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Institute of Economics, Academia Sinica

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Welcome!

✧ Dr. Yating Chuang joined us on August 1st as an assistant research fellow. She received her Ph.D. degree in Economics from University of Wisconsin-Madison in 2015. Her main research fields are environmental economics, development economics, and behavioral economics.

Congratulations!

✧ Research Fellow Dr. Yu-Chin Hsu was appointed as Acting Director of the Institute of Economics.

✧ Research Fellow Dr. Juin-Jen Chang was appointed as Acting Deputy Director of the Institute of Economics.

✧ Research Fellow Dr. Shu-Chun S. Yang was appointed as Acting Deputy Director of the Institute of Economics.

學 術 會 議
Conferences

✦ 論文徵稿
Call for Papers

中研院經濟所六十週年所慶 暨
總體經濟計量模型研討會

徵求論文

會議主題：當前臺灣經濟的挑戰與對策

一、「總體經濟計量模型研討會」2022 年度會議，排定於 **11 月 28-29 日 (星期一、二)**假**中央研究院經濟研究所**舉行。本年度研討會主題為「當前臺灣經濟的挑戰與對策」，預計進行 1 場主題論壇，2 場專題演講，以及數場各式主題的平行場次。本次主題論壇與其中一場專題演講是關於當前通貨膨脹的因果與對策，另外一場專題演講是關於半導體產業的發展。

二、歡迎學界朋友踴躍投稿與本次會議主題相關之學術研究論文，或會議主題之外，舉凡與總體計量、時間序列、國際金融、貿易及產業、勞動等理論或應用的研究成果，中英文不限，均歡迎投稿至本次研討會中發表。

三、請於 9 月 25 日前至研討會網址(http://www.econ.sinica.edu.tw/MMW2022)上傳論文全文 PDF 檔案，並註明會議當日發表人。籌備委員會將於 10 月 5 日前通知文稿是否接受於本次研討會中發表。

四、研討會中發表之論文，會後歡迎作者投稿至中央研究院經濟研究所出版的《臺灣經濟預測與政策》期刊。文稿如經正式審查接受者，將出版於《臺灣經濟預測與政策》「總體經濟計量模型研討會」特刊。

五、本次研討會保留因應疫情變動的機動調整可能。如有調整，將於研討會網頁公告。

聯絡資訊：(02)2782-2791 分機 627 陳靜怡小姐 (tefp@econ.sinica.edu.tw)。

新 出 版 品

New Publications

經濟論文
Academia Economic Papers

Volume 50, No.3 (Sep. 2022)

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Uncertain Policy Regimes and Government Spending Effects

經 濟 預 測

Economic Forecast

2022 Taiwan Economic Forecast: A Revision
— Growth under High Inflation Risk

（alphabet）

Ching-Cheng Chang　Kong-Pin Chen　Chun-Che Chi
Ray Yeutien Chou　Wen-Tai Hsu　Kamhon Kan
Chang-Ching Lin　Chien-Fu Lin　Daigee Shaw
Tzu-Ting Yang　Shou-Yung Yin

July 18, 2022

In the first half of 2022, the world was affected by the Russia-Ukraine war, which pushed prices of energy and food up. Reappearance of the COVID-19 epidemic in Mainland China and implementation of lockdown measures in many cities exacerbated the already disruptive supply chain disorders. Global inflation remained high, adding to uncertainty of economic growth. However, in Taiwan, in the first quarter of the current financial year, demand for innovative technological applications continued to be strong and digital transformation progressed further. Both import and export orders continued to grow. The real GDP growth rate in the first quarter reached 3.14%. However, apprehensions about a new wave of domestic epidemic have grown. In the face of domestic and foreign political and economic uncertainties, pressure on economic growth is likely to be felt in the second half of the year. The projected real economic growth rate for 2022 has been revised to 3.52%.

Real private consumption in the first quarter of 2022 grew 0.46%. Fears of resurgence of the epidemic have resulted in heightened public awareness about the need for self-protection. The willingness to go out to consume has receded significantly, which suppressed demand for catering, tourism and other related services. In the first half of the year, consumer confidence declined month by month. However, at present, concerns about the epidemic are gradually receding as infected patients display less severe effects. In the second half of the year, it is expected that consumption will rebound. Taking into account prices and low base period factors, private consumption growth is estimated to be 2.93% in 2022.

Real private investment rose 6.64% in the first quarter. Semiconductor manufacturers added process equipment, and the aviation and transportation industry too expanded its capacity. Manufacturers have reported increased capital spending. Capital equipment imports (in US dollars) increased by 14.33% in the first half of this year, indicating that supply chains are shifting back to Taiwan. Taking into account prices and high base period factors, private investment growth is estimated to be 4.39% in 2022. Because of active promotion of

green energy public construction investment by the government and public utilities is expected to result in fixed capital formation growing 4.45% in 2022.

Due to innovative applications of emerging technologies and the trend toward digitalization, global demand for high-end chips continues to rise. Imports are growing because of export-derived demand for raw materials and manufacturers' higher purchases of capital equipment. Annual growth rates of real goods and services exports and imports in the first quarter were 8.95% and 8.35% respectively. Annual growth rates of exports and imports for the first 6 months reached 19.24% and 24.76% (in U.S. dollars), respectively. However, external factors such as global inflationary pressure and China's lockdown measures are affecting Taiwan's foreign trade. Considering the high growth in the base period, and after taking into account the price factor, it is expected that exports and imports of real goods and services in 2022 will grow 5.64% and 4.75% respectively.

Global inflation continued to rise in the first half of the year, especially due to the Russia-Ukraine war and the sanctions imposed by many countries on Russia, which made energy and bulk commodity prices soar, intensifying the pressure on global commodity prices. On average, the consumer price index (CPI) during the first six months in 2022 increased by 3.13%. The core consumer price index increased by 2.41% during the same period. The wholesale price index (WPI) has risen 14.48% compared with the same period last year. In view of the fact that global supply-side problems emanating from war and extreme weather incidents have pushed up domestic inflation since domestic producers are faced with rising costs of raw materials and electricity. The probability of raising prices of end products has greatly increased, and increase in costs is likely to be passed on to the consumer. However, commodity prices are unlikely to decline quickly. CPI and WPI are expected to rise 3.16% and 11.31% respectively in 2022.

In the domestic job market, instances of employers granting unpaid leave have increased recently. Average rate of unemployment in the first five months of the year was 3.65%. The accommodation and catering industry, wholesale and retail industries, and other domestic demand-oriented service industries are still suffering adverse effects pf the epidemic. The unemployment rate in 2022 is expected to be about 3.71%. In terms of money supply, as the world's major economies started raising interest rates, Taiwan has also adopted a tighter monetary policy. The cumulative annual growth rates of M1B and M2 in the first five months were 10.17% and 8.03%, respectively. Growth of money supply will now slow down. M1B and M2 are expected to be up by 6.89% and 7.04% respectively.

Looking forward to the second half of the year, geopolitical risks such as continued concerns about the epidemic and the Russia-Ukraine war will affect supply and demand of raw materials such as energy, grains and base metals. Disruptions in supply chains and other bottlenecks may result in the phenomenon of high global inflation persisting. The tightening of monetary policy and acceleration of interest rate hikes by the United States has affected the volatility of the financial markets. In a recent report issued on July 12th, the IMF drastically reduced its forecast for US 2022 GDP growth to 2.3%. It should be noted that rising prices and rising interest rates will curb economic activities, weaken consumers' purchasing power, and increase the risk of economic downturn in global economy. Taiwan is a small open economy and it too may experience slower growth because of its global

linkages. Considering all factors, we expect that at the 50% confidence interval the real GDP growth will be in the range of 2.44% to 4.74%.

