



Critical issues in transport economics

Department of Computer Control and Management Engineering
September 17, 2019 - 2.30 pm, Room A3

Title: Congestion and Incentives in the Age of Driverless cars

Authors: Boffa, F., Fedele, A., Iozzi, A.

Abstract

GPS systems and Autonomous Vehicles (AVs) will likely open the way to forms of traffic coordination, or centralization. We analyze the welfare effects of moving from an environment with atomistic drivers to one in which few companies will manage the traffic. Differently than what happens with atomistic drivers, such companies or organizations will have an incentive to consider the congestion externality imposed by their vehicles on the other vehicles they dispatch. We analyze both a setting with no road taxes, to reflect their limited application and the popular opposition to them, as well as a setting with road taxes. We find that, without road taxes, the emergence of a small company supplying a small fraction of the travelers (while the others remain atomistic) increases (decreases) welfare if and only if the congestion problem was (was not) sufficiently severe in the first place. With road taxes, we find that, while congestion charges are optimal when all travelers are atomistic, the structure of the taxes differs markedly with a company that supplies a mass of customers. Restoring first best, in this case, may require subsidizing the company -- something likely to be politically very unappealing.

Title: Airline Mitigation of Propagated Delays: Theory and Empirics on the Choice of Schedule Buffers

Authors: Brueckner, J.K., Czerny, A.I., Gaggero, A.

Abstract

This paper presents an extensive theoretical and empirical analysis of the choice of schedule buffers by airlines. With airline delays a continuing problem around the world, such an undertaking is valuable, and its lessons extend to other passenger transportation sectors. One useful lesson from the theoretical analysis of a two-flight model is that the first flight's buffer plays no role in mitigating delay propagation, given that the ground buffer is a perfect, while nondistorting, substitute. In addition, the apportionment of mitigation responsibility between the ground buffer and the flight buffer of flight 2 is shown to depend on the relationship between the costs of ground- and flight-buffer time. The empirical results show the connection between buffer magnitudes and a host of explanatory variables, including the variability of flight times, which simulations of the model identify as an important determining factor.

Title: Airline competition in the Transatlantic market

Authors: Dresner, M., Gualini, A., Martini, G., Valli, M.

Abstract:

The paper focus on North – Atlantic, one-way, non-stop O&D flights and consider a route as a city-pair. It is an attempt to extend the important and extensive contribution of Brueckner & Singer (2019) by covering also data sold in Europe and North America. We build a panel dataset that covers flights from Canada and U.S.A. to Europe for 18 months (from January 2017 to June 2018). We investigate the impact of airline alliances and LCCs (mainly Norwegian) on fares. After checking for LCCs route selection and model identification, preliminary results show that although, in general, alliances are associated with lower fares, on competitive routes, where 2 carriers from the same alliance operate, fares are significantly higher compared to competitive routes without 2 carriers from the same alliance. Moreