Statement of Research Interests and Future Plans

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Motivation. Online markets run on rules about reversal: a shopper can return what she bought, a bookstore can send back what it cannot sell, a platform can refund a fee when a deal falls through. Who sets these rules, and how they should be designed, decides what gets bought, what gets wasted, and who bears the cost. I study these questions empirically.

Research interests. My research lies in empirical industrial organization and digital economics. I study decisions that must be made before uncertainty is resolved, when adjusting afterward is costly. Consumers face uncertainty about the value of a product and can learn about it before paying, by searching, or after paying, by returning. Sellers face uncertainty about demand and must set prices and inventory in advance. A policy that seems to fix one margin often distorts the other, and the two margins are determined together. This joint determination is the common thread through my work on product returns, consumer search, and inventory under demand uncertainty, and it is the angle I bring to policy analysis.

Working papers.

- **Designing Return Policy in E-Commerce: A Trade-off between Purchase and Return Efficiency** (job market paper). A return policy sets two margins: whether shoppers buy, and whether they return the item after delivery. A stricter policy curbs inefficient returns after purchase, but with fewer returns the seller keeps more of each sale, so a higher price becomes more profitable and can price out purchases that would have been valuable. Using transaction data from a women's clothing retailer on Taobao, I estimate a structural model of purchase, insurance, and return decisions under monopoly pricing across six apparel categories. A lenient policy that reimburses return shipping performs better when margins and salvage value are high, by expanding efficient purchases, whereas a stricter policy performs better when margins are thinner, by curbing excessive returns. A menu that pairs a discounted price with a moderate restocking fee balances purchase and return efficiency and outperforms both for most categories. Taiwan makes this question concrete: Article 19 of the Consumer Protection Act gives online shoppers a seven-day cooling-off period to return goods for any reason at no cost.[1] With free returns the legal default, how sellers should price and design returns under that mandate is a regulated-market question rather than a hypothetical one.
- **Product Design with Heterogeneous Search Costs** (with Pak Hung Au). We introduce search-cost heterogeneity into a sequential search model. Low-search-cost consumers seek niche products, while high-search-cost consumers buy standardized products. When search costs fall, more consumers switch to searching niche products, and this shift in who searches can raise prices for both product types.

Work in progress.

- **Pass-Through and Incidence with Product Returns** (with Ce Bian and Liang Zhao). This project asks how a tax passes through when purchases are not final. A seller receives the price only when the buyer keeps the good, so each sale carries the production cost, the return handling cost, and any tax or fee not recovered on a return. The price also moves the return rate, which feeds back into the margin and the quantity supplied, so pass-through can be stronger, weaker, or even negative. A calculation that ignores the return margin can reverse the predicted price and welfare effects. The project also asks how a kept sale and a return should be taxed, since

[1] Consumer Protection Act (Taiwan), Art. 19. English text: Laws and Regulations Database of the Republic of China (Taiwan), `https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=J0170001`.

in practice a sales tax is refunded in full on a return while a platform referral fee is refunded only in part. Taiwan's e-commerce marketplaces make the question immediate: the marketplace Shopee has raised seller fees in steps to a combined take reported at over 14 percent, with higher payment and free-shipping fees added in 2026, while buyers return purchases at no cost under the cooling-off rule and the platform refunds its commission on returned orders.[2] How such fees pass through to prices, and how the refund treatment of each fee shapes that pass-through, is a live dispute between Taiwan's platforms and their sellers.

- **Too Much Unsold Stock?: Environmental Consequences of Price Commitment** (with Kohei Kawaguchi and Kei Kawai). In the Japanese book market, publishers set retail prices under resale price maintenance and bookstores return unsold copies to be pulped. A fixed retail price encourages bookstores to hold inventory even when demand turns out low, which is procompetitive, but it also prevents discounting in that case, so unsold stock piles up at an environmental cost. We build a dynamic oligopoly model with demand uncertainty, estimate it on monthly bookstore data, and ask how much unsold stock is due to price commitment and how a deposit-refund tax can reduce the waste. Taiwan's Fair Trade Commission treats resale price maintenance as illegal in principle under the Fair Trade Law, and it has fined book publishers for fixing resale prices, including a NT$200,000 fine on Commonwealth Publishing for fixing the price of the "Steve Jobs" biography at NT$599 and a NT$500,000 fine on Lung T'eng for restricting booksellers' discounts on reference books.[3]

Future plans. Over the next five years I plan to develop this agenda into a broader analysis of market rules that create waste, and to connect it to environmental and circular-economy policy. Product returns and unsold inventory are the same market failure at two stages of the sale, and both are shaped by prices, fees, and the right to reverse a transaction. I see three directions.

First, I will study search, purchase, and return jointly. Search and return are two ways of resolving the same match uncertainty, one before paying and one after, so they are substitutes. Better search lowers the residual uncertainty a buyer carries into the purchase, which should lower the return rate, but it also lets the seller charge more because the buyer's outside option is better informed. Which force dominates decides whether a platform's recommendation system reduces returns or just raises prices instead. I want to estimate the joint decision and recover the substitution between search intensity and the return rate. The potential result is a welfare accounting that separates the match-quality gain from the higher price, and a test of whether recommendation, which is meant to raise match quality, instead shifts the cost of mismatch into return shipping and disposal. In Taiwan, where free returns are the legal default,[4] this substitution between search and return, and the role of platform recommendation in it, are features of the market consumers already face.