2022 Taiwan Economic Forecast: A Revision

Unit: Billions of NT$

	Annual		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Forecasts	Growth Rates (%)	Estimate	Growth Rates (%)	Forecasts	Growth Rates (%)	Forecasts	Growth Rates (%)	Forecasts	Growth Rates (%)
Real GDP	21,908.43	3.52	5,262.61	3.14	5,271.40	3.09	5,541.05	4.19	5,833.37	3.62
Private Consumption	9,733.92	2.93	2,438.94	0.46	2,316.73	2.80	2,404.02	5.30	2,574.24	3.27
Government Consumption	2,806.18	1.93	621.86	-0.52	668.42	4.75	709.29	-0.09	806.61	3.41
Fixed Capital Formation	5,559.17	4.45	1,303.79	5.82	1,368.89	7.81	1,426.27	-0.25	1,460.23	5.00
Private Enterprises	4,709.15	4.39	1,156.36	6.64	1,172.70	7.86	1,226.89	-0.94	1,153.21	4.75
Public Enterprises	329.70	13.04	49.92	0.61	74.92	26.61	71.85	10.25	133.00	13.02
Government	527.73	0.89	99.86	1.07	122.94	-0.63	128.88	1.58	176.05	1.37
Inventory Change	8.45	-	12.75	-	24.09	-	18.21	-	-21.25	-
Balance of trade	3,774.94	8.12	888.00	10.95	885.07	-1.40	973.83	15.84	1,028.04	7.90
Exports of Goods & Services	15,593.78	5.64	3,753.44	8.95	3,702.61	3.72	3,966.26	5.77	4,171.47	4.39
Imports of Goods & Services	11,805.13	4.75	2,865.44	8.35	2,817.82	5.45	2,982.97	2.54	3,138.90	3.14
Price										
CPI	107.62	3.16	106.11	2.81	107.46	3.46	108.28	3.37	108.64	3.01
WPI	114.85	11.31	110.74	12.54	118.89	16.34	114.79	9.41	114.98	7.26
Monetary Aggregate										
M1B	25,357.88	6.89	25,464.70	11.17	25,419.36	8.64	25,327.71	5.55	25,219.75	2.54
M2	55,640.41	7.04	54,785.47	8.13	55,516.25	7.87	55,874.59	6.58	56,385.34	5.66
Exchange Rates (NT$/US$)	29.17		28.00		29.50		29.69		29.50	

Source: Institute of Economics, Academia Sinica, July 18, 2022.

111 年度本所研究計畫摘要
2022 Research Project Abstracts

* 依英文姓氏字母順序排列
* The names are arranged in alphabetical order

張靜貞 (Ching-Cheng Chang)、徐世勳、林幸君、陳柏琪、許聖民

氣候變遷對我國農業體系之衝擊影響評估與調適政策之效益評估(第二年)

本研究針對不同氣候與社會經濟情境，透過建構氣候因子對於生產力之易損性函數與動態可計算一般均衡模型，模擬未來氣候變遷對於總體、農業部門以及相關加工產業之影響，進而評估對整體經濟之影響，並建立調適決策支援系統。第一(2021)年之研究結果顯示，氣候變遷對我國農業部門之整體影響為負面的，且有越來越嚴重的趨勢，整體而言，在2020~2050 年之模擬情境中，五大農糧產出每年將減少 0.03%~0.12%，糧食自給率下降至32.12%，整體 GDP 也呈下跌趨勢，故因應方式必須藉由自然及人類系統內的調適(Adaptation)能力，提昇遭遇天災的恢復能力與建立韌性農業體系。

本研究第二(2022)年結合 GEMTEE 人口模型、糧食平衡表和國健署之臺灣國民健康狀況變遷調查，探討未來主要糧食需求推估方法，考量所得支出及糧食消費習慣變動，同時考量新冠肺炎之影響，加入社會經濟模擬情境，滾動式完成基線之更新預測，並蒐整現階段之調適措施，進行成本效益分析，結合利害關係人意見，檢討優先順序，研析現行調適措施之缺口，以協助建構韌性農業體系。研究結果顯示，在未來糧食需求推計上，三種情境六大類食物總需求推計量均遞減，六大類食物自給率均呈成長趨勢，在生產不變與最保守情境下由 35.33% 提高至 44.09%，油脂與堅果種子類之供應量高出攝取量最多，其次為水果類，可能出現生產過剩問題；此外，已結合臺灣人口成長路徑及經濟成長路徑，完成社經情境之增設，並將新冠肺炎之影響納入考量，對基線進行校準。

在成本效益分析及缺口研析上，結果顯示調適策略在經濟效益面上，對 GDP、消費者物價指數及農業部門總產出而言都具有正面效益，但投資回收期普遍較長甚至無法在模擬期內回本。而在缺口研析上，也針對各類別產品的潛在缺口分別進行討論及建議可能的改進方向，並根據線上問卷納入利害關係人意見，以確保成果能夠實際帶來效益，建構韌性農業體系。

張靜貞 (Ching-Cheng Chang)、許文科、黃鈺珊

臺灣颱風巨災農業風險評估模型之建置研究(第二年)

颱風為造成我國農業生產遭受重大損失的最主要天然災害事件，我國自 2015 年起陸續開辦各式農產物保險，協助農漁民分散經營風險與填補損失。本研究之目的在於建構颱風巨災風險評估模型與資料庫，作為農業保險風險評估與保費精算的輔助工具，以減輕農民、政府及社會之財務負擔。本研究第一(2021)年產生約 10 萬個颱風事件數據庫，第二(2022)年完成臺灣地區推測颱風事件之風速推估模式、水稻颱風易損性模型之開發以及香蕉受颱風影響之特性分析。在推測颱風事件之風速推估模式開發方面，已整合梯度風速剖面模型，以大氣邊界層模型考量風場不對稱性、地形糙度、地表糙度、地形效應之地表風速推估模型，同時利用氣象局建置的 MODIS 衛星地表植被率資料，建立可反應不同時間地表植被影響的地表風速推估模型，並完成模型之調校驗證，亦已整合第一年建置的推測颱風事件庫，可批次進行大量推測颱風事件的分析。

在水稻颱風易損性模型方面，利用農委會提供的 2009-2018 的各鄉鎮各期作稻米災

損詳報資料、種植面積、插植起訖日期與中央氣象局提供對應稻米災損事件的各氣象站觀測的逐時降雨強度與風速資料，建立共 1,196 筆的鄉鎮災損資料，每筆資料包含有所在鄉鎮的代表最大平均風速、最大日降雨量、對應期作的總種植面積、生育期、與面積損率，並建立考量稻米生育期影響的颱風易損性模型，可供評估在指定風速、降雨量與生育期下的可能產量損失。

在香蕉受颱風影響特性分析方面，已完成生育期、栽培方式、品種等因素對香蕉抗颱能力的影響與分析，並透過辦理專家座談會釐清香蕉於生長階段的颱風相關的主要危害因子及影響程度，並蒐集各界對於香蕉保險的意見，為後續保險制度研究奠定實證基礎，有益於農業保險制度設計的精確性。

Juin-Jen Chang (張俊仁), **Wan-Jung Cheng** (鄭琬蓉), Chun-Hung Kuo, and Wei-Neng Wang

Labor Income Share, Income Inequality, and Growth with Capital-Skill Complementarity and Skill Accumulation

This paper analyzes a dynamic two-country model, in which firms with heterogeneous production efficiency are subject to financial constraints. In our setting, the total factor productivity of each country is affected not only by wealth holdings in the country but also by the wealth distribution between the two countries. We show the existence and stability of the steady-state of equilibrium of the world economy and analyze the long-run effects of financial and real shocks. We also study the quantitative effects of real and financial shocks upon income and wealth of the world economy, and separate local from global shocks. We find that negative real shocks have much larger destructive effects than negative financial shocks, and their short-run impacts are substantially different from those of long-run impacts.

Juin-Jen Chang (張俊仁), Chun-Hung Kuo, Hsieh-Yu Lin, and **Shu-Chun S. Yang** (楊淑珺)

Share Buybacks and Corporate Tax Cuts

U.S. corporate tax cuts have become less expansionary since the mid-1980s. Using general equilibrium models with corporate financial allocations, we show that rising share buybacks render corporate tax cuts less expansionary. Although buybacks increase shareholders' and non-shareholders' welfare, they dampen the investment and output responses to corporate tax cuts. Simulations based on the Tax Cuts and Jobs Act show that the optimal buyback increase is much smaller than what is observed. This suggests that restricting on buybacks would enhance the macroeconomic effects of the corporate tax cut.

Juin-Jen Chang (張俊仁), Yi-Ling Cheng, and **Shin-Kun Peng** (彭信坤)

Trade, Emissions, and Regulatory (non-)Compliance: Implications of Firm Heterogeneity

This paper provides the implications of firm heterogeneity for the environment. In autarky, raising emission tax generates an average productivity gain and favors efficient firms in the sense that their output expands. Although some of these efficient firms discharge more emissions, some may discharge less. While trade liberalization raises outputs, global emissions do not necessarily increase. A unilateral increase in emission tax not only decreases the outputs in this country but also decreases its average productivity under sufficiently high trade openness. Trade liberalization reduces global emissions under tax harmonization but it may generate more global emissions under tax competition.

