market form
研究動機	We provide a justification of why a discrete number of firms may disregard the impact of their individual choices on aggregate output: there might well be circumstances in which a firm's profit maximizing choice is indeed to strategically neglect that piece of information so that an industry equilibrium emerges in which a discrete number of firms choose to behave as monopolistic competitors rather than as oligopolists.
模型	Consider an industry in which n single-product firms (indexed by h = 1 , . . . , n) sell n horizontally differentiated products facing linear inverse demand $p_h = a - \beta q_h - \sigma Q$. where a, β and σ are positive parameters, p_h and q_h are the price and the output level of firm h , while $Q = \sum_{h=1}^{n} q_h$ is industry output.Total cost is assumed to be a quadratic function of output: $c_h = cq_h + bq_h^2$. While the demand parameters are assumed to be positive, the cost parameters are assumed to be non-negative with c < a . To make future expressions less cumbersome, it is useful to define the following positive bundling parameters :$\alpha \equiv \frac{a-c}{\beta+b}$, $\eta \equiv \frac{\sigma}{\beta+b}$, $\gamma \equiv \beta + b$ so that the profit of firm i can be written as $\pi_h = \gamma(\alpha - q_h - \eta Q)\, q_h$.
研究結果	**Proposition 1.** Consider an industry in which n firms either behave as monopolistically competitive units or delegate control to managers in charge of setting the output levels through RPE contracts. The outcomes of the symmetric subgames in which all firms either (i) behave as monopolistically competitive agents or (ii) delegate control to managers are isomorphic.

	Lemma 2. Consider an industry in which n firms compete by choosing the output levels of their differentiated products. In making this choice, firms can decide whether or not to take the impact of their individual choices on aggregate output into account. Then, no subgame perfect equilibrium in pure strategies exists in which some firms take the aggregate impact of their individual choices into account while others do not ($0 < k < n$) **Proposition 3.** Consider an industry in which n firms compete by choosing the output levels of their differentiated products. Firms can decide whether or not to take into account the impact of their decision on aggregate output, that is, they can decide whether or not to be attentive. Define $n_L \equiv 1 + \frac{2}{\eta} \sqrt{\eta + 1}$ and $n_H \equiv 1 + (1 + \frac{2}{\eta})\sqrt{\eta + 1}$. Then, for $1 < n < n_L$ there exists a unique subgame perfect equilibrium in pure strategies in which all firms are attentive. For $n > n_H$ there exists a unique subgame perfect equilibrium in pure strategies in which all firms are inattentive. For $n_L \leq n \leq n_H$ there are two subgame perfect equilibria in pure strategies, one in which all firms are inattentive and the other in which all firms are attentive.
研究貢獻	Three final comments are in order. First, with fully symmetric demand and cost functions, equilibrium outcomes with a mixed population of firms (some considering and others neglecting their respective impacts on aggregate output) exists only in mixed strategies. These "mixed" outcomes may be quite relevant in practice and would be easy to generate with pure strategies if one allowed for firms' heterogeneity and 'rational inattention' motivated by costly information acquisition and processing.
未來研究方向	Investigating whether this would also be possible with 'strategic inattention' in the absence of any cost of acquiring and processing information is an interesting direction of future research. Second, we have considered 'strategic inattention' and 'strategic delegation' with relative performance evaluation in the case of single-product firms. It may be interesting to extend the analysis to the case of multi-product firms that can choose whether to neglect the individual impact of a product output on firm or industry total output.

國立高雄大學貿易與產業經濟理論討論會　報告人：　蔡建樹　2021/04/19

篇名	*Intertemporal price discrimination*
作者	Paul Belleflamme and Martin Peitz

出處	Industrial Organization: Markets and Strategies
摘要	In many markets, firms offer the same product in different periods and consumers buy only one item over the whole time horizon. This description of consumer behavior fits particularly well for durable goods. In the case of durable goods, consumers derive the benefit from the purchase of the good over a number of periods. Also, consumers can decide on the timing of their purchase. An important issue is whether a firm can commit to future prices and if the answer is negative, what kind of prices consumers expect. Clearly, even if a firm preannounces future prices, we must ask whether the firm has an incentive to deviate at some later point.
研究動機	To understand the peculiarities of durable goods. And analyze how a firm sets the price of a durable good at different periods of time. To explain why the answer to the previous question crucially depends on the possibility to commit to future prices and on the number of consumers. To understand the practice of behavior-based price discrimination, and its implications for firms and consumers.
模型	Firms offer the same product in different periods. Consumers buy only 1 item over the whole horizon. By analogy, items that can be ordered in advance. Monopoly selling a durable good. No possibility to commit over future prices. Durable product can be sold over 2 periods. Consumers derive utility from a unit of this product only in these 2 periods. Monopolist sets price of product in period 1 (p^1) and in period 2 (p^2). Consumers who purchase the product in period 1 (2) benefit from its services for 2 (1) periods. Firm and consumers have the same discount factor, δ. We contrast 2 models Small number of consumers (2 consumers) Large number of consumers (continuum)
研究結果	***Lesson 1****: A durable good monopolist (who cannot commit to future prices) may be able to increase profits through intertemporal price discrimination compared to a situation in which it is only active in the first period.* ***Lesson 2****: In a market with 2 consumers, the firm may prefer intertemporal pricing to selling to both consumers in the first period because the firm can fully discriminate between the 2 consumers.* ***Lesson 3****: With a continuum of consumers, a durable good monopolist cannot increase profits through intertemporal price discrimination compared to a situation in which it is only active in the first period.* ***Lesson 4****: In the 2-period durable good problem with a continuum of consumers and without commitment, the monopolist obtains lower profit and sets a lower 1st-period price than if it can commit to sell in period 1 only.* ***Lesson 5****: Under fixed and limited capacity, and under demand certainty, both clearance sales and introductory offers allow the monopolist to 'concavify' its single-price revenue function and lead to the same revenue, which may be greater*

