

DING Huiyun

PERSONAL INFORMATION

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RESEARCH

UNTIL NOW Post-doctoral researcher , **IESEG School of Management**, Lille
Department of Economics and Quantitative Methods,
Supervisors: Stefano NASINI, Deniz ERDEMLIOGLU

SEPTEMBER 2023 PhD in ECONOMICS, THEMA, **CY Cergy Paris Université**, Paris
Thesis: "Advertising Behaviors in Vertical Structures"
Supervisors: Régis RENAULT, Gabriel DESGRANGES

TEACHING

SPRING 2024 & 2025 "Quantitative Methods for Economics and Finance", IESEG
Undergraduate, S2

SPRING 2023 "EUROPEAN ECONOMY AND POLICIES", UNIVERSITÉ PARIS 1
Prof. Arnaud LECHEVALIER | Undergraduate, 2nd year

FALL 2022 & 2021 "THE ECONOMY", SCIENCES PO PARIS
Prof. Kerstin HOLZHEU, | Undergraduate, 1st year

SPRING 2022 "Microeconomics for Decision Makers", SCIENCES PO PARIS
Prof. Charles OMAN, | Master 1

EDUCATION

JULY 2018 Master 2 in ECONOMICS, **Paris School of Economics**, Paris
Analysis and Policies of Economics (APE) | GPA: 14.25/20 (MENTION BIEN)
Thesis: "A Dynamic Social Learning Model" | Supervisor: Gabrielle DEMANGE

JULY 2017 Master 1 in ECONOMICS, **Université Paris 1 Panthéon-Sorbonne**, Paris

DECEMBER 2016 Master 1 in ECONOMICS, **Universitat Autònoma de Barcelona**, Barcelona

JUNE 2016 Undergraduate Degree in FINANCE, **Nanjing University**, China
Thesis: "Empirical Analysis of Noise Trades in Real Estate Market in Nanjing"
GPA: 3.9/4 | Supervisor: Run YU

AUGUST 2015 Summer School at **Tel Aviv University**, Tel Aviv

LIST OF PAPERS UNDER REVIEW

Retrospective Bayesian Estimation for Multinational Pandemic Outbreaks

(R&R from JOURNAL OF ECONOMETRICS)

Co-authors: STEFANO NASINI DENIZ ERDEMLIOGLU, HUIYUN DING, AND SOPHIE DABO-NIANG

This paper proposes a Bayesian hierarchical model to retrospectively estimate the initial conditions of pandemic outbreaks, with a specific focus on uncovering the early stages of COVID-19 at its historical inception. Building on population-level continuous-time dynamics, our model incorporates three population segments, namely, influential, consecutive, and imitator segments, representing multiple locations undergoing disease diffusion, with differential equations defining the infection proportions over time. Our approach captures the interdependencies between different geographical regions, considering Hubei province as the influential population, the rest of China as the consecutive population, and the rest of the world as the imitator population. We introduce key parameters for infection proportions and time propagation, solving differential equations to derive expressions for infection dynamics. Our Bayesian hierarchical framework further addresses data incompleteness and unreliable early reports by categorizing infections into tested, untested, reported, and unreported. The estimation process combines the expectation-maximization and the Metropolis-Hastings algorithm, ensuring convergence to the Bayesian posterior distribution. Applying the model to COVID-19 data, we infer the early dynamics of the pandemic prior to January 1, 2020. The results suggest a significant divergence from official reports and indicate that the number of infections in China likely surpassed 30,000 cases by December 31, 2019.

Difference in Information Disclosure for Private Labels: Classical Retailer v.s. Online Platform (under review): HUIYUN DING AND WEI BI

A retailer sells a house brand along with the competing brand of a manufacturer. The latter product is known by consumers who, however, do not know their valuation for the retailer's product. The retailer advertises some product information telling consumers whether their valuation exceeds some threshold with no further information. A consumer buys the retailer's product if his valuation is above the threshold and buys the manufacturer's product otherwise. The optimal threshold is above the retailer's marginal cost, which reflects the opportunity cost of not selling a unit of the manufacturer's product, whenever the retailer's product is purchased, and the net surplus of a consumer buying the manufacturer's product. The resulting threshold is independent of whether profit-sharing is wholesale pricing, where the retail price of the manufacturer's product is set by the retailer, or agency, where the manufacturer selects its retail price and pays a commission to the retailer. As a result, the house product's market share is the same with either rule. Retail prices are higher with wholesale pricing which is a more profitable arrangement for the retailer. The manufacturer is indifferent between the two rules. The paper explores an extension where consumers have heterogeneous valuations for the manufacturer's product.

Jump Bidding in the War of Attrition (under review): WEI BI AND HUIYUN DING

This paper investigates the effects of jump bidding between two bidders in the context of the war of attrition and its implications for market efficiency. The war of attrition is a common phenomenon where firms compete to remain in the market by investing aggressively in advertising or research. Jump bidding is a strategy that allows a firm to bypass the costly period of attrition by making a commitment to remain in the market. We first identify the dominant bidder 1 with the highest valuation for the object, and all other types will follow her strategy. This bidder faces the problems of whether to jump bid or not and when to jump bid. The shape of bidder 2's valuation distribution determines the cost of excluding bidder 2 during the war of attrition and thus answers the above two questions. We find that when bidder 2's cumulative density function is of a convex shape, bidder 1 will jump bid. Furthermore, the paper examines the inefficiencies that arise from the introduction of jump bidding in the auction.