Been-Lon Chen (陳明郎)
Income and Wealth Distribution and Optimal Taxation Policies in Models with Heterogeneous Agents

This paper analyzes a dynamic two-country model, in which firms with heterogeneous production efficiency are subject to financial constraints. In our setting, the total factor productivity of each country is affected not only by wealth holdings in the country but also by the wealth distribution between the two countries. We show the existence and stability of the steady-state of equilibrium of the world economy and analyze the long-run effects of financial and real shocks. We also study the quantitative effects of real and financial shocks upon income and wealth of the world economy, and separate local from global shocks. We find that negative real shocks have much larger destructive effects than negative financial shocks, and their short-run impacts are substantially different from those of long-run impacts.

Kong-Pin Chen (陳恭平), Ted Chang, Ting-Peng Liang, Yi-Chun Liu, Shou-Yung Yin, and Ya-Ting Yu
How Serious Is Shill Bidding in Online Auctions? Evidence from eBay Motors

Using data from eBay Motors, we estimate the prevalence of shill bidding and its effects on auction outcomes. We propose procedures to identify bidders, construct a shill-bidding index, and estimate that around 9% of bidders are shill bidders and 22% of listings contain shill bids. Instrumental variable approach shows that shill bidding is actually two practices in one. First, it starts the auction with a reserve-price-to-Bluebook-price ratio 0.08 lower than usual auctions, thereby increases trade probability by 0.38%. Second, phantom bids increase transaction-price-to-Bluebook-price ratio by 0.055 on average. Finally, we reject a recent theory that links shill bidding with sniping.

Kong-Pin Chen (陳恭平), Jui-Chung Yang, and **Tzu-Ting Yang** (楊子霆)
Demand for Transportation during the Pandemics: Evidence from Taiwan

Using traffic data from Taiwan in 2020, we quantify how the COVID-19 outbreak affected the demand for public and private transportations. Despite the absence of governmental restrictions, there were still substantial shifts in travel mode. During the peak of pandemic within study period, railway passengers reduced by 40% to 60% and highways traffic increased by 20%, especially in rush hour. This suggests that individuals not only reduced their mobility, but also substituted public transport for private transportation. Furthermore, railway transportation was well below the pre-pandemic levels even though there was zero locally-transmitted case in the eight-month period from mid-April to December. Changes in traffic pattern also has implications on the spatial pattern of economic activity: retail sales and nighttime luminosity data show that during the pandemics, economic activities shifted away from the prosperous areas around major railway stations.

Le-Yu Chen (陳樂昱) and Sokbae Lee
Sparse Quantile Regression

We consider both L0-penalized and L0-constrained quantile regression estimators. For the L0-penalized estimator, we derive an exponential inequality on the tail probability of excess quantile prediction risk and apply it to obtain non-asymptotic upper bounds on the mean-square parameter and regression function estimation errors. We also derive analogous results for the L0-constrained estimator. The

resulting rates of convergence are nearly minimax-optimal and the same as those for L1-penalized and non-convex penalized estimators. Further, we characterize expected Hamming loss for the L0-penalized estimator. We implement the proposed procedure via mixed integer linear programming and also a more scalable first-order approximation algorithm. We illustrate the finite-sample performance of our approach in Monte Carlo experiments and its usefulness in a real data application concerning conformal prediction of infant birth weights (with n ~ 1000 and up to p > 1000). In sum, our L0-based method produces a much sparser estimator than the L1-penalized and non-convex penalized approaches without compromising precision.

Le-Yu Chen (陳樂昱), Ekaterina Oparina, Nattavudh Powdthavee, and Sorawoot Srisuma

Robust Ranking of Happiness Outcomes: A Median Regression Perspective

Ordered probit and logit models have been frequently used to estimate the mean ranking of happiness outcomes (and other ordinal data) across groups. However, it has been recently highlighted that such ranking may not be identified in most happiness applications. We suggest researchers focus on median comparison instead of the mean. This is because the median rank can be identified even if the mean rank is not. Furthermore, median ranks in probit and logit models can be readily estimated using standard statistical softwares. The median ranking, as well as ranking for other quantiles, can also be estimated semiparametrically and we provide a new constrained mixed integer optimization procedure for implementation. We apply it to estimate a happiness equation using General Social Survey data of the US.

Le-Yu Chen (陳樂昱) and Yu-Min Yen

Estimation of the Conditional Tail Average Treatment Effect

We study estimation of the conditional tail average treatment effect (CTATE), defined as a difference between conditional tail expectations of potential outcomes. The CTATE can capture heterogeneity and deliver aggregated local information of treatment effects over different quantile levels, and is closely related to the notion of second order stochastic dominance and the Lorenz curve. These properties render it a valuable tool for policy evaluations. We consider a semiparametric treatment effect framework under endogeneity for the CTATE estimation using a newly introduced class of consistent loss functions jointly for the conditioanl tail expectation and quantile. We establish asymptotic theory of our proposed CTATE estimator and provide an efficient algorithm for its implementation. We then apply the method to the evaluation of effects from participating in programs of the Job Training Partnership Act in the US.

Wan-Jung Cheng (鄭琬蓉) and Ping Wang

Sectoral Impacts of Trade Wars

In recent years, we have witnessed rising trade protectionism with broad ranges of tariffs imposed on intermediate products. In this article, we develop an accounting framework to evaluate the sectoral impacts of the current U.S.-China trade war. We find that U.S. final demand and intermediate demand for goods produced by China decline significantly, with the largest losses occurring in the Electronic and ICT (information and communications technology) industry and the Electrical industry. We obtain sizable deadweight losses for the United States, particularly in the Electronic and ICT; Electrical; and Furniture industries. We also find that, with a leakage rate of 20 percent,

total losses to U.S. consumers and importers are $3.3 billion, about 0.05 percent of gross U.S. output, whereas the full leakage losses are $10.7 billion, or 0.16 percent of gross U.S. output, which is twice as much as the annual welfare gains from the North America Free Trade Agreement.

T. Terry Cheung (張庭源)
Schooling, Skill Demand and Differential Fertility in the Process of Structural Transformation

Demography and structural transformation are interrelated, and depend critically on education. At the turn of the twentieth century, U.S. parents began having fewer children while increasing educational investment per child. This quantity-quality tradeoff facilitated job reallocation from the low-skilled agricultural sector to the high-skilled nonagricultural sector. This transformation is examined in a heterogeneous agent model with a non-degenerate human capital distribution, focusing on how fertility and education decisions affect structural transformation. The result shows that the quantity-quality decisions account for up to approximately one-third of the decline in the agricultural employment share.

T. Terry Cheung (張庭源), Shaowen Luo, and Kwok Ping Tsang
Letting Old Data Speak: Local Cultural Traits in Qing China Grain Prices

Detecting data manipulation in the Qing dynasty (1644-1912) reveals that such cheating behavior has persisted in modern China, for centuries. Qing prefectural officials were responsible for assembling local grain price data. We use the fact that grain prices are seasonal and cannot stay constant for a prolonged period as an indicator for Qing data manipulation. Using the instrumental variable approach, we find that Qing data quality reliably predicts data misreporting and exaggeration in modern China. We also identify that persistence was higher in more affluent places, like treaty port and coastal areas, where cheating can lead to higher rewards.

T. Terry Cheung (張庭源) and **Han Yang** (楊宗翰)
Transportation Network, Technology Adoption and Structural Transformation

We study the role of transportation in modern technology adoption in agriculture. Using instrumental variable on highway location, we find that the improvement in market access lowers price of modern input. This encourages modern technology adoption that enhances labor productivity. A calibrated version of multi-region multi-sector model featuring internal trade shows that a reduction in trade cost increases modern input usage, advances labor productivity, reduces agricultural employment, and promotes gains from integration. The effect is diminished when the farmers are not allowed to choose types of technology.

T. Terry Cheung (張庭源) and Yao Yao
Education Attainment and Structural Transformation

This paper argues that the public education policies, which affect schooling years and education quality, are important to understand sectoral employment and productivity. We build a general equilibrium multi-sector heterogeneous-agent life-cycle model, which features both education investment, in terms of schooling years and expenditure, and sectoral employment choices.