	than with uniform pricing. ***Lesson 6****: If capacity can be adjusted without cost, there is no rationale to intertemporally price discriminate in markets in which demand is certain and in which consumers do not learn over time.* ***Lesson 7****: Even if capacity can be adjusted ex ante without cost, intertemporal price discrimination can be profit maximizing under aggregate demand uncertainty.* ***Lesson 8****: A firm may optimally use intertemporal pricing as a price discrimination device in an environment in which it can perfectly predict its demand but not all consumers can perfectly predict their valuation at the beginning.* ***Lesson 9****: A firm that sells a good over 2 periods and cannot commit to future prices conditions its second-period price on purchase history.* ***Lesson 10****: If a durable good monopolist operates in a market that opens for 2 periods and is able to condition its rental price on rental history, selling or renting out a durable good is revenue equivalent.*
研究貢獻	The main insight in this context was that the possibility of discrimination makes competition more intense after initial customer bases have been built. However, this tends to reduce competitive pressure at the stage where the initial customer base is determined, leading to high initial prices.
未來研究方向	The analysis can be extended in several directions, essentially with respect to (i) the nature of intertemporal price discrimination, (ii) the durable goods monopolist with/ without Coase conjecture.

國立高雄大學貿易與產業經濟理論討論會　報告人：陳彥蓉　　2021/05/10

篇名	*Outsourcing, vertical integration, and price vs. quantity competition.*
作者	*Arya, A., Mittendorf, B., & Sappington, D. E. (2008).*
出處	International Journal of Industrial Organization, 26(1), 1-16.
摘要	We show that standard conclusions about duopoly competition can be reversed when the production of key inputs is outsourced to a vertically integrated retail competitor with upstream market power. Under such outsourcing, Bertrand competition can produce higher prices, higher industry profit, lower consumer surplus, and lower total surplus than Cournot competition. In addition to limiting the intensity of retail competition, Bertrand competition can limit the extent of wholesale competition by reducing the incentive of retail providers to produce key inputs themselves.
研究動機	Outsourcing the production of key inputs to external suppliers is ubiquitous in today's economy, and outsourcing to retail competitors is common in many important industries. For example, in the telecommunications industry, vertically integrated incumbent operators routinely supply key inputs (e.g., telephone loops)1 to retail competitors. In addition, soft-drink producers, cereal manufacturers, and gasoline refiners have long supplied key inputs both to their downstream affiliates and to retail competitors. More recently, the explosion in online commerce has brought manufacturers into direct competition with their own retailers. Our demonstration of this conclusion and related observations proceeds as follows. Section 2 describes the key elements of our baseline model, in which a VIP is the monopoly supplier of an essential input to a non-integrated retail rival. Section 3 demonstrates that retail prices and industry profit are higher while consumer surplus and total surplus are lower under Bertrand competition than under Cournot competition in this setting.

模型	Consumer demand for the retail product of firm i is given by the (inverse) demand function pi=α−qi−γqj, where pi is the price of firm i's retail product, α is a strictly positive constant, and qi and qj are the outputs of firms i and j, respectively (i, j∈{1,2}, i≠j). The parameter γ∈(0,1) represents the degree of product homogeneity. As γ approaches 0, the products of the two retail providers become independent. As γ approaches 1, the products of the firms become completely homogeneous. The profits of firms 1 and 2 when firm i produces retail output qi, firm i's retail price is pi, and the input price is w are, respectively: $$\pi_1 = wq_2 + [p_1 - c_1]q_1$$ $$\pi_2 = [p_2 - w - c_2]q_2$$ Consumer surplus given retail outputs q1 and q2 is: $$CS = [(q_1^2 + 2\gamma q_1 q_2 + q_2^2)]/2$$ Ensuing calculations are simplified by introducing the parameters α1≡α−c1 and α2≡α−c2. In words, αi is the difference between the intercept of firm i's inverse demand curve and its downstream marginal cost of production. The larger is αi, the more efficient is firm i in its retail operations. We assume α1≥α2, so the VIP (firm 1) is at least as efficient a retail provider as its rival (firm 2). The analysis in Section 4 demonstrates that this industry structure arises endogenously as the equilibrium of a simple game. Lemma 1. Under both Bertrand and Cournot retail competition, firm 1 forecloses firm 2 (i.e., q2=0) if and only if α2 /α1≤γ. Lemma 2. Given (NF), firm 1 sets a higher input price under Bertrand competition than under Cournot competition.
研究結果	It is well known that Bertrand competition typically produces lower retail prices, lower industry profit, and higher levels of consumer surplus and total surplus than Cournot competition. We have shown that these standard conclusions can be reversed when a retail competitor secures an essential input from a vertically integrated provider of substitute goods. In the presence of such outsourcing, Bertrand competition can produce higher retail prices, higher industry profit, and lower levels of consumer surplus and total surplus than Cournot competition. These outcomes arise because the vertically integrated

	producer (VIP) sets a relatively high input price under Bertrand competition in order to establish a high opportunity cost of aggressive retail competition. The high opportunity cost provides the VIP with a credible commitment to engage in less aggressive retail competition, which serves to increase the retail rival's output and thus its demand for the VIP's (lucrative) input. The resulting diminished intensity of retail competition and the relatively high input price under Bertrand competition produce the higher retail prices that cause the reduction in consumer surplus and total surplus (and the increase in industry profit) relative to Cournot competition.
研究貢獻	The main contribution of our analysis: We show that standard conclusions about duopoly competition can be reversed when the production of key inputs is outsourced to a vertically integrated retail competitor with upstream market power. Under such outsourcing, Bertrand competition can produce higher prices, higher industry profit, lower consumer surplus, and lower total surplus than Cournot competition.
未來研究方向	Future research might consider more general demand and cost structures, economies/ diseconomies of integration, relevant information asymmetries, and alternative forms of wholesale and retail competition. Although these extensions may provide new insights of interest, they seem unlikely to reverse the finding that outsourcing to vertically integrated rivals can alter standard conclusions about outcomes under price and quantity competition

