

Dr. Hung T. Do

The University of Vermont
BSAD-Business Analytics
(802) 656-8367
Email: hdo@uvm.edu

Education

- Ph D, Purdue University, 2012.
Major: Operations Management
Dissertation Title: "Using Supply State Information to Improve Supply Chain Performance"
- MS, Purdue University, 2007.
Major: Electrical and Computer Engineering
- Ph D, Gunma University, 2005.
Major: Electronics and Computing
- M.E., Gunma University, 2003.
Major: Electronics and Computing
- B.E., Hanoi University of Technology, 1992.
Major: Electronics

RESEARCH

Research Publications

Refereed Journal Articles

- Gharibi, Z., Do, H., Hahsler, M., Ayvaci, M. (2025). Optimal quality oversight in kidney transplantation and its impact on transplant centers' waitlist management. *Health Care Management Science (HCMS) / Springer*, 30 pages. <https://doi.org/10.1007/s10729-025-09713-x>
- Novak, D., Wong, T., Quinlan, A. G., Sarraf, E., Irwin, B., Stanley, A., Do, H., Novak, D., Tsai, M. (2023). The Operational Ramifications of a First-in First-Out Bump Policy. *Perioperative Care and Operating Room Management, Elsevier*, 30.
<https://www.sciencedirect.com/journal/perioperative-care-and-operating-room-management/vol/30/suppl/C>
- Do, H., Shunko, M. (2020). Constrained Load-Balancing Policies in Queueing Networks with Single-Server Nodes. *Management Science*.
- Do, H., Shunko, M., Lucas, M., Novak, D. (2018). Impact of Behavioral Factors on Performance of Multi-Server Queueing Systems. *Production and Operations Management*.
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1937-5956](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1937-5956)
- Shunko, M., Do, H., Tsay, A. (2016). Supply Chain Strategies and International Tax Arbitrage. *Production and Operations Management*.
- Tomas, M., Do, H. (2016). A Heuristic Algorithm for the Heath Jarrow Morton Model. *Journal of Fixed Income / Institutional Investor*, 26(1). <http://www.ijournals.com/toc/jfi/current>

- Do, H., Onozato, Y., Yamamoto, U. (2010). Optimal Aggregation Factor and Clustering under Delay Constraints in Aggregate Sequential Group Paging Schemes. *Wireless Networks*, 16(5), 1427-1146. <http://www.springerlink.com/content/a17p7800xtg70545/>
- Do, H., Onozato, Y. (2007). A Comparison of Different Paging Mechanisms for Mobile IP. *Wireless Networks, Kluwer Academic Publishers*, 13(3), 379-395. <http://dl.acm.org/citation.cfm?id=1276178>
- Do, H., Onozato, Y. (2005). IP Paging Schemes Adaptive to Mobile Host Parameters. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E88-A(4). <http://dl.acm.org/citation.cfm?id=1094632.1094714>

Conference Proceedings

- Do, H., Onozato, Y. (2005). *Merit of Adaptability to Mobile User Parameters in IP Paging*. Washington, District Of Columbia: Proceedings of Wireless On-demand Network Systems and Services (WONS'05), IEEE Computer Society.
- Do, H., Onozato, Y. (2005). *Flexible and effective multi-step IP paging schemes*. Proceedings of IEEE VTC 62nd.
- Do, H. (2004). *A Comparative Analysis on Performance of Mobile IP with Paging Support* (vol. 2928/2003). Proceedings of Wireless On-demand Network Systems, Springer.
- Do, H., Onozato, Y. (2004). In Department of Computer Science (Ed.), *A Comparative Analysis on Performance of Mobile IP with Paging Support* (vol. 2928, pp. 33-41). Gunma University: Wireless On-Demand Network Systems. <http://www.springerlink.com/content/taeaf2nfp5e9b8la/>

Other

- Do, H., Apurva, J., Iyer, A. (2012). *Managing the Impact of Variability on Manufacturer and Retailers in Consumer Goods Supply Chains*.
- Do, H., Iyer, A. (2009). *Analysis of the Impact of Asymmetric Retailer Information Access in a One Manufacturer-Two Retailer Supply Chain*. Cambridge, Massachusetts: Proceedings of 2009 M&SOM.