Disciplining the stock of human capital using schooling years and return data, we perform counterfactual experiments and show

that eliminating public education policies would increase agricultural employment by 46% while endowing the country with U.S. public education policies would reduce the agricultural employment by 13% even when assuming constant years of schooling.

T. Terry Cheung (張庭源), Theodore Palivos, Ping Wang, Yin-Chi Wang, and Chong K. Yip

Dynamic Trade, Endogenous Institutions and the Colonization of Hong Kong: A Staged Development Framework

To explore the interplays between trade and institutions, we construct a staged development framework with multi-period discrete choices to study the colonization of Hong Kong, which served to facilitate the trade of several agricultural and manufactured products, including opium, between Britain and China. We provide a complete characterization of the endogenous transition from the pre-Opium War era, to the post-Opium War era and then to the post-opium trade era, which span the period 1773-1933. We begin with a brief chronicle of the historical development of Hong Kong and a basic descriptive analysis of the economic data that we collected from limited sources. Based on this information, we then specifically design our dynamic model to capture several key features of the colonization process. We show that the low opium trading cost as well as the high warfare cost initially postponed any military action. Nevertheless, the high valuation of the total volume of bilateral trade, the rising opium trading cost and the anticipated increase in the demand for opium eventually led the British government to declare the Opium Wars, which established the legalization of opium trade and the colonization of Hong Kong. We also show that, in response to a drastic drop in opium demand and a rising opium trading cost, it became optimal for the British government to abandon opium trade soon after the founding of the Republic of China. We conclude with a series of historical data and documentation that support our theoretical findings.

T. Terry Cheung (張庭源), **Kamhon Kan** (簡錦漢), and **Tzu-Ting Yang** (楊子霆)

Family Labor Supply Responses to Childhood Disabilities: Evidence from Taiwan

This paper examined parental labor supply responses to the onset of children's disabilities. We use administrative data for the whole population of Taiwan. Our difference-in-differences and event study results suggest that childhood disabilities suppress mothers' labor supply and this negative effect persists for over ten years. By contrast, fathers' labor supply hardly changes even if he was not a major earner in the household. This indicates that gender norm plays a role in the differential responses of the father and mother. We also find that childhood disabilities increase mothers' physician visits for mental illnesses during the first few years after the onset and reduces her chance of having a second child.

Chun-Che Chi (紀鈞哲), Stephanie Schmitt-Grohé, and Martín Uribe

Optimal Bank Reserve Remuneration and Capital Control Policy

A central prediction of open economy models with a pecuniary externality due to a collateral constraint is that the unregulated economy overborrows relative to what occurs under optimal policy. A maintained assumption in this literature is that households borrow directly from foreign lenders. This paper shows that if foreign lending is intermediated by domestic banks and the government has access

to capital controls and interest on bank reserves, the unregulated economy underborrows. The optimal bank reserve policy is countercyclical. By increasing bank reserves during contractions, the government acts as a lender of last resort to collateral-constrained households.

Chun-Che Chi (紀鈞哲), Chih-Ching Hung, Ming-Jen Lin, and Kevin Tseng

Social Influence in Household Equity Investment: Evidence from Randomized Military Drafts

We provide plausibly causal evidence of the peer effect on investment in a large-scale natural experiment. We show that retail investors respond to investment decisions of their military peers who were randomly assigned in compulsory military drafts: retail investors participate more in the stock market, invest more in stocks that peers hold, and perform better overall. Our investigation of possible channels favors the explanation that retail investors learn valuable information from their peers to make profitable investment decisions: these effects are more pronounced among peers providing such valuable information, and stocks with more peer clientele outperform stocks with less clientele.

C. Y. Cyrus Chu (朱敬一), **Juin-Jen Chang** (張俊仁), and Wei-Neng Wang

Artificial Intelligence and the Narrower Corridor

This paper analyzes how information technology changes the narrow corridor of democracy. Motivated by recent literature in political sciences, we extend the classic model of Acemoglu and Robinson (2012, 2013) by considering a generalized production function, in which the complementarity between technology and the strength of the state, versus that between technology and the strength of the society, may be different. Comparative dynamics show that the emergence of new technologies, such as artificial intelligence and big data, narrows the inclusive corridor, when such technologies are more complementary to the strength of the state than to that of the society. Our theoretical results support the empirical findings of political scientists whereby information technology threatens fragile democracies. We also explain why the Arab Spring turned out to become a bitter winter and why China became more totalitarian by using artificial intelligence plus big data to amplify surveillance efficiency.

C. Y. Cyrus Chu (朱敬一), Po-Hsuan Hsu, and Yi-Ting Wang

On the Gender Difference in Real Estate Returns in Taiwan

We combine several administrative databases of the Taiwan government and show that men own more land and their annual rates of returns (ROR) outperform women's by almost 1% per year. By applying various tests, we find that such a gender difference with respect to ROR appears 1) only in land acquired through parental transfers or purchases partly funded by parents, and 2) only in cases when parents have children of different genders. Our results support the hypothesis that it is parents' patriarchal gender preference that leads to women's wealth disadvantage of lands, in both quantity and quality.

C. Y. Cyrus Chu (朱敬一), Chien-Yu Chen, Ming-Jen Lin, and Hsuan-Li Su

Distributional National Accounts of Taiwan, 1981-2017

We construct the pre-tax Distributional National Accounts (DINA) of Taiwan from 1981 to 2017 using survey data. We find that the DINA individual income series demonstrates a

much larger inequality than previous results using tax tabulations and tax units. This difference is mainly due to a change in the unit of observation and the treatment of corporate retained earnings. Furthermore, the DINA individual and household series both exhibit a similar dynamic pattern. That is, income inequality was stable in the 1980s and began to rise after 1993. After 2000, this trend accelerated due to an increase in retained earnings. In addition, we estimate the distribution of economic growth and divide the timeline into two subperiods. From 1981 to 2001, Taiwan experienced a period of rapid economic growth, with a growth rate of 7.32 percent annually and a fairly equal distribution of economic growth. From 2001 to 2017, the aggregate growth rate declined to 2.47 percent with a deteriorating distribution of growth.

C.Y.C. Chu (朱敬一), P.C. Lee, C.C. Lin, and C.F. Lo

Ultimate Economic Conflict between China and Democratic Countries

This book investigates various dimensions of the economic conflicts between the US – and other democratic market-economy countries – and state-capitalist communist China in the past decade, examining how differences in institutions and ideology bring these about.

Through the lens of institutional analysis, the book elaborates and explains the underlying institutional designs and reasons behind the disputes, highlighting how such variances are embedded and reflect fundamental value divergences between China and other democratic countries.

This book will be of key interest to scholars, students, and practitioners in law, economics, political sciences, international relations, international organisations and global governance.

C.Y. Cyrus Chu (朱敬一) and **Meng-Yu Liang** (梁孟玉)

Why Are All Communist Countries Dictatorial?

Suppose that people in a capitalist society order policies mainly by comparing their wealth changes induced by various policies. We show that property prices play the role of aligning individual preferences, which naturally modifies the axiom of universal domain of the social decision function. This alignment effect eliminates Condorcet Cycles and warrants the transitivity of the majority voting mechanism. Taking away private property will reinstitute Condorcet Cycles, returning the inescapable conclusion of a dictatorial social decision rule, as claimed by Arrow. Our result provides partial support to the practices of property-ownership test of voting eligibility implemented in many democratic countries.

Wen-Tai Hsu (許文泰), Lin Lu, and Pierre M. Picard

Income Inequality, Productivity, and International Trade

This paper studies the effect of income inequality on selection and aggregate productivity in a general equilibrium model with non-homothetic preferences and product quality. The model matches the empirical fact that an increase in income shifts one's consumption towards goods that have higher quality both at the intensive and extensive margins. It also implies a negative relationship between the number and quantity of goods consumed by an income group and the earnings of other income groups. The central result is that a mean-preserving spread of the income distribution negatively affects aggregate productivity through the softening of firms' selection. In the presence of international trade, this effect is amplified with lower trade barriers

or a larger number of trade partners. Furthermore, the model implies that the domestic expenditure shares and welfare gains from trade are constant across income groups. A simple quantitative exercise suggests that an income redistribution like the one induced by the US Federal taxes and transfers raises average productivity by about 3%.