篇名	*Mergers and innovation sharing*
作者	*Vincenzo Denicolò , Michele Polo*
出處	Economics Letters Volume 202, May 2021, 109841
摘要	We extend the classic model of Perry and Porter (1985) to allow for cost-reducing innovations and in this setting we analyse the competitive effects of horizontal mergers. The analysis focuses on the innovation-sharing mechanism, whereby the merging firms share the results of their research, enlarging the base of application of inventions and hence the incentive to innovate. We show that if marginal costs are increasing, the innovation-sharing mechanism may more than offset the contractionary output effect that operates for any given state of the technology, making horizontal mergers pro-competitive even in the absence of synergies in production and research. © 2021 Published
研究動機	It is well known that innovation sharing can increase the incentive to innovate (Atallah, 2016) and the profitability of mergers (Kleer, 2012). But less is known on whether the innovationsharing mechanism in itself can make horizontal mergers procompetitive, more than offsetting the well-known contractionary output effect that operates for any given state of the technology In this respect, existing results are sparse and tend to suggest a negative answer.
模型	2.1. Demand, cost and timing Consider a homogeneous product industry with n firms, indexed by i = 1, 2, . . . , n, that compete in quantities. Ex ante, firms are symmetric. Asymmetries may however arise ex post, when firms merge. Demand is taken to be linear; with no further loss of generality, it may be specified as $p = 1 - Q$ (1) where qi is firm i's output and $Q = \sum_{i=1}^{n} q_i$ is aggregate output. Firm i's total cost function is: $C(q_i, x_i) = (c - x_i)q_i + \frac{\nu}{2}q_i^2 + \frac{\beta}{2}x_i^2.$. (2) Parameter ν ≥ 0 is the slope of the marginal cost $C'_{q_i}(q_i) = c + \nu q_i$ function and thus measures the degree of diminishing returns at the firm level. The variable x_i which is bounded above by c, denotes firm i's cost-reducing innovation. The last term of (2) is the R&D cost, with parameter β ≥ 0 measuring the costliness of innovation. Eq. (2) implicitly assumes that each firm can freely use its invention, without infringing any intellectual property right

that may be owned by its competitors. It also assumes that each firm benefits only from its own research, so there is no innovation sharing among competitors. Abstracting from inadvertent technological spillovers, copying, imitation, and licencing allows us to better highlight the innovation-sharing effect of mergers. To avoid proliferation of cases, we assume that $c < \frac{2+\nu}{4+\nu}$. (3) This condition guarantees that all firms produce a positive output, both in the pre- and post-merger equilibrium. Finally, we assume that firms choose output and R&D investment simultaneously, or, equivalently, that a firm's investment is not observable by its competitors. In this way, we abstract from strategic commitment effects. 2.2. Mergers When two firms, say k and j, merge, they can freely reallocate their aggregate output $q_j + q_k = q_m$ across the two plants. Plainly, with decreasing returns and symmetric cost functions it is efficient to set $q_j = q_k = \frac{q_m}{2}$. In contrast to independent firms, we assume that merged firms fully share their innovative technological knowledge. That is, the merged entity applies the more advanced technology (the lower cost) $x_M = \max[x_k, x_j]$. developed in its research units to both of its plants. We assume that research is entirely duplicative — an assumption that minimizes the beneficial technological effects of a merger and thus provides the most conservative setting to assess the impact of the innovation-sharing mechanism. Thus, the cost reduction obtained by the merged entity is (4) Since innovation is deterministic, it follows immediately that after the merger it is pointless to conduct the research in two separate units. One of them will therefore be shut down, and all the research will be conducted in the sole laboratory that remains active. This is efficient as it avoids wasteful duplication of R&D efforts. In light of these efficient choices, the cost function of the merged entity is:

$$C^M(q_M, x_M) = \left[(c - x_M)q_j + \frac{\nu}{2}q_j^2\right] + \left[(c - x_M)q_k + \frac{\nu}{2}q_k^2\right] + \frac{\beta}{2}x_M^2$$
$$= (c - x_M)q_M + \frac{\nu}{4}q_M^2 + \frac{\beta}{2}x_M^2. \qquad (5)$$

The slope of the marginal cost curve for the merged entity falls from ν to ν 2 . Note that this downward shift in the marginal cost curve is not due to sub-additivity,9 i.e. synergies in production, but simply reflects the efficient

