Guest Editorial

Journal of Revenue and Pricing Management (2016) **15**, 317–319. doi:10.1057/s41272-016-0054-0;
published online 13 September 2016

This special issue showcases papers that were presented at the AGIFORS Revenue Management 2015 Conference that took place in Shanghai on May 14–15, 2015. Special thanks to the organizing committee of the conference for their hard work and efforts to make this meeting a great success. Attendees included academics and practitioners from around the world, and this issue represents a sample of the research that was presented at the conference. Below we briefly discuss these papers.

This special issue begins with a practice paper entitled ‘An applied process for airline strategic fare optimization’ by Richard Ratliff and Ben Vinod. The authors develop a new decision support prototype for proactive pricing and price leadership to help airlines achieve their overall marketing objectives. The strategic pricing business process described in this paper is recognized as important and introduces a new paradigm for establishing fares in a market for airline pricing departments. The proposed approach is analogous to revenue opportunity modeling but applied to airline pricing. It involves a “perfect hindsight” review of price and sales information from prior seasons and applying methods such as price elasticity, game theory, and optimization models to estimate the price level changes needed to further improve revenue, share, or yields. By knowing the direction and magnitude of recommended changes in previous seasons, these hindsight review tools help pricing managers make better price-setting decisions for future seasons.

The second paper in the issue is entitled ‘Discovering patterns in traveler behaviour using segmentation’ by Ramasubramanian

Sundararajan, Manini Madireddy, and Aditya Kothari. In this paper, the authors consider the problem of finding common behavioral patterns among travelers in an airline network through the process of clustering. Travelers can be characterized at the relational or transactional level. In this paper, the authors focus on the transactional level characterization and begin by characterizing a trip in terms of a number of features that pertain to the booking and travel behavior. Trips thus characterized are then grouped using an ensemble clustering algorithm that aims to find stable clusters, as well as discover subgroup structures within groups. A multidimensional analysis of trips based on these groupings leads to discovering nontrivial patterns in traveler behavior that can then be exploited for better revenue management.

The third paper is entitled ‘Big Data in the travel marketplace’ by Ben Vinod, Chief Scientist and Senior Vice President at Sabre. Ben presented the keynote address at the AGIFORS Revenue Management 2015 Conference and this paper is the summary of the keynote presentation. In this presentation, the author discusses the importance of Big Data and the profound impact on gaining consumer insights, improving process efficiencies and enhancing the consumer experience. In the travel industry, travel suppliers, Online Travel Agencies, and Global Distribution Systems have access to vast amounts of data from across the travel value chain – marketing and lead generation, interactive selling, fulfillment, and customer care. Big Data can offer unique insights into consumer preferences and behavior patterns to improve conversion rates

and revenues. This article focuses on the role of Big Data, the skills required in an organization to leverage Big Data in the travel industry, followed with examples of Big Data applications related to travel as it applies to suppliers, online, and traditional travel agencies.

The next practice paper is entitled 'Dynamic pricing—the next revolution in RM?' by Thomas Fiig, Oriana Goyons, Robin Adelving, and Barry Smith. The authors present Dynamic pricing (DP) as an extension of revenue management systems (RMS) that dynamically calculates the optimal price, taking into account the airline's strategy, customer-specific information, and real-time alternative offerings. By optimizing the contribution within the shopping session, DP has a more current and detailed view of demand and can improve RMS performance. The performances of DP were investigated using two simulators, Altéa Benchmarking Engine and the Passenger Origin Destination Simulator (PODS), and demonstrate that DP can deliver substantial revenue benefits with no modification to existing RM processes. However, the deployment of DP into the airline distribution process will be a challenge, because it affects all shopping and downstream processes, such as ticketing, servicing, revenue accounting, revenue management, and interline settlement, that rely on information from existing fare aggregators. Nevertheless, the potential benefits of DP are so compelling that the authors believe the effort to bring this technology into practice is warranted.

The fifth paper in this issue is a research paper entitled 'Demand driven dispatch and revenue management in a competitive network environment' by Daniel Fry and Peter Belobaba. Demand Driven Dispatch (D^3) is the reassignment of aircraft to flights close to departure to improve operating profitability, primarily by utilizing improved knowledge of expected demand from the airline's revenue management (RM) system. Previous studies of D^3 have not incorporated competition and have typically ignored or significantly simpli-

fied revenue management. In this paper, the implementation of D^3 is tested with complete representations of RM systems in a network environment with competition. Results are from the PODS simulator, where stochastic demand by market chooses between competing airlines with alternative schedules and fare products. The findings indicate that the benefits of D^3 can be estimated at operating profit gains of 0.04 to 2.03 per cent, revenue gains of 0.02 to 0.88 per cent, and changes in operating costs of -0.08 to 0.13 per cent. The authors also found that D^3 swaps early in the booking process can lead to heavy dilution and later swaps lead to smaller increases in loads, but substantial increases in revenue. The relationship between revenue-maximization and cost-minimization in profit-maximizing D^3 is highly influenced by the timing of swaps and revenue estimation.

The next research paper entitled 'Overbooking under dynamic and static policies' is written by Wei Wang and Darius Walczak. Overbooking, no-shows, and cancellations are important aspects of revenue management with published research going back several decades. Yet despite the availability of a variety of theoretical models including dynamic ones, in practice, airlines today are still applying relatively simplistic static solutions. In this paper, the authors analyze the underlying reasons for this situation and investigate potential benefits as complexity of the solution method increases. The authors present a comparison of modeling overbooking for no-shows and cancellations using dynamic and static policies, and also analyze the impact of the refund as well as denied boarding cost structures.

The last research paper is entitled 'Tests of revenue management performance under different demand correlation assumptions' by Larry Weatherford. This paper summarizes results from PODS research on how an RM system performs under various assumptions about demand correlation (between early- and late-arriving customers). PODS typically assumes a relatively strong positive correlation;

this paper shows if and how much the results change under weak-positive correlation. First, the author explores the revenue results for three different dynamic User Influence (UI) strategies—unbiased, biased low, biased high—under varying demand levels, with and without hybrid forecasting. In short, dynamic UI seeks to emulate RM analysts' attempts to positively influence the RM system and was originally presented by Hao at a 2013 PODS meeting. Next, the author explores the revenue results for three different O-D strategies under varying demand levels, with and without hybrid forecasting for different correlated-demand scenarios. In both studies, the author uses a large “international” network with 572 O-D markets with four airlines competing for passengers, including a low-cost carrier.

These are only a few examples of the great research that was presented at AGIFORS Revenue Management 2015 Conference. We hope that you will enjoy this issue and share our excitement about the terrific new research and application of pricing and RM exhibited in these high-quality papers. The editors thank

those who contributed to this AGIFORS Special Edition of the Journal of Revenue and Pricing Management, as well as the speakers who participated in the conference itself. Special gratitude is extended to the conference sponsors whose support enabled the nonprofit group to meet and foster the exchange of ideas on the industry's current issues. For additional information about the AGIFORS Revenue Management conference and future conferences, please contact the co-Editors or visit the conference website at www.agifors.org. You may request the full proceedings from the conference by first becoming a member at <https://agifors.wildapricot.org>.

Sunny Ja

Operations Research & Advanced Analytics,
American Airlines, 4333 Amon Carter Blvd,
Fort Worth, TX 76155, USA

Larry Weatherford

College of Business, University of Wyoming,
Laramie, WY 82071, USA
E-mail: lrw@uwyo.edu