Yi-Fan Chen, **Wen-Tai Hsu** (許文泰), and **Shin-Kun Peng** (彭信坤)

Innovation, Firm Size Distribution, and Gains from Trade

Power laws in productivity and firm size are well-documented empirical regularities. As they are upper right-tail phenomena, this paper shows that assuming asymptotic power functions for various model primitives (such as demand and firm heterogeneity) are sufficient for matching these regularities. This greatly relaxes the functional-form restrictions in economic modeling and can be beneficial in certain contexts. We demonstrate this in a modified Melitz (2003) model which embeds an innovation mechanism in order to endogenize the productivity distribution and generate both of the above-mentioned power laws. We also investigate the model's welfare implications with regard to innovation by conducting a quantitative analysis of the welfare gains from trade.

Wen-Tai Hsu (許文泰) and Lin Ma

Urbanization Policy and Economic Development: A Quantitative Analysis of China's Differential Hukou Reforms

The household registration system (hukou system) in China has hampered rural-urban migration by posing large migration friction. The system has been gradually relaxed in the past few decades, but the reforms have been differential in city size. We find a striking contrast in migration patterns between years 2005 and 2015; rural people tended to move more to large cities in 2005, but more to small- and medium-sized cities in 2015. We calibrate a spatial quantitative model to the world economy in both years with China divided into rural, mega-city, and other-city regions. We find that alternative urbanization policies that are not differential and that are more laissez-faire substantially improve national welfare, in magnitudes that are comparable to the welfare gains from the trade liberalization that China has put in place in the past.

Pao-Li Chang, Yi-Fan Chen, **Wen-Tai Hsu** (許文泰), and Xin Yi

Labor Market Implications of Taiwan's Accession to the WTO: A Dynamic Quantitative Analysis

This paper studies the effects of Taiwan's accession to the WTO in 2002 on the labor market dynamics in Taiwan during 1995–2020. Our dynamic quantitative framework builds on that of Caliendo, Dvorkin and Parro (2019) but allows for differently skilled labor inputs (low, middle, high) and sector-skill dynamic choice by workers. We map the model to the labor-market transition data in Taiwan, the country-sector-specific skill shares in production, and the bilateral trade flows and import tariffs, of 61 economies and 22 sectors for the period 1995–2007. We study the counterfactual dynamics if the bilateral tariffs related to Taiwan's imports and exports are rolled back to their 1995 levels, and calculate the cumulative effects on the employment shares and welfare of workers by sector and skill level. We find that the tariff reductions during this period help explain the phenomenal expansion of certain star sectors in Taiwan and the growing share of high-skilled workers in Taiwan's labor composition. Bilateral tariff concessions between China and Taiwan account for the bulk

of the effects of Taiwan's WTO accession, illustrating the importance of China to Taiwan in the latter's trade structure. The skill-upgrade mechanism is critical in explaining the large employment effects of its WTO accession.

Wen-Tai Hsu (許文泰), **Hsuan-Chih (Luke) Lin** (林軒馳), and **Han Yang** (楊宗翰)
Long-Run Belief-Scarring Effects of COVID-19 in a Global Economy

While COVID-19 lockdown measures disrupt production worldwide, they also shock workers' perceptions and beliefs about the economy and may hence have long-lasting effects after the pandemic. We study a belief-scarring mechanism in the context of labor markets and embed this mechanism into a multi-country, multi-sector Ricardian trade model with input-output linkages. Our quantitative analysis indicates that pandemic shocks leave persistent and substantial belief-driven negative impacts on the post-COVID economy. We find that international trade (without sectoral input-output linkages) worsens the post-COVID economic losses due to a labor-misallocation effect when workers misconceive comparative advantages, whereas input-output linkages dampen such losses. When allowing both trade and input-output linkages, a third and negative effect emerges because the presence of the global supply chain amplifies the stake of efficient allocation according to true comparative advantages and hence makes information friction even more costly. Thus, trade, with input-output linkages, exacerbates the post-COVID losses for most countries.

Wen-Tai Hsu (許文泰), **Hsuan-Chih (Luke) Lin** (林軒馳), and **Han Yang** (楊宗翰)
Between Lives and Economy: Optimal COVID-19 Containment Policy in Open Economies

This paper studies containment policies for combating a pandemic in an open-economy context. It does so via quantitative analyses using a model that incorporates a standard epidemiological compartmental model in a general equilibrium multi-country, multi-sector Ricardian model of international trade. We devise a novel approach in computing national policies in the long run and contrast these policies with a baseline in which countries maintain their current policies until there is sufficient vaccine rollout. We find that (1) international trade acts as a buffer against welfare losses during the pandemic and lowers the number of cumulative infection cases and deaths; (2) the optimal containment policies greatly differ across countries: while most countries should tighten pandemic restrictions, some countries should ease them, depending on their epidemiological and trade factors; (3) compared to the case of autarky, the optimal policy with trade is generally more stringent, because trade allows countries to save more lives without greatly reducing domestic production.

Hsin-Yi Lin, Yu-Hsiang Hsiao, and **Yu-Chin Hsu** (許育進)
Quantile Policy Effects: An Application to U.S. Macroprudential Policy

To analyze the dynamic distributional effects of macroeconomic policies, this paper proposes quantile policy effects (QPEs) that quantify the difference between the quantiles of potential outcomes under two policies. We obtain the identification of QPE under the unconfoundedness assumption and propose a semiparametric inverse probability weighting estimator for QPE following the identification. We then study the asymptotics of the proposed estimator in a time series framework, provide a blockwise bootstrap method for inference, and apply our method to examine the effectiveness

of U.S. macroprudential actions on bank credit growth from 1948–1993. Empirical results show that the effects of macroprudential policy on credit growth are asymmetric and depend on the quantiles of credit growth. Tightening macroprudential actions do not suppress high credit growth, whereas easing policies do not stimulate bank credit growth effectively when credit growth is low. The results imply that U.S. macroprudential policies do not successfully reduce high bank credit growth risk and do not achieve financial stability.

Shengjie Hong, **Yu-Chin Hsu** (許育進), and Yuanyuan Wan

Subvector Inference for Varying Coefficient Models with Partial Identification

This paper develops inference methods for a general class of varying coefficient models defined by a set of moment inequalities and/or equations, where unknown functional parameters are not necessarily point-identified. We propose a multiplier-bootstrap-based inferential procedure for a subvector of the parameters and establish the asymptotic validity of the resulting confidence sets uniformly over a broad family of data generating processes. We also propose a specification test for the varying coefficient models considered in this paper. Monte Carlo studies show that the proposed methods work well in finite samples.

Yu-Chin Hsu (許育進) and Robert P. Lieli

Inference for ROC Curves Based on Estimated Predictive Indices

We provide a comprehensive theory of conducting in-sample statistical inference about receiver operating characteristic (ROC) curves that are based on predicted values from a first stage model with estimated parameters (such as a logit regression). The term "in-sample" refers to the practice of using the same data for model estimation (training) and subsequent evaluation, i.e., the construction of the ROC curve. We show that in this case the first stage estimation error has a generally non-negligible impact on the asymptotic distribution of the ROC curve and develop the appropriate pointwise and functional limit theory. We propose methods for simulating the distribution of the limit process and show how to use the results in practice in comparing ROC curves.

Yu-Chin Hsu (許育進) and Shu Shen

Dynamic Regression Discontinuity under Treatment Effect Heterogeneity

Regression discontinuity (RD) is a popular tool for the analysis of economic policiesor treatment interventions. This paper extends the classic static RD model to a dynamic framework, where observations are eligible for repeated RD experiments and, therefore, treatments. Such dynamics often complicate the identification and estimation of longer-term average treatment effects. Previous empirical research with such designs typically ignored the dynamics in the model or adopted restrictive identifying assumptions. This paper studies identification strategies under various sets of weaker identifying assumptions and proposes associated estimation and inference methods. The proposed methods are applied to revisit the effect of Californian local school bonds in the seminal study of Cellini et al. (2010).

Yu-Chin Hsu (許育進), Martin Huber, Ying-Ying Lee, and **Chu-An Liu** (劉祝安)

Testing Monotonicity of Mean Potential Outcomes in a Continuous Treatment with High-Dimensional Data

While most treatment evaluations focus on binary interventions, a growing literature also considers continuously distributed treatments. We propose a Cramér-von Mises-type test for

testing whether the mean potential outcome given a specific treatment has a weakly monotonic relationship with the treatment dose under a weak unconfoundedness assumption. In a nonseparable structural model, applying our method amounts to testing monotonicity of the average structural function in the continuous treatment of interest. To flexibly control for a possibly high-dimensional set of covariates in our testing approach, we propose a double debiased machine learning estimator that accounts for covariates in a data-driven way. We show that the proposed test controls asymptotic size and is consistent against any fixed alternative. These theoretical findings are supported by the Monte-Carlo simulations. As an empirical illustration, we apply our test to the Job Corps study and reject a weakly negative relationship between the treatment (hours in academic and vocational training) and labor market performance among relatively low treatment values.