	allocation of output across the merged entity's plants.
研究結果	In this paper, we have demonstrated that the innovationsharing mechanism may make horizontal mergers procompetitive. Thus, even mergers that would be anti-competitive for a given state of the technology may increase consumer surplus thanks to their positive impact on innovation. In the literature, this possibility is typically associated with the presence of technological spillovers or other forms of synergy, as for instance in Motta and Tarantino (2017). Our analysis shows that the result may be driven by the innovation-sharing effect in itself. The possibility that the innovation-sharing mechanism may make mergers pro-competitive has been demonstrated in the classic model of Perry and Porter (1985), augmented to allow for cost-reducing innovations.
研究貢獻	In this paper, we re-consider the issue, taking as our starting point the classic model of mergers with Cournot competition and homogeneous products of Salant et al. (1983), extended by Perry and Porter (1985) and Farrell and Shapiro (1990) to allow for diminishing returns. We further extend the model by including cost-reducing innovations into the picture. To focus on the innovation-sharing mechanism, we rule out any other form of synergy or technological spillover. Even so, our analysis shows that even mergers that would be regarded as anti-competitive for a given state of the technology may actually become procompetitive if antitrust authorities consider their beneficial effect on innovation.
未來研究方向	In a different theoretical framework, Davidson and Ferrett (2008) have demonstrated the possibility of pro-competitive mergers with differentiated products. In their model, however, pro-competitive effects can arise only when the products are poor substitutes but are sufficiently similar from a technological point of view that much of the innovative knowledge developed for one can be transferred to the others — a combination that may sound implausible. Davidson and Ferrett assume also that the research conducted by different firms is entirely non-duplicative. But in fact the possibility of pro-competitive mergers does not rest on such strong assumptions and arises also in more standard models of merger and innovation.

篇名	***Cross-ownership and corporate social responsibility***
作者	***Juan Carlos Barcena-Ruiz and Amagoia Sagasta*** *(2021)*
出處	**Manchester School**, 24(2), 1–18
摘要	• This paper introduces corporate social responsibility (CSR) into a quantity-setting duopoly with cross-participation at ownership level. • One firm is fully owned by its shareholder, who also owns a minority participation in the rival firm (controlling shareholder). • We analyze the shareholders' strategic choice of whether to engage their firms in CSR or not. • We find that high levels of cross-ownership discourage the controlling shareholder from engaging his/her firm in CSR. • When the level of cross-ownership is low enough, in equilibrium both firms care about CSR, but the controlling shareholder makes his/her firm less concerned with CSR than the shareholder who runs the rival firm. • We also find that, contrary to the usual result, when firms are concerned with social issues the controlling shareholder obtains a lower income than the other shareholder.
研究動機	• Cross-ownership is a situation in which firms make passive investments in rival firms, obtaining a share in the profit but not in the decision-making of those rivals. • A firm may be interested in acquiring a strategic stake in its rival because as the firm takes into consideration the effect of its output decision on the rival's profit it is induced to produce less, which reduces market competition significantly and increases the price and its profit (see, e.g. Farrell & Shapiro, 1990; Gilo et al., 2006; Malueg, 1992; Ono et al., 2004; Reynolds & Snapp, 1986). • This paper analyzes whether shareholders want to engage their firms in CSR or not and, if they do, the effect of passive investments in rival firms on the CSR level.

模型	• We analyze a duopoly model where only one shareholder holds an exogenous stake in its rival's profit. • Thus, one firm is owned by a single shareholder, who also owns a minority stake in the other (controlling shareholder). We assume homogeneous goods, with linear demand and constant marginal costs. • We analyze three cases: (i) both firms are socially concerned; (ii) the firm jointly owned by the two shareholders is socially concerned but the other is a profit-maximizing firm; and (iii) the firm owned by the controlling shareholder cares about CSR, but the other is a profit-maximizing firm. • As in Planer-Friedrich and Sahm (2020), we consider the CSR level as a strategic variable decided by the shareholders of firms, so we have a three-stage game. • In the first stage, the shareholders decide whether or not to engage in CRS. In the second stage, the shareholders of consumer-friendly firms strategically choose their levels of CSR, thus establishing the weight that their firms will give to the consumer surplus. In the third stage, both firms choose their output levels such that they maximize their objective functions. • Model Setting Shareholders A and B care about their incomes, which are given, respectively, by: $$\pi_A = \pi_1 + \beta\pi_2, \quad (1)$$ $$\pi_B = (1-\beta)\,\pi_2, \quad (2)$$ where π_i denotes the profits of firm $i (i = 1, 2)$. Following Planer-Friedrich and Sahm (2020), shareholder j publicly commits to a certain function V_j, $j = A, B$.[15] The objective functions of shareholders A and B when choosing the output level of the firms are, respectively: $$V_A = \pi_1 + \beta\pi_2 + \theta_1 CS, \quad (3)$$ $$V_B = (1-\beta)\,\pi_2 + \theta_2 CS, \quad (4)$$ where CS denotes consumer surplus, given as usual by $CS = (q_1 + q_2)^2/2$.

	As in Planer-Friedrich and Sahm (2020), we assume that shareholder A has the decision-making power to choose what weight is attached to CSR in the objective function of firm 1, θ_1. Similarly, shareholder B decides θ_2. Shareholders choose the CSR levels that maximize their incomes, where $\theta_i \in [0, 1]$ denotes the weight that firm i puts on consumer surplus in addition to profits. Hence, $\theta_i = 0$ means that firm i only cares about its profits. In contrast, $\theta_i = 1$ implies that firm i cares about its profit and the whole consumer surplus. The inverse demand function is given by $p = a - q_1 - q_2$, where p denotes the market price and q_i is the output of firm i. Firms have identical technologies, with a constant marginal cost of production, c. Therefore, the profits of firm i can be written as: $$\pi_i = (a - q_1 - q_2 - c)\, q_i, \;\; i = 1, 2. \tag{5}$$ Social welfare is defined as the sum of industry profits and consumer surplus, $W = \pi_1 + \pi_2 + CS$. We consider a three-stage game with the following timing. In the first stage, shareholders can make a binary choice: not engaged in CSR ($\theta_i = 0$) and thus to maximize profits or to engage and choose the CSR parameter ($\theta_i \in (0, 1]$). In the second stage, those shareholders who decide to engage in CSR choose how much weight is assigned to consumer surplus in the firm in which they are the main shareholder so as to maximize their incomes, given by (1) and (2), respectively. In the third stage, firms 1 and 2 independently and simultaneously choose their output levels so as to maximize their objective functions. We solve the game by backward induction to obtain a subgame perfect Nash equilibrium. Given that each firm may engage in CSR or not, there are four different subgames: (i) neither firm engage in CSR; (ii) both firms are concerned with CSR; (iii) firm 2 engages in CSR activities, whereas firm 1 maximizes its profits; and finally (iv) firm 1 is concerned with CSR, whereas firm 2 maximizes its profits. Next, we solve the first subgame where firms maximize profits.
研究結果	We find that different equilibria arise depending on the level of cross-ownership: (i) when that level is low enough, in equilibrium both firms care about CSR and (ii) when it is high enough, only the firm that is jointly owned by the two shareholders engages in CSR activities. In case (i), the CSR level chosen by the controlling shareholder is lower than that set by the other shareholder. This means that the fact that a firm receives a minority investment from the owner of a rival may encourage it to be concerned about social issues. We also find that the income of the controlling shareholder can be lower than that of the other shareholder. If both shareholders are concerned about social issues, the shareholder who makes passive investments in the rival firm obtains a lower income. Finally, from a social welfare view-point, given that greater market competition implies greater consumer surplus and greater welfare, the government should encourage both firms to care about CSR because this increases social welfare.