Presentations Given

- Do, H. (Author & Presenter), Novak, D. (Author), Tsai, M. (Author), Ukhov, A. (Author), INFORMS 2024, "A Pareto Improvement Bumping-Rescheduling Policy for Operating Room Scheduling," INFORMS, Seattle, Washington, United States. (October 22, 2024).
- Lucas, M., Do, H., Noordewier, T., 2024 POMS Annual Meeting, "Environmental Shareholder Proposals and Firm Strategic Responses: A Game-Theoretic Perspective," Production and Operations Management Society (POMS), Minneapolis, Minnesota. (April 2024).
- Do, H. (Author & Presenter), Novak, D. (Author), Tsai, M. (Author), Ukhov, A. (Author), 2024 POMS Annual Meeting, "Pareto-Improving Bump Policies in Shared Operating Room Scheduling Systems," Production and Operations Management Society (POMS), Minneapolis, Minnesota, United States. (April 28, 2024).
- Do, H. (Author & Presenter), Novak, D. (Author), Tsai, M. (Author), Ukhov, A. (Author), INFORMS 2023, "A Pareto Improvement Bumping-Rescheduling Policy for Operating Room Scheduling," INFORMS, Phoenix, Arizona, United States. (October 18, 2023).

- Do, H. (Author & Presenter), Novak, D., Tsai, M., POMS 2023, "Bumping Policies in Shared Operating Room Scheduling System," POMS, Orlando, Florida, United States. (May 23, 2023).
- Do, H. (Author & Presenter), Novak, D., Tsai, M., POMS 2022, "Bumping Policies in Shared Operating Room Scheduling System," POMS, United States. (April 23, 2022).
- Do, H. (Author & Presenter), POMS 2021, "Strategic Servers and Dynamic Games in Multi-server Queuing Systems," POMS, District Of Columbia, United States. (May 3, 2021).
- Do, H., EBE Research Seminars, "Overview of Dr. Do's Research on Information Networks, Supply Chain Management, Control, Behavior and Games of Queuing Systems," Department of Electrical and Biomedical Engineering, UVM, Burlington, Vermont, United States. (November 1, 2019).
- Do, H. (Author & Presenter), INFORMS 2019, "Performance of Queuing Systems With Strategic Customers and Servers," INFORMS, Seattle, Washington, United States. (October 21, 2019).
- Do, H. (Author & Presenter), INFORMS 2019, "Strategic Servers in Queuing Systems and Dynamic Games," INFORMS, Seattle, Washington, United States. (October 20, 2019).
- Do, H. (Author & Presenter), POMS 2019, "Performance of Queuing Systems with Strategic Customers and Servers," POMS, District Of Columbia, United States. (May 4, 2019).
- Do, H. (Author & Presenter), Iyer, A., POMS 2019, "Smart Contract for Supply Chains of Distributors and Manufacturer," POMS, District Of Columbia, United States. (May 3, 2019).
- Lucas, M. (Author & Presenter), Do, H. (Author), Shunko, M. (Author), Novak, D. (Author), 2018 INFORMS Annual Meeting, "Impact of Behavioral Factors on Performance of Multi-Server Queueing Systems," Phoenix, Arizona. (November 7, 2018).
- Do, H. (Author & Presenter), Shunko, M. (Author), Scheller-Wolf, A. A. (Author), INFORMS 2018, "Evaluating Tail Performance of Queueing Systems Using a Novel Stochastic Ordering Approach," INFORMS, Phoenix, Arizona, United States. (November 7, 2018).
- Do, H. (Author), Shunko, M. (Author), Lucas, M. (Author & Presenter), Novak, D. (Author), 2018 POMS Annual Conference, "Impact of Behavioral Factors on Performance of Multi-Server Queueing Systems," Houston, Texas, United States. (May 6, 2018).
- Do, H. (Author & Presenter), Shunko, M. (Author), Scheller-Wolf, A. A. (Author), POMS 2018, "Pareto Improving Flow Control Policies for Multi-Server Emergency Service Stations - New Perspectives," POMS, Houston, Texas, United States. (May 6, 2018).
- Do, H. (Author & Presenter), Shunko, M. (Author), Scheller-Wolf, A. A. (Author), INFORMS 2017, "Evaluating Tail Performance of Queueing Systems Using a Novel Stochastic Ordering Approach," INFORMS, Houston, Texas, United States. (October 25, 2017).
- Do, H. (Author & Presenter), Shunko, M. (Author), Lucas, M. (Author), Novak, D., POMS 2017, "Impact of Behavioral Factors on Performance of Multi-Server Queueing Systems," POMS, Seattle, Washington, United States. (May 5, 2017).
- Do, H. (Author & Presenter), Shunko, M. (Author), INFORMS 2016, "Evaluating Tail Performance of Queueing Systems Using a Novel Stochastic Ordering Approach," INFORMS, Nashville, Tennessee, United States. (November 14, 2016).

- Do, H. (Author & Presenter), Shunko, M. (Author), Lucas, M., Novak, D., 11th Annual Behavioral Operations Conference, "On the Pooling of Queues: How Server Behavior Affects Performance," Behavioral Operations Management (BOM), INFORMS, Madison, Wisconsin, United States. (July 14, 2016).
- Do, H. (Author), Shunko, M. (Author), Lucas, M. (Author & Presenter), Novak, D. (Author), 2016 POMS Annual Meeting, "On the Pooling of Queues: How Server Behavior Affects Performance," Orlando, Florida, United States. (May 8, 2016).
- Do, H. (Author & Presenter), Shunko, M. (Author), Tsay, A. (Author), POMS 2016, "Enabling international tax arbitrage using decentralized supply chain structures," POMS, Orlando, Florida, United States. (May 7, 2016).
- Do, H. (Author), M. (Author), Lucas, M. (Author & Presenter), Novak, D., INFORMS Annual Meeting, "Can Server Behavior and Service Design Outweigh the Benefits of Pooling?," Philadelphia, Pennsylvania, United States. (November 4, 2015).
- Do, H. (Author & Presenter), Shunko, M. (Author), INFORMS 2015, "Evaluating Tail Performance of Queueing Systems Using a Novel Stochastic Ordering Approach," INFORMS, Philadelphia, Pennsylvania, United States. (November 1, 2015).
- Do, H. (Author & Presenter), Shunko, M. (Author), POMS 2015, "Pareto Improving Flow Control Policies for Multi-Server Emergency Departments - New Perspectives," POMS, Washington DC, District Of Columbia, United States. (May 8, 2015).
- Do, H. (Author & Presenter), Shunko, M. (Author), INFORMS 2014, "Pareto Improving Flow Control Policies for Multi-Server Emergency Departments - New Perspectives," INFORMS, San Francisco, California, United States. (November 9, 2014).
- Do, H. (Author & Presenter), POMS 2014, "Pareto Improving Coordination Policies in Queueing Systems: Application to Flow Control in Emergency Medical Services," POMS, Atlanta, Georgia. (May 10, 2014).
- Do, H. (Author & Presenter), INFORMS 2013, "Supply Driven Promotion Strategies in a Supply Chain," Minneapolis, Minnesota, United States. (October 6, 2013).
- Do, H. (Author & Presenter), INFORMS Healthcare Conference 2013, "Information Sharing and Coordination for Pareto Improvement of Emergency Departments," Chicago, Illinois, United States. (June 24, 2013).
- Do, H. (Author & Presenter), Iyer, A. (Author), Shanthikumar, G. (Author), INFORMS Conference, 2011, "Optimal Commodity Inventory Control with Swing Contracts and Spot Markets," INFORMS, North Carolina, United States. (November 13, 2011).
- Do, H., INFORMS Conference, "Using Manufacturer Queue Information to Increase Order Volatility but Decrease Supply Chain Costs," INFORMS, Austin, Texas, United States. (November 9, 2010).
- Do, H. (Author & Presenter), M&MSOM Conference, "Analysis of the Impact of Asymmetric Retailer Information Access in a One Manufacturer-Two Retailer Supply Chain," INFORMS, Boston, Massachusetts, United States. (2009).