Chun-Ting Chen, **Wei-Torng Juang** (莊委桐), and Ching-Jen Sun

Cross Symmetry, the Shapley Value, and the Shapley-Shubik Power Index

In this note we propose a simple symmetry property (axiom) which, along with two other standard axioms, characterizes the Shapley value on the domain of TU games and the Shapley-Shubik power index on the domain of simple (voting) games. The new axiom, cross symmetry, demands payoff invariance on symmetric players across "quasi-symmetric games," that is, games where excluding null players, all players are symmetric. We then show that the Shapley value is the unique value that satisfies dummy player, additivity, and cross symmetry, and the Shapley-Shubik power index is the unique power index that satisfies dummy player, transfer, and cross symmetry. Efficiency is derived rather than assumed in our characterizations.

Simon Chang and **Kamhon Kan** (簡錦漢)

Do Good Carefully: The Long-Term Effects of Low-Dose DDT Exposure in Early Childhood on Education and Employment

It is well known that malaria has serious adverse effects on humans. Yet, little is known as to how DDT, which has been and still is widely used to control malaria, may affect human socioeconomic outcomes in the long run. Utilizing the large-scale indoor residual spraying of low-dose DDT in Taiwan in the 1950s, we estimated the long-term effects of low-dose DDT exposure in early childhood on education and employment in adulthood. Our identification hinges on the unexpected extension of DDT spraying after malaria had already been largely brought under control. We found that even at a very low dosage, DDT exposure still resulted in discernible negative effects on education. For employment, although no effect on the probability of working was detected, people exposed to more sprayings in childhood were more likely to work in the agricultural sector and less likely in the manufacturing sector.

Shih-Fu Liu, Wei-Chi Huang, and **Ching-Chong Lai** (賴景昌)

Could Fiscal Policies Overcome a Deep Recession at the Zero Lower Bound?

This paper sets up the continuous-time version of a New Keynesian model in which the monetary authority implements a zero lower bound interest rate policy and uses it to examine whether the supportive fiscal instruments (including expansionary government consumption spending, expansionary government investment spending, and an increase in lump-sum transfers to the rule-of-thumb households) are effective in

overcoming a deep recession. Three main findings emerge from the analysis. First, when the monetary authority implements the zero lower bound interest rate policy to dampen the negative natural rate shock, the economy will sink into a deep recession with deflation. Second, to overcome the deep recession, expansionary government consumption spending and an increase in lump-sum transfers to the rule-of-thumb households are helpful in pulling the economy out of the deep recession. Third, when productive government spending that contributes to improving the productivity in private production is the flow of government investment spending, expansionary government investment spending may further deepen the recession. However, when productive government spending that contributes to improving the productivity in private production is the stock of public capital rather than the flow of government investment spending, no matter how large the government productivity is, expansionary government investment spending is effective in alleviating the deep recession.

You-Xun Lu and **Ching-Chong Lai** (**賴景昌**)

Effects of Patent Policy on Growth and Inequality: Exogenous versus Endogenous Quality Improvements

This study explores the implications of patent protection on growth and inequality under exogenous versus endogenous quality improvements. Our analysis shows that the effects of strengthening patent protection under an endogenous innovation size can be quite different from those under an exogenous innovation size. Under our calibrated parameter values, we find that strengthening patent protection promotes economic growth, raises income inequality, and decreases consumption inequality under exogenous quality improvements. However, in the case of endogenous quality improvements, strengthening patent protection generates an inverted-U effect on economic growth; both income inequality and consumption inequality decrease with the strength of patent protection.

Chung-Cheng Lin (林忠正)

極大化總效用理論的世界觀：一種國王新衣等級的理論

近代經濟學家大多是在極大化總效用理論的薰陶下成長而成的，擅長利用此理論來分析世事。當你手上有把槌子，任何映入眼簾的東西都會變成釘子；當經濟學家的專業是利用極大化總效用理論來分析世事，就容易養成不把眼前的問題放入此架構中分析看看結果如何絕不罷休的習慣，並自然地藉由這種看世界的方法建立經濟學的世界觀。

作者近年來卻認為培養他長大的經濟學可能是一種從第一個假設開始就出差錯的的分析架構，利用它來看世界可能會建立錯誤的世界觀。「當整條高速公路的車子都逆向時，可能因為大家都看錯路標，但更可能是因為你搞錯方向。」正常而言，我們會相信經歷過成千上萬個經濟學家千錘百鍊的經濟學主流觀點應該是正確的，而作者個人的特殊觀點無疑是錯的。但在實際閱讀過此書後，你可能會像本書的三位匿名審查專家一樣，必須承認作者的論述很有道理。

在本書中，作者先解釋什麼是牛頓和亞里斯多德的世界觀，再簡單介紹序數總效用理論的世界觀，接者說明經濟學是一種看世界的分析架構，並由此理論發展的歷史軌跡來探討效用是什麼？極大總效用理論是怎麼來的？為何會分成古典、序數和基數總效用理論，以及各自的優缺點是甚麼？為何此理論的第一個假設是錯誤的？為何常用的總效用函數是不切實際的？為何此理論不能有邊際效用遞減的觀念？為何此理論連替代互補品、正常劣等品、需求曲線為負斜率…等基本概念都不能妥善解釋？

透過本書的論述，慢慢浮現在我們眼前的結論是：極大化總效用理論可能真是一種從第一個假設開始就出差錯的國王新衣等

級的錯誤分析架構，利用它來看世界可能會讓你建立一套錯誤的世界觀。

Atsuko Takana, **Hsuan-Chih (Luke) Lin** (林軒馳), Heng-Jui Chang, and Chih-Han Hsueh
Estimating the Direct and Indirect Costs of Health Reduction: Evidence from Administrative Data

This paper provides comprehensive analysis on individuals' responses to health reduction and assesses the potential cost savings from disease prevention under a universal health care system. In particular, we estimate how health shocks affect total health care expenditure (direct costs) and labor productivity (indirect costs) in the short and medium/long terms by applying a fixed-effects difference-in-differences approach to the sample of heart attack and stroke survivors in Taiwan. We find that health care expenditure per person increases semi-permanently, but its medium/long-run growth is similar to the pre-treatment one. In contrast, indirect costs surge exponentially, meaning that disease prevention is important, especially at early stages of life. Heterogeneity analysis on direct costs reveals that pre-treatment income is a key determinant of the increase in medical costs, presenting the evidence of a social gradient in health. Our findings also indicate that health reduction exacerbates overuse of health care while providing work incentives to previously non-employed individuals.

Yi-Hsuan Lin (林逸軒) and Chung-Hao Sheu
Choices under Top-N Consideration

We consider a two-stage choice model where a decision maker is constrained by her limited attention capacity. In our setup, a decision maker maximizes her preference over the first N best alternatives according her attention order. We characterize those choice functions that are consistent with this model. We also discuss how to recover the preference, the attention capacity, and the attention order from choices.

Li-Wen Hung and **Shin-Kun Peng** (彭信坤)
Rural-Urban Migration with Remittances and Welfare Analysis

Given the growing importance of rural-urban migration with remittances to rural development and urban income inequality, this paper proposes a theoretical model to investigate unskilled migration with remittances and the relevant welfare implications. Migrants remit part of their wage incomes to support their families of origin out of distinct motivations. The adequate explanation for this behavior may be "enlightened self-interest." Alongside that, we introduce the mental cost of migration, which means that both migrants and remaining members suffer when migrants leave their families and generate the utility loss. We then construct a modified Melitz model with these ingredients to examine the urbanization process and corresponding welfare issues. The results show that when the remittance increases, it will enlarge the inequality between entrepreneurs and migrant workers. Moreover, when the trade cost is relatively small, the average utility level of migrant households is increasing in the remittance rate. Finally, we employ a numerical approach to simulate the optimal remittance rate and compare the results of different scenarios.