研究貢獻	Theoretical research has analyzed several factors that influence CSR, but the effect of cross-ownership on CSR has not been studied. The literature analyzing CSR usually assumes that firms are owned by different shareholders, so the effect of passive investments in rival firms on the social concerns of firms is not considered. This is a relevant issue because empirical evidence shows that cross-ownership is frequent in many industries in today's economy and that more and more firms are concerned with CSR. To analyze this issue, we consider a duopoly model where only one shareholder holds a minority stake in the rival firm. We assume that the CSR level is a strategic variable that is used by the shareholders of firms to gain market share and profits at the expense of their rivals. To that end, they attach a positive weight to the consumer surplus when deciding the output of the firms. This weight is decided endogenously by the owners of the firms.
未來研究方向	This is a cross-shareholding analysis of a closed economic system. In the future, it can be extended to the study of trade policy and cross-shareholding in an open economy.

篇名	Belleflamme, Paul, and Martin Peitz, 2010, “Dynamic aspects of imperfect competition”, Industrial *Organization Markets and Strategies*, Ch. 4, UK: The Cambridge University Press.
作者	Belleflamme, Paul, and Martin Peitz (2010)
出處	UK: The Cambridge University Press.
摘要	The authors have only considered models in Ch. 3 that are static, in the sense that firms simultaneously take their decision at a single point in time. This is clearly a simplified representation of reality but it helped us a great deal to understand the basic principles of oligopoly competition. In Ch 4, they want to extend the analysis by incorporating the time dimension.
研究動機	One firm might indeed have the opportunity to choose its price or its quantity before the other firms in the industry, and it is important to investigate whether such opportunity benefits or hurts the firm. The authors’ main concern is to compare the number of firms that freely enter the industry, so as to exhaust all profit opportunities, with the number of firms that a social planner would choose. The authors then sketch a stochastic dynamic model of firm turnover that allows us to analyse the effect of market size on the number of firms, their efficiency levels and firm turnover.
模型	In Section 4.1, the authors examine situations in which firms do not take their decisions simultaneously but sequentially. In Section 4.2, they endogenize the number of firms in the industry; that is, assuming that the only impediment to entry is a fixed set-up cost, they analyse the entry decision that precedes price or quantity competition. In Section 4.3, they first distinguish endogenous from exogenous sunk cost industries and analyse how market size affects market concentration.
研究結果	The authors provide decent discussions on the related extensive. These include: 1. Consider a duopoly producing substitutable products and let one firm (the leader) choose its quantity before the other firm (the follower). At the subgame perfect equilibrium of this two-stage game, firms enjoy a first-mover advantage. Furthermore, the leader is better off and the follower is worse off than at the Nash equilibrium of the Cournot game (in which firms choose their quantity simultaneously).

	2. Consider a duopoly producing substitutable products under constant unit costs, and let one firm (the leader) choose its price before the other firm (the follower). At the subgame perfect equilibrium of this two-stage game, at least one firm has a second-mover advantage. 3. Because of the business-stealing effect, the symmetric Cournot model with free entry exhibits socially excessive entry. And, in the Salop circle model, the market generates socially excessive entry. 4. In models of monopolistic competition (and models of imperfect competition more generally), the market may generate excessive or insufficient entry. Whether too many or too few firms enter depends on how much an entrant can appropriate of the surplus generated by the introduction of an additional differentiated variety.
研究貢獻	1. Consider a duopoly producing substitutable products under constant unit costs, and analyse quantity and price strategies. 2. identify what the difference between endogenous and exogenous sunk costs will be. Consider industries with exogenous and endogenous sunk costs, analyse industry concentration under different market size. 3. Analyse the case of monopolistically competitive markets, and find that firms tend to be younger in larger markets.
未來研究方向	1. For a generalized analysis of sequential quantity and price competition, see, respectively, Amir and Grilo (1999) and Amir and Stepanova (2006). 2. The model of dynamic entry and exit is due to Asplund and Nocke (2006). 3. We may try to extend to examine the results by considering different competitive strategies under the vertically related industry.