Research Currently in Progress

- "Bumping Policies in Shared Operating Room Scheduling System" (Writing Results).
For hospitals using shared operating rooms for scheduled and emergent cases, a bumping

policy is needed to facilitate emergent cases when they arrive, but it often operates with competing objectives. The current bumping policies do not offer efficient access to capacity (i.e., Operating Rooms) as well as any mechanism for collaboration. We introduce, model and analyze a bumping policy called First-In-First-Out (FIFO) Bump Policy in the context of Operating Room Scheduling that facilitates more efficient use of capacity with pooling effect and offers a collaborative mechanism with potential positive behavioral effects to speedup service rates.

"Capacity Management and Scheduling for Operation Rooms under Emergency Cases" (Planning).

We model and study the performance of different policies of capacity management, scheduling and bumping in presence of emergency cases that have been used by hospitals for Operation Rooms in practice and propose data-driven, agile strategies.

"Game Theoretic Models of Private Politics and Corporate Social Responsibility" (Planning).

This project entails developing game-theoretic models to analyze the impact of competition, product differentiation, and industry effects on the strategies of firms and activists in the context of CSR.

"Integrated policies for Inventory Control and Procurement with Swing Contracts and Spot Markets in Rolling Horizon" (Planning).

"Optimal Commodity Inventory Control with Swing Contracts and Spot Markets".

"Optimal Quality Oversight in Kidney Transplantation and Its Impact on Transplant Centers' Waitlist Management".

Revised and resubmitted to Naval Research Logistics (NRL)

"Pareto Improving Flow Control Policies for Multi-Server Emergency Departments – New Perspectives and Performance Measures" (On-Going).

"Pareto Improving Smart Contracts in Heterogenous Decentralized Supply Chains".

"Promotion Strategies under uncertainty of Supply and Demand" (Planning).

This paper study optimal promotion Strategies via pricing when both the supply states and demand states evolve according to Markov processes. The demand curve is assumed to be stochastically linear of the selling price when the demand is in a specific state.

"Quality Report Cards and Gaming Behaviors in Kidney-Transplant Networks" (On-Going).

This paper studies the effects of quality oversight based on report cards in the context of assessing kidney transplantation-related outcomes and possible unintended consequences (e.g., cherry-picking of organs and selection of healthier transplant candidates). In this context, we propose a stochastic economic model that identifies socially optimal kidney transplant choices given the inherent tradeoff between the expected wait time and the quality of the received donor kidney for a given patient. Socially optimal decisions seek to maximize the utilitarian welfare function defined as the sum of all patients' post-transplant expected utilities. To determine the social loss, we compare the socially optimal decisions to those taken by a transplant program that maximizes its utility. We derive the optimal quality oversight policy that minimizes social loss and examine how decisions are impacted due to the changes introduced by the new Kidney Allocation System. Our empirical analysis using data from the Scientific Registry of Transplant Recipients indicates that current quality oversight imposed through Conditions of Participation results in inefficient transplant decisions for 56% of recipients, and the performance is inconsistent across different regions and parameters. We propose that the risk-adjusted post-transplant performance assessment policy considers the factors impacting demand-supply parameters such as organ availability in the 11 US transplant regions, candidates' blood type, and the newly introduced Kidney

Allocation System. Policymakers and providers can utilize insights from our findings to design effective oversight mechanisms and make informed decisions regarding transplant and waitlist management that yield desired outcomes.