Jiun-Hua Su (蘇俊華)
Utility-Maximizing Binary Prediction via Nearest Neighbor Method

We propose a nonparametric k-nearest neighbor prediction rule under the framework of utility-maximizing binary prediction with possibly many predictors. The proposed prediction rule is constructed based on the

predictors selected by various variable selection methods. We establish that the proposed prediction rule, allowing for the data-dependent selection of parameter k, is utility consistent under regularity assumptions. Simulation results suggest that the proposed prediction rule, along with the adaptive component selection and smoothing operator (COSSO) in Lin and Zhang (2006), is utility consistent and outperforms the complexity-penalized utility-maximizing prediction rule in Su (2021).

An-Chi Tung (董安琪) and Henry Wan, Jr.
Export and Trust: Lessons from East Asian Growth

Currently, *growing fast like China* appears to be the aspiration of many economies for actionable programs. Such efforts are far superior than attempts to contain China's growth, which slows worldwide growth.

We select some *country-specific* pro-growth discussions from East Asia to see how far they flesh out and become applicable to developing economies.

One natural choice of base discussion is from Basu (2009, 2019, 2021) with three points most cogent here:

- Growing fast is feasible;
- Growing fast like China is desirable;
- Export" and "trust" are the twin foci of his growth acceleration proposal.

Yet for the developing world, both logical reasoning and trade theory suggest the most promising option is not to *grow exactly like China*. Rather, from experiences of Japan, Korea and Taiwan, learning by doing (especially through export) and creating trust by policy may be more useful for latecomers to build up their own strengths and grow fast.

Yunmin Chen and **C. C. Yang** (楊建成)
On Aggregate Precautionary Savings of the Aiyagari-Bewley-Huggett Model

A signature hallmark of the Aiyagari-Bewley-Huggett (ABH) model is that, due to aggregate precautionary savings, the risk-free gross interest rate in the steady state lies below the inverse of the discount factor. This paper characterizes the ABH model as a martingale and applies the supermartingale convergence theorem to showing that the hallmark of the model survives even if incomplete markets or borrowing limits stand alone. We explain why the model incorporates both features of incomplete markets and borrowing limits rather than either one alone.

Ruoyun Mao, Wenyi Shen, and **Shu-Chun S. Yang** (楊淑珺)
Uncertain Policy Regimes and Government Spending Effects

Money financing returns to policy debate as governments around the world adopted massive fiscal measures during the pandemic. Using a fully nonlinear New Keynesian model with endogenous policy regime switching, we show that a moderate inflation-driven switching probability to a debt-financing regime reduces money-financed spending multipliers. When interacted with high government debt, money-financed spending multipliers fall below one, similar to the size of debt-financed spending multipliers. This result holds at the zero lower bound, with long-term government debt, and under a wide range of key parameter values. Policy regime uncertainty, on the other hand, has little effect on debt-financed spending multipliers.

本所進行中研究計畫
Ongoing Research Projects

* 依姓氏筆劃順序排列

朱敬一	台灣所得與財富大數據資料的建構與分析（3/5）
林軒馳	異質認知偏誤對政策設計影響之探討—異質行為與個人之新凱因斯模型之應用（1/2）
林逸軒	在錯誤的主觀事前機率下的理性不注意模型的參數唯一性
紀鈞哲	抵押限制下的不效率（1/3）
陳明郎	所得、財富分配和最適租稅政策：異質個人模型（2/3）
陳恭平	網路交易的實證研究（3/3）
陳恭平	臺灣便利超商的發展與競爭（2/3）
陳樂昱	最佳子集設限出項分量回歸方法（1/2）
許文泰	中國的城市土地政策：空間經濟學的量化分析（1/2）
許育進	計量研究方法（2/4）
莊委桐	變動環境下學習法則的競爭（2/2）
莊雅婷	社會偏好與社群理論如何影響科技使用的決策行為（2/2）
梁孟玉	邊做邊學技術下的耐久財獨佔市場
張俊仁	勞動份額過度調整與異質性技能
張庭源	1980 年代以來美國的勞動市場（1/3）
張靜貞	以高解析度資料探討氣候變遷與都市發展對健康之衝擊及因應對策：應用機器學習方法預測氣候變遷與空氣汙染的經濟社會成本—聚焦台灣婦幼健康(子計畫四)（2/2）
彭信坤	動態架構下生產力異質與貿易利得關係之探討（1/3）
楊子霆	生育津貼與小孩健康衝擊對家戶行為的影響（1/3）
楊宗翰	全球化，國際貿易以及全球勞動份額下降
楊建成	最適租稅（2/3）
楊淑珺	被動的寬鬆貨幣政策能否創造財政政策的空間?
楊智鈞	拍賣設計：有限的條件論理容量與有限的論理深度
葉俊顯	獨立性公設與穩定性公設在三種資源配置問題的研究（1/2）
董安琪	男女有別：生命週期負債之性別差異（2/2）
劉祝安	模型平均預測的理論與應用（2/3）
劉祝安	模型平均法在經濟學上的應用（2/5）
蔡文禎	模型不確定下之混頻多變量之分析（5/5）

蔡文禎　運用臺灣普查資料檢驗競爭政策低度執法風險之實証分析

鄭琬蓉　控制幅度技術進步對於跨公司間薪資不均程度的影響（1/2）

賴景昌　R&D 廠商的財務結構、國際資金借貸、與經濟成長（3/3）

賴景昌　貨幣政策、專利權抵押、與研發驅動的經濟成長（4/5）

簡錦漢　個人投資行為的探討：財富、同僚及行業知識的影響（1/3）

蘇俊華　隨機設限資料的非條件分量迴歸（2/2）

蘇俊華　利用現代計算技巧進行效用極大化的二元預測（2/4）

學 術 活 動
Academic Events

本所討論會
Seminars

（2022.07.01 ~ 2022.09.30）

IEAS Seminar

Date	Speaker / Title
2022.08.26	**Yu-Hsiang Lei** (雷宇翔), Assistant Professor at Yale - NUS College *The Effects of Dams on International Rivers: Evidence from Dams along the Mekong River*
2022.09.06	**Wen-Chien Chiu** (邱婉茜), Associate Professor at Tsing Hua University *Can Banks Foster Green Innovation? Eyes on Green Marks*
2022.09.27	**Ziho Park** (朴至鎬), Assistant Professor at the National Taiwan University *Bound by Ancestors: Immigration, Credit Frictions, and Global Supply Chain Formation*

Applied Econ Workshop

Date	Speaker / Title
2022.07.07	Keynote Speaker: **David Yanagizawa-Drott**, Professor of Development and Emerging Markets at University of Zurich *Echo Chambers: Does Online Network Structure Matter? & Religion, Rebellion, and State Education: Evidence from Colonial Korea* Working Paper Presenter: **Sangyoon Park**, Assistant Professor at the University of Hong Kong *Religion, Rebellion, and State Education: Evidence from Colonial Korea*
2022.07.28	Keynote Speaker: **Prashant Bharadwaj**, Professor of Economics at University of California, San Diego *Towns and Rural Land Inequality in India & Hukou Restrictions, Left-Behind Children, and Gender* Working Paper Presenter: **Ran Song**, Assistant Professor at National University of Singapore *Hukou Restrictions, Left-Behind Children, and Gender Inequality in China*

2022.08.18	Keynote Speaker: **Edward Miguel**, Oxfam Professor of Environmental and Resource Economics and Faculty Director of the Center for Effective Global Action at the University of California, Berkeley *What Does Donor Conditionality Do? Causal Evidence from Kenyan Electrification & China's Foreign Aid: Political Determinants and Economic Effects* Working Paper Presenter: **Joris Mueller**, Assistant Professor at National University of Singapore *China's Foreign Aid: Political Determinants and Economic Effects*
2022.09.15	Keynote Speaker: **Hans-Joachim Voth**, Professor of Economics at University of Zurich *Slavery and the British Industrial Revolution* Working Paper Presenter: **T. Terry Cheung** (張庭源), Assistant Research Fellow at the Institute of Economics, Academia Sinica *Letting Old Data Speak: Local Cultural Traits in Qing China Grain Prices*

HKBU-IEAS Seminar

Date	Speaker / Title
2022.07.05	**Philippe Jehiel**, Research Fellow at Paris School of Economics and Professor of Economics at University College London (half time) *Auction Design with Data-Driven Misspecifications*
2022.07.14	**Katrin Assenmacher**, Head of Monetary Policy Strategy Division at European Central Bank *Central Bank Digital Currency and Bank Intermediation*
2022.07.29	**Matteo Maggiori**, Moghadam Family Professor of Finance at the Stanford Graduate School of Business *Internationalizing Like China*
2022.08.05	**Pablo Ottonello**, Assistant Professor at University of Michigan *The Micro Anatomy of Macro Consumption Adjustments*
2022.08.09	**Ryan Oprea**, Maxwell C. and Mary Pellish Chair of Economics and the Director of the Laboratory for the Integration of Theory and Experiments (LITE) at the University of California, Santa Barbara *Simplicity Equivalents*