LIST OF PAPERS IN PROGRESS

An Integrated Structural Econometric Framework for Network Influence Discovery

LUIS PEREZ, HUIYUN DING, STEFANO NASINI AND MURIELLE CANDELLE

This study examines classroom peer ecology models, which posit that students' social and academic outcomes are shaped by a range of individual and environmental factors. From a statistical standpoint, these models facilitate the analysis of spatial and temporal dependencies, aspects often overlooked in recent psychometric research. We propose an integrated statistical framework to investigate the inter-temporal peer influences in educational dynamics during pre-adolescence, focusing on the dependency structure between students' academic outcomes over time. Theoretically, we explore the mathematical characteristics of the proposed model, while empirically, we evaluate its ability to capture inter-temporal dependencies in academic performance. Using longitudinal data from four groups of students (106 students total) tracked over four consecutive years, our findings demonstrate that the proposed approach surpasses established methods (e.g., VAR models, binomial regressions) in both prediction accuracy and its capacity to uncover hidden dependency structures.

An Integrated Structural Econometric Framework for Network Influence Discovery

OLEG BADUNENKO, HUIYUN DING, STEFANO NASINI AND LUIS PEREZ

The paper develops a library of PIDC package in C++, Python and R.

Profiling Loss Aversion Without Reference Points: An Econometric Framework

HUIYUN DING, DENIZ ERDEMLIOGLU, STEFANO NASINI AND UYANGA TURMUNKH

This paper proposes an inverse optimization approach to estimate the impact of individual characteristics and attitudes on financial decisions and other lifestyle choices involving risk. We consider a rational decision maker selecting among investment options to optimize a combination of lower and upper partial moments from a target return. Under the rationality assumption, this selection indirectly reveals unobservable dimensions of its risk sentiments, such as its loss aversion, its target return, the relevant order of moments, and the dependencies with respect to its individual characteristics. When decisions from multiple individuals are observed, a combinatorial structure is proposed to simultaneously identify these unobservable dimensions from a collection of observable investment and lifestyle choices related to risky situations (such as crossing a road with a red traffic-light, or confessing a crime). Contextually, multiple modelling specifications are investigated to integrate investment and lifestyle choices. On the empirical side, we validate our methodology with real data, involving 1000 individuals who volunteered to take part to our survey. Figures show that the proposed inverse optimization methodology reaffirms the three leading factors of risk sentiment (sex, education, and age); it uncovers the sizable relationship between risk sentiments in the investment choices and other lifestyle choices involving risk; it reveals the model specification that better fits the observed investment and lifestyle choices.

Who Should Advertise in a Vertical Supply Chain?: HUIYUN DING

The paper considers a vertical supply chain that comprises a manufacturer and a retailer, selling a search good to consumers. Advertising is made to inform consumers of its existence and price. The demand for the product is modeled using a ρ -linear function that is multiplied by the advertising intensity, a value between 0 and 1. Advertising expands consumer demand but is costly. It turns out that the optimal level of advertising for each firm and for social welfare depends mainly on the upper bound of consumer valuation, as captured by the parameter V . When demand is convex or not too concave (i.e., small ρ), both firms prefer the other to advertise, whereas when demand is sufficiently concave (i.e., large ρ), they prefer to advertise themselves.

Dynamic Social Learning of Further Education for Rural Students: HUIYUN DING

This paper applies the framework of overlapping dynamic network in which agents keep entering and leaving the network and successors connect to the predecessors according to their degrees aiming at information to understand how agents update their beliefs and make the optimal choice. It examines the role of overlapping between old agents and new agents in helping new agents to get more knowledge about the truth. Overlapping refers to that agents only live two periods during which they decide whether study or not at the first period and all work for the second period. This paper proposes a possible social learning process, mimicking the learning behaviors of agents with different educational and family backgrounds to find the conditions for complete social learning.

CONFERENCES

24-26 AUGUST 2023,	50th EARIE Annual Conference , Luiss Guido Carli
27-28 JANUARY 2023	ADRES Doctoral Conference 2023 , Université Paris Dauphine
26-28 AUGUST 2022,	49th EARIE Annual Conference , University of Vienna
13-14 DECEMBER 2021	16th BiGSEM Doctoral Workshop , Bielefeld University
27-28 AUGUST 2021	48th EARIE Annual Conference , NHH-Norwegian School of Economics
14-15 DECEMBER 2020	15th BiGSEM Doctoral Workshop , Bielefeld University

LANGUAGES

English(C2) **French(C1)** **Japanese (A2)** **Chinese(Native)**

CODING SKILLS

L^AT_EX, Python, MATLAB, R, STATA