"Single Queue vs. Multiple Queue and Staffing Problem When Service Rate is Dependent of Queue Size and Queue Structures" (On-Going).

This project considers behavioral and psychological aspects (e.g. social loafing, dependence of service rate on perceived workload, observable vs. unobservable performance) of queuing systems for different queue structures (e.g. single queue vs. multiple queues, distance among servers). We have found that while a single queue system enjoys pooling effect, it may have a lower service rate due to social loafing and possibly require extra walking time for customers to go from the single queue to an available server. Both customers and servers may act strategically under different settings.

"Strategic Servers and Dynamic Games in Multi-server Queuing Systems" (On-Going).

We study the dynamic games of n-server queuing systems with strategic servers under single queue design and parallel queue design. Assuming increasing convex holding cost and linear capacity cost, we show that the games are decomposable, equilibria exist in each design and fully characterize them with very nice structures. We evaluate the performance of these two queuing systems under the equilibria and show that the social loafing is proven under economic rationality. We then extend our analysis to asymmetric servers and demonstrate existence of the equilibria and show that the structure of equilibria is still similar to the case of symmetric servers.

"Strategic Servers and Dynamic Games in Multi-server Queuing Systems" (On-Going).

"Supply Information Sharing and Stochastic Games in a Supply Chain with Two Retailers and One Manufacturer" (Planning).

"Supply State Driven and Promotion Strategies in Supply Chains".

Awards and Honors

Dean's Research Award, Grossman School of Business of University of Vermont. (May 2019).

Robert W. Johnson Award for Distinguished Research, Purdue University. (2010).

TEACHING

Teaching Experience

The University of Vermont

BSAD 173, Operations Management, 34 courses.
BSAD 273, Supply Chain Management, 7 courses.
BSAD 295, Supply Chain Management, 4 courses.
BSAD 340, Production & Operations Mgmt, 1 course.
BUS 2700, Operations Management, 15 courses.
BUS 3730, Supply Chain Management, 4 courses.

Awards and Honors

Krannert Certificate for Distinguished Teaching, Purdue University. (2011).

Krannert Certificate for Outstanding Teaching, Purdue University. (2011).

SERVICE

Department Service

Committee Member, CoT. (October 2022 - November 2022).

Service to Academic Community

Committee Member, Committee for Dean Research Award. (2021).

Committee Member, Committee for Dean Research Award. (2020).

Committee Member, Committee of Three (Sabbatical, Ante Glavas). (2020).

Committee Member, Committee of Three (Sabbatical, Erik Monsen). (2020).

Committee Member, Undergraduate Study Committee (UGSC). (August 26, 2019 - May 15, 2020).

Committee Member, Committee of Three for Thomas Chittenden. (2019).

Committee Member, Assurance of Learning (AOL). (August 25, 2016 - May 15, 2019).

Committee Member, Search Committee for BA faculty position. (September 2016 - March 2017).

Summer Research, Summer Research. (June 1, 2014 - August 31, 2014).

Summer Research, Summer Research. (June 1, 2013 - August 31, 2013).

University Service including GSB

Committee Member, ERTC. (August 20, 2015 - Present).

Professional Service

Referee, Operations Research Journal.

Referee, Operations Research Letters.

Referee, European Journal of Operations Research (EJOR). (2016 - Present).

Reviewer, Journal Article, M&SOM Journal. (June 18, 2013 - August 12, 2013).

Reviewer, Journal Article, Production and Operations Management Journal. (November 5, 2012 - December 23, 2012).

Referee, Purdue's MBA Case Competition, West Lafayette, Indiana. (2010).