篇名	*Chapter 21. Strategies for network goods*
作者	Paul Belleflamme and Martin Peitz
出處	Industrial Organization - Markets and Strategies
摘要	In this chapter, we want to explore further the decision making on the supply side of network markets. We start in Section 21.1 by examining firms' choices with respect to compatibility. In Section 21.2, we describe and analyse a number of strategic instruments that firms can resort to in order to win such a standards war: building an installed base for preemption, choosing between backward compatibility and performance, and managing consumers' expectations in one's favour. Finally, in Section 21.3,we discusswhether public interventions are able to correct, or at least alleviate, the market failures that may occur both on the demand and supply sides of network markets.
研究動機	Understand better the decision making on the supply side of network markets. Analyze how firms choose whether to compete 'for the market' or 'in the market'. Be able to describe and analyse a number of strategic instruments that firms can resort to in order to win a standards war. Understand why public interventions are fraught with difficulties in network markets.
模型	The Katz–Shapiro model: Two firms produce competing network goods. They compete `a la Cournot for new consumers.That is, they choose their capacities for market expansion simultaneously. Given these capacities,prices adjust at levels such that (i) consumers are indifferent between the goods offered by the two firms, and (ii) demand is equal to supply. From past competition, each firm may also already have an installed base of locked-in customers. there is a continuum of consumers who differ by their valuation of the stand-alone benefits of the goods.
研究結果	Pre-market standardization is more likely to emerge as an equilibrium when the parties are relatively symmetric and do not have marked preferences for a particular good. In contrast, a standards war is more likely to emerge as an equilibrium when the parties have marked (and diverging) preferences for a particular good. Consumer and producer interests in standardization may not be aligned because consumers do not perceive the full cost of standardization whereas firms cannot

	fully appropriate the benefits from standardization. In the market with potentially two competing networks, entry can be deterred if (i) network effects are strong enough, (ii) goods are incompatible enough, and (iii) the incumbent firm built a large enough installed base. The less compatible the two network goods (i.e., the lower γ), the larger the installed base built by the incumbent and the lower the price of the network good in the first period. If the incumbent network can commit to second-period price, it will set a higher first-period price and a lower second-period price. This strategy deters entry more effectively. A firm that enters a network market with a superior product makes this product incompatible with the competitor's existing inferior product only if what it gains by selling a higher-quality product is sufficiently larger than what it loses by not being compatible with the incumbent's installed base.
研究貢獻	Understand further the decision making on the supply side of network markets.
未來研究方向	Consider the vertical structure of network good market, complementary goods, related trade issue, etc.

篇名	*Strategic trade policy with interlocking cross-ownership*
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摘要	By analysing interlocking cross-ownership, this work reconsiders the inefficiency of activist governments that set subsidies for their exporters (Brander and Spencer, J Int Econ 18:83–100). Making use of a third-market Cournot duopoly model, we show that the implementation of strategic trade policy in the form of a tax (subsidy) when goods are differentiated (complements) is Pareto-superior to free trade within precise ranges of firms' cross-ownership, richly depending on the degree of product competition. These results challenge the conventional ones in which public intervention (1) is always the provision of a subsidy and (2) always leads to a Paretoinferior (resp. Pareto-superior) equilibrium when products are substitutes (resp. complements).
研究動機	Most studies have considered a simple ownership structure with only one shareholder having participation in both firms. In the real world, there are more complex cross-shareholdings links: for instance, ‘‘cross participations’’ with each firm possessing a small amount of shares of the other (i.e. two-sided crossownership, e.g. Cai and Karasawa-Ohtashiro, 2015), or ‘‘multiple participation’’ with more complex direct as well as indirect links (e.g. Gilo and Spiegel, 2003; Dietzenbacher and Temurshoev, 2008). In particular, Cai and Karasawa-Ohtashiro (2015) investigate the impact of international cross-ownership of firms on the strategic privatization of a partially privatized public firm. In a third-country model in which a domestic public firm competes with a foreign privately owned firm, the authors show that, under Cournot competition with a linear demand function, the domestic ownership of foreign firms can hamper privatization. On the other hand, the foreign ownership of the domestic public firm can promote the privatization policy. Moreover, under certain conditions, the domestic ownership of foreign private firm can make both complete privatization and complete

	nationalization sub-optimal. If competition takes place a´ la Bertrand, complete nationalization becomes always the optimal policy. However, those authors abstract from the analysis of strategic trade policy. The present paper does not consider the subject of strategic privatization and focuses on the strategic trade policy in an export-rivalry model with mutual (twosided) minority cross-participation at the ownership level.
模型	Following the approach of the Brander-Spencer's (1985) model, we consider two exporting countries, each with a firm. Both firms (1 and (2) produce heterogeneous goods which are sold to a third country (i.e. an importing country) and compete between them regarding quantity (i.e. a duopolistic Cournot market). Moreover, there are two shareholders, A and B, who belong to country 1 and 2, respectively, and own a reciprocal (mutual) participation in both firms. Therefore, each firm is jointly owned by two shareholders, with shareholder A (B) having the majority of (or at the limit equal) shares, and thus also the control of firm 1 (2). We denote by m2 (m1) (0≦m1, m2 ≦ 0.5) the fraction of shares that shareholder A (B) has in firm 2 (1). As usual in the literature, we assume that the cross-ownership share is exogenously given (see e.g. Reynolds and Snapp, 1986 and Macho-Stadler and Verdier, 1991). Shareholders are assumed to maximise their total profit, which means that the objective function of shareholder A is $\pi_A = (1 - m_1)\pi_1 + m_2\pi_2$ (1) $\pi_B = (1 - m_2)\pi_2 + m_1\pi_1$ (2) $C_i(q_i) = (z - S_i)q_i$ (3) $P_i = a - \gamma q_j - q_i$ (4) where Pi denotes price, qi and qj are the two firms' output levels, $\gamma \in (-1,1)$ and represents the degree of substitutability between products. To guarantee non-negativity on output levels, it is assumed that $a \geq z - s_i$，Therefore, profits of firm i can be written as $\pi_i = p_i q_i - (z - s_i)q_i$，i=1,2 (5) At stage two, each firm chooses its optimal output. From (1), (2) and (5), under profit-maximisation, firm i's best-reply function is $q_i(q_j) = \frac{(a - z + s_i)(1 - m) - \gamma q_j}{2(1 - m)} \geq 0, \quad i,j = 1,2, \quad i \neq j.$ (6)