Second, I will study returns and unsold stock as an environmental problem and evaluate instruments that reduce waste. In apparel, a shopper who orders several sizes or colors keeps one and returns the rest, generating a large loss of value on the returned items. In publishing, fixed retail prices produce unsold copies that are pulped. Each is a case where the rule that protects one margin creates physical waste at the other, because the party setting the rule does not bear the disposal cost. I plan to quantify that waste and to compare instruments that internalize it, including restocking fees, return-shipping charges, deposit-refund taxes, and rules on price flexibility. The intuition is that each instrument raises the private cost of a return toward its social cost, but they differ in

[2] Shopee Taiwan seller help center: fees (`https://seller.shopee.tw/edu/article/26470`); 2026 update and free-shipping program (`https://seller.shopee.tw/edu/article/26430`); commission refunded on returned orders (`https://seller.shopee.tw/edu/article/12157`). Combined take above 14 percent: Commonwealth Magazine interview with Shopee Taiwan's general manager, 2026, `https://www.cw.com.tw/article/5141245`.
[3] Fair Trade Commission (Taiwan): Disposition Kung Ch'u Tzu No. 101137 (September 19, 2012), Commonwealth Publishing; Disposition (89) Kung Chu Tzu No. 207 (November 30, 2000), Lung T'eng. Case summaries: `https://www.apeccp.org.tw/htdocs/doc/Taipei/Case/dec2012/1136-1089case07.html`; `https://www.apeccp.org.tw/htdocs/doc/Taipei/Case/D0505200.htm`.
[4] Consumer Protection Act (Taiwan), Art. 19, `https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=J0170001`.

how much they also discourage valuable purchases, so the comparison yields a ranking of which instrument lowers waste the most per unit of lost trade. Taiwan's Ministry of Environment already regulates e-commerce packaging, banning PVC, requiring 90 percent recycled content in cardboard and 25 percent in plastic, and pressing large retailers toward packaging-weight reduction and reuse targets, while returns add reverse logistics and packaging waste on top of these flows.[5] Because Taiwan is tightening extended producer responsibility and circular-economy rules, this work can inform how e-commerce returns and unsold inventory should be counted, charged, or discouraged.

Third, I will study how return and refund rules shape the two sides of a platform. A return policy is a lever on participation, not only on behavior after joining. A lenient policy draws in more buyers, including those more likely to return, which raises the return rate a seller faces and lowers what a seller can earn, so some sellers leave and the survivors reprice. The cross-side effect can therefore undo part of the demand gain the lenient policy was meant to create. I plan to estimate how composition on one side feeds into the other and to compare the return policy the platform would choose with the one a regulator would choose. That yields a map from the cross-side network effect to the optimal division of return-shipping and restocking costs between buyer, seller, and platform. The Fair Trade Commission's digital-platform competition work already puts the rules a platform sets for its two sides under scrutiny in Taiwan.[6]

Contribution to CIER. My field is empirical industrial organization, and my toolkit is the one CIER already relies on. CIER carries out commissioned competition studies for Taiwan's Fair Trade Commission, including the empirical assessment of the online-sales market and the study of digital platforms and competition rules.[7] Those reports define relevant markets, assess multi-sided network effects and market power, and evaluate conduct such as exclusive dealing, resale-price maintenance, most-favored-nation clauses, and platform parity. This is precisely the ground I work on. My training is to take rich micro data, estimate structural models of demand, supply, and firm conduct, and use those models to evaluate how a change in rules or prices moves market power, consumer surplus, and welfare. I would bring exactly this capacity to CIER's competition and digital-economy work.

Several of my projects speak to that agenda directly: the pass-through project on how fees and taxes transmit to prices when purchases can be returned, the unsold-stock project on the competitive effect of resale price maintenance, one of the vertical restraints the Fair Trade Commission flags, and the job market paper and search project on the pricing, search, and platform design that the digital-platform studies treat. Across these, I handle the full path from raw transaction or scanner data to a policy simulation a ministry can act on.

The same toolkit serves CIER's wider centers. For the centers on Taiwan industry and on energy and the green economy, my work on unsold inventory and product returns measures the waste created by pricing rules and shipping subsidies and evaluates instruments, such as deposit-refund taxes and restocking fees, that could reduce it. For economic forecasting, my pass-through work shows that leaving out the return margin can reverse the predicted price response to a cost shock. I grew up in Taiwan and can work with domestic data and stakeholders in both Chinese and English. My aim at CIER is to turn structural estimates into clear, evidence-based recommendations across competition, digital-platform, tax, and environmental policy.

[5] Ministry of Environment (Taiwan), Targets and Measures for Restrictions on Internet Shopping Packaging, in force since July 1, 2023. English summary: `https://www.moenv.gov.tw/en/news/press-releases/15507.html`.
[6] Fair Trade Commission commissioned study, carried out by the Chung-Hua Institution for Economic Research: *The Digital Platform Industry: Current State, Trends, and Competition Rules in Taiwan* (2022), `https://www.ftc.gov.tw/upload/1f59ab5d-8cae-410a-a8b1-2080fdab977c.pdf`.
[7] Fair Trade Commission commissioned studies, both carried out by the Chung-Hua Institution for Economic Research: *Empirical Study of Competition in the Online Sales Market* (2020), `https://www.ftc.gov.tw/upload/885e4488-950e-4cf9-a774-6a224b8df58c.pdf`; *The Digital Platform Industry: Current State, Trends, and Competition Rules in Taiwan* (2022), `https://www.ftc.gov.tw/upload/1f59ab5d-8cae-410a-a8b1-2080fdab977c.pdf`.