2022.08.16	**Kyungmin (Teddy) Kim**, Associate Professor at Emory University *Making Your Own Luck: Strategic Risk Taking and Effort in Contests*
2022.08.30	**Emre Ozdenoren**, Professor at London Business School *Dynamic Asset-Backed Security Design*
2022.09.09	**Narayana Kocherlakota**, Lionel W. McKenzie Professor of Economics at University of Rochester *Infinite Debt Rollover in Stochastic Economies*
2022.09.16	**Saki Bigio**, Associate Professor at University of California, Los Angeles *A Theory of Payments-Chain Crises*
2022.09.30	**Kristoffer Nimark**, Associate Professor at Cornell University *Endogenous Production Networks under Supply Chain Uncertainty*

Chinese Economy Seminar

Date	Speaker / Title
2022.07.22	**Chang-Tai Hsieh** (謝長泰), Phyllis and Irwin Winkelreid Professor of Economics at the University of Chicago Booth School of Business and an Academician of Academia Sinica *Two Strong Hands: China's Vision for the Private Sector*
2022.08.09	**Ping Wang** (王平), Seigle Family Distinguished Professor of Arts and Sciences at Washington University in St. Louis, Research Associate at the NBER, and Senior Research Fellow at the Federal Reserve Bank of St. Louis and the ABFER of the National University of Singapore *To Stay or to Migrate? When Becker Meets Harris-Todaro*
2022.08.30	**Weihong Zeng** (曾衛紅), Associate Professor of Jinhe Center for Economic Research, Xian Jiaotong University, China *Persistence Despite Revolutions*
2022.09.13	**Zheng Song** (宋錚), Wei Lun Professor of Economics and Head of Department of Economics at Chinese University of Hong Kong *Special Deals from Special Investors – The Rise of State-Connected Private Owners in China*

Brownbags

Date	Speaker / Title
2022.07.15	**Shao-Yu Jheng** (鄭紹鈺), National Taiwan University *Inclusive Origins of Rapid Industrialization:The Persistent Effects of the Colonial Bank Networks on Taiwan's Economic Miracle*
2022.07.22	**T. Terry Cheung** (張庭源), Assistant Research Fellow at the Institute of Economics, Academia Sinica *Education Attainment and Structural Transformation*
2022.08.05	**Yu-Chin Hsu** (許育進), Research Fellow at the Institute of Economics, Academia Sinica *Inference for ROC Curves Based on Estimated Predictive Indices*
2022.08.19	**Wei Chen** (陳暐), National Taiwan University *Does Combining General Election and Electoral Referendum Increase the Voter Turnout? A Gamified Experimental Study*
2022.09.02	**Han Yang** (楊宗翰), Assistant Research Fellow at the Institute of Economics, Academia Sinica *The Tower of Babel: Localization, Translation, and International Trade*
2022.09.16	**Shih-Fen Cheng** (鄭世盼), Singapore Management University *Improving Quantal Cognitive Hierarchy Model Through Iterative Population Learning*
2022.09.30	**Hsuan-Chih Lin** (林軒馳), Assistant Research Fellow at the Institute of Economics, Academia Sinica *How Does Heterogeneous Cognitive Bias Affect the Design of Policy? A Behavioral HANK Model*

學 術 交 流
Academic Exchanges

本所研究人員
Research Fellow

（2022.07.01 ~ 2022.09.30）

Date	Event
2022.07.30 ~ 08.04	**Kamhon Kan** (簡錦漢), Research Fellow Participated in "2022 Singapore Economic Review Conference" in Singapore, and presented the paper "Consumption Response to Stimulus Payments: The Power of Mental Accounting".
2022.07.28 ~ 08.05	**Ting-Yuen Terry Cheung** (張庭源), Assistant Research Fellow Participated in "2022 Singapore Economic Review Conference" in Singapore, and presented the paper "Letting Old Data Speak: Local Cultural Traits in Qing China Grain Prices".
2022.08.18 ~ 08.26	**Shin-Kun Peng** (彭信坤), Distinguished Research Fellow Participated in the "61th European Regional Science Association(ERSA) Congress" in Budapest, Hungary, and presented the paper "Trade, Labour Union, Unemployment, and Wage Differental".
2022.08.19 ~ 10.15	**Ting-Yuen Terry Cheung** (張庭源), Assistant Research Fellow Participated in "2022 European Economic Association-Econometric Society European Meeting" in Milan, Italy & "2022 Economic History Association Meeting" in Wisconsin, USA, and presented the paper "Letting Old Data Speak: Local Cultural Traits in Qing China Grain Prices". Participated in "2022 Midwest Economic Theory and International Economics Meeting(MWIEG)" in Indiana, USA and presented the paper "Transportation Network, Technology Adoption and Structural Transformation". Then visited the Department of Economics at Washington University, the Department of Economics at Virginia Tech, and the Department of Economics at Sciences Po for academic exchange.
2022.08.22 ~ 08.29	**Chun-Che Chi** (紀鈞哲), Assistant Research Fellow Nominated by the Academia Sinica and invited by the Council for Lindau Nobel Laureate Meeting to participate in the "7th Lindau Nobel Laureate Meeting" in Lindau, Germany.
2022.09.24 ~ 10.05	**Kamhon Kan** (簡錦漢), Research Fellow Visited the Department of Economics and Finance, City University of Hong Kong for academic exchange.

來訪學人
Visiting Scholars

（2022.07.01 ~ 2022.09.30）

Date	Event
2022.07.01 ~ 08.31	**Cheng-Wei Chang** (張振維), Assistant Professor, Department of Economics, Tunghai University Visited our institute via Short-term Visiting Program for Domestic Scholars and collaborated research project "貨幣政策與內生化市場結構" with Ching-Chong Lai, Distinguished Research Fellow of our institute.
2022.07.01 ~ 08.31	**Yi-Fan Chen** (陳奕帆), Assistant Professor, Department of Applied Economics, National University of Kaohsiung Visited our institute via Short-term Visiting Program for Domestic Scholars and collaborated research project "Labor Participation, Wage Income Inequality, and Heterogeneous Welfare Gains from Trade" with Wen-Tai Hsu, Research Fellow of our institute.
2022.07.05 ~ 09.05	**Olena Pavlova**, Professor at Lesya Ukrainka Volyn National University (Visitor of Taiwan's Scholarship for Ukrainians) Visited our institute for academic research.
2022.07.18 ~ 08.07	**Jang-Ting Guo** (郭建廷), Professor at University of California, Riverside Visited our institute for academic exchange.
2022.08.10 ~ 08.23	**Chia-Hui Chen** (陳珈惠), Associate Professor at Kyoto University Visited our institute for academic exchange.
2022.08.10 ~ 08.23	**Junichiro Ishida**, Professor at Osaka University Visited our institute for academic exchange.

人 事 動 態

Latest Staff News

（2022.07.01 ~ 2022.09.30）

1. Assistant Research Fellow Dr. Ritesh Jain has resigned, effective on July 1, 2022.
2. Dr. Fei-Chi Liang has been appointed as Postdoctoral Fellow of the Institute of Economics from July 1, 2022 to June 30, 2024.
3. Dr. Yating Chuang has been appointed as Assistant Research Fellow of the Institute of Economics from August 1, 2022 to July 31, 2027.
4. Distinguished Research Fellow Dr. Kong-Pin Chen has completed his term as Director of the Institute of Economics on August 9, 2022.
5. Research Fellow Dr. Yu-Chin Hsu and Dr. Juin-Jen Chang have completed their terms as Deputy Director of the Institute of Economics on August 9, 2022.
6. Research Fellow Dr. Yu-Chin Hsu has been appointed to the Acting Director of the Institute of Economics from August 10, 2022.
7. Research Fellow Dr. Juin-Jen Chang has been appointed to the Acting Deputy Director of the Institute of Economics from August 10, 2022.
8. Research Fellow Dr. Shu-Chun Susan Yang has been appointed to the Acting Deputy Director of the Institute of Economics from August 10, 2022.