$$q_i(s_i, s_j) = (1-m)\frac{[2(1-m)(a-z+s_i) - \gamma(a-z+s_j)]}{4(1+m^2-2m)-\gamma^2} \quad i,j=1,2, \ \ i \neq j. \tag{7}$$

$$\pi_k(s_i, s_j) = \frac{\left[\begin{array}{r} 4(s_i-s_j)m^3 + [2a(\gamma-1) + 2(s_i-z) - 10s_i + 8s_j + 2z]m^2 + \\ [\gamma^2(a-z-s_i+2s_j) - \gamma(3(a-z)+4s_i-s_j) + 4(a-z-s_j) + 8s_i]m \\ +\gamma^2(s_i-s_j) + \gamma(a+2s_is_j-z) - 2(a+s_i-z) \\ (m-1)[2(a+s_i-z)m + \gamma(a-z+s_j) - 2(a-z+s_i)] \end{array}\right]}{(\gamma+2(1-m))^2(\gamma-2(1-m))^2}.$$
$$k = A, B \quad i,j = 1,2, \quad i \neq j \tag{8}$$

The social welfare (SW) expressions of the two countries are

$$\begin{array}{l} SW_1 = \pi_A - s_1 q_1 \\ SW_2 = \pi_B - s_2 q_2 \end{array}. \tag{9}$$

$$s_i(s_j) = \frac{\left[(4m(1-m)-\gamma^2)\left[(a-z)(2(1-m)-\gamma) + \gamma s_j\right]\right]}{2[4(1+m^3-m^2-m)-\gamma^2(2-m)]}. \tag{10}$$

Moreover, it can be easily verified that the second-order condition for a maximum (concavity) for each government problem is $\frac{\partial^2 SW_i(s_i,s_j)}{\partial s_i^2} = -\frac{2(m-1)^2[4(m^2-1)(m-1)+\gamma^2(m-2)]}{(\gamma+2m-2)^2(\gamma-2m+2)^2} < 0$ for $m \in [0,.5]$ and $\gamma \in (-1,1)$, $i,j=1,2, \quad i \neq j$ and, therefore, it is fulfilled.

Solving the system represented by (10) and its counterpart for the government j, the common subsidy rate at equilibrium is

$$s_i = s_j = s = \frac{[4m(1-m)-\gamma^2)](a-z)}{\gamma^2+4m^2-2\gamma-4}. \tag{11}$$

$$q_i = q_j = q^S = \frac{2(1-m)(a-z)}{\gamma^2+4m^2-2\gamma-4}. \tag{12}$$

$$\pi_A = \pi_B = \pi^S = \frac{4[1-m(1-\gamma)](1-m)(a-z)^2}{(\gamma^2+4m^2-2\gamma-4)^2}. \tag{13}$$

$$SW_i = SW_j = SW^S = \frac{2[2+2m(1+\gamma)-4m^2-\gamma^2](1-m)(a-z)^2}{(\gamma^2+4m^2-2\gamma-4)^2}. \tag{14}$$

$$SW^{FT} = \frac{[1-m(1-\gamma)](1-m)(a-z)^2}{(2+\gamma-2m)^2}. \tag{15}$$

研究結果	Result 1 Both countries benefit from the strategic trade policy: a. In the case of complement goods when: (i) Cross-ownership is extremely low for almost any degree of complementarity, (ii) the level of cross-ownership is low/medium–low for intermediate-high degrees of complementarity among products, (iii) the level of cross-ownership is medium/medium–high for strong degrees of product complementarity, and (iv) the level of cross-ownership is high only for very strong product complementarity; b. In the case of substitute goods when:

	(i) Cross-ownership is extremely low for differentiated products, (ii) the level of cross-ownership is low/medium–low for intermediate degrees of product differentiation, (iii) the level of cross-ownership is medium/medium–high for intermediate-high degrees of product differentiation, and (iv) the level of crossownership is high for close substitutes. On the other hand, both countries benefit from free trade: a. In the case of complement goods when: (i) Cross-ownership is very low, only in the case of low degrees of complementarity; (ii) the level of cross-ownership is low/medium–low for low degrees of complementarity among products, (iii) the level of crossownership is medium/medium–high for low-intermediate degrees of product complementarity, and (iv) the level of cross-ownership is high for almost any degree of complementarity; b. In the case of substitute goods when: (i) Cross-ownership is extremely low for medium-close substitute products, (ii) the level of cross-ownership is low/medium–low for very differentiated products and close substitutes, (iii) the level of cross-ownership is medium/ medium–high for differentiated products and very close substitutes, and (iv) the level of cross-ownership is high for differentiated products. Result 2 The consumer's surplus and the world's social welfare are higher (lower) under free trade than under subsidization in Regions II and III (resp. in regions I and IV).

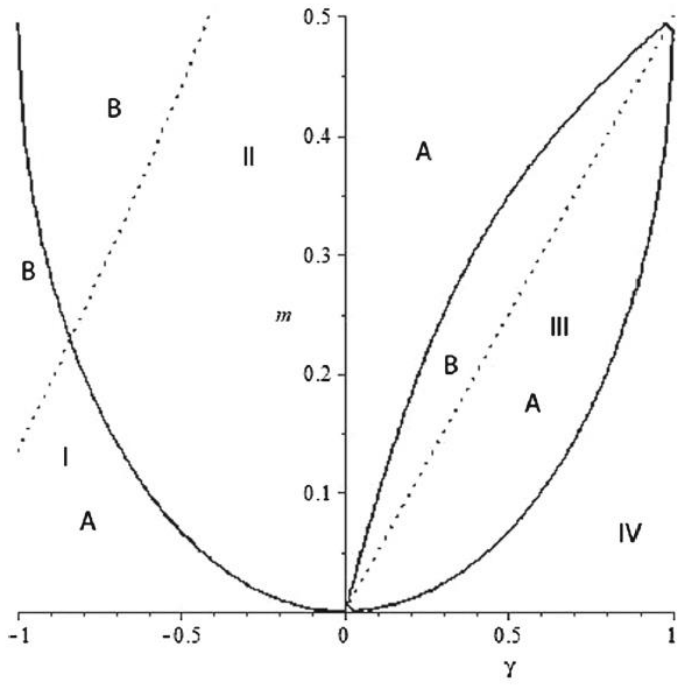

Fig. 1 *Plots of the differential* $\Delta = 0$, $\Delta_{CS} = 0$, $\Delta_{WSW} = 0$ *and* $s = 0$. *Legend: Region I:* $\Delta > 0$, $\Delta_{CS} > 0$, $\Delta_{WSW} > 0$ *and* $s > 0$; *in A,* $\frac{\partial SW^S}{\partial m} < 0$, *in B,* $\frac{\partial SW^S}{\partial m} > 0$; *Region II:* $\Delta < 0$, $\Delta_{CS} < 0$, $\Delta_{WSW} < 0$ *and* $s < 0$; *in A,* $\frac{\partial SW^S}{\partial m} < 0$, *in B,* $\frac{\partial SW^S}{\partial m} > 0$; *Region III:* $\Delta > 0$, $\Delta_{CS} < 0$, $\Delta_{WSW} < 0$ *and* $s < 0$; *in A,* $\frac{\partial SW^S}{\partial m} > 0$, *in B,* $\frac{\partial SW^S}{\partial m} < 0$; *Region IV:* $\Delta < 0$, $\Delta_{CS} > 0$, $\Delta_{WSW} > 0$ *and* $s > 0$, $\frac{\partial SW^S}{\partial m} > 0$

研究貢獻	This paper revisited the issue of the strategic trade policy intervention by governments to support their exporter firms, extending Brander and Spencer's classical model to the case of interlocking cross-ownership. The recent increasing globalisation of economies has extended not only the volume of goods and services traded but also the international acquisition of financial assets by firms such as (often non-controlling) shares of other firms. We have shown that the implementation of a strategic trade policy can be a Pareto-superior policy for a limited range of the firms' cross-ownership parameter. That is, depending on the degree of product competition, the social welfares of the exporting countries are higher than under free trade. In particular, we have found that the policy intervention with crossownership (1) may assume the form of a tax if the share of cross-participation is adequately large, and (2) leads to a Pareto-superior (resp. Pareto-inferior) equilibrium provided that products are neither too substitutes nor too differentiated (resp. not too complements). With regard to the welfare analysis, the public intervention through an export

	tax—which is optimal if the share of mutual cross-ownership is sufficiently high— improves countries' welfare only if that mutual minority share is not too high. In fact, in the latter case, since the degree of ''collusion'' (the quantity restriction) implied by the cross-ownership is high by itself, then a taxation reducing further quantities brings upon a level of tax revenue less than the profit loss. These findings provide the insight that, in the presence of cross-participation between rival companies, the unilateral government trade policy intervention can be optimal because, even in the case of the rival government's retaliation, the national welfares of the exporting countries are superior than to those under free trade, though only for appropriate degrees of product competition. Another insight that arises from the current analysis is the following. If governments are forced to reduce/eliminate explicit subsidies as in the case of the aviation and transport sector because of supranational bodies interventions (e.g., the WTO), then firms to penetrate foreign markets have to buy participations in rivals, which translates in minority participations when the interested sector is subject to governmental restrictions on foreign participations. This implies that the well-known debate about the pro and cons of ''neomercantilist'' policies pioneered by the Brander and Spencer's approach in the eighties may be resurrected and enriched under the current phenomenon of the ''financial'' globalisation also of the property shares of many exporting firms. Moreover, our theoretical finding offers to econometricians a testable implication that in sectors/countries in which trade policies are put in place, cross-ownership should be less often detected. Future lines of research should conduct an investigation of a more extend game framework considering the presence managerial firms, network industries, R&D investments, and the presence of unionised labour market institutions.
未來研究方向	1. Endogenous choice of the cross-ownership share We have obtained that, under free trade, in the presence of endogenous choice of the share of cross-ownership, an inverse U-shaped relation exists between the degree of complementarity/substitutability among products and

	the level of m, with $m_i = m_j \geq 0.5$. In other words, each shareholder retains a minority stake in the national company and a majority stake in the foreign company. 2. Costly public funds This result suggests that a government of a country in which firms are export-oriented can find beneficial to introduce in the exporting sector the distortionary tax to collect revenues that, eventually, could be employed in other sectors of the economy. 3. Segmented markets A plausible explanation is that cross-ownership has a ‘‘pro-collusive’’ effect, so that, when taking into account consumer surplus, a government might find it optimal to choose a transfer when products tend to be substitutes. On the other hand, when products are differentiated, to tax exports may induce firms to produce a larger amount of goods for the domestic markets. 4. Bertrand competition As a consequence, a prisoner’s dilemma outcome appears also under price competition and, since consumers of the third market and the world as a whole again continue to be damaged by the export tax policy, then such a policy becomes a ‘‘lose-lose’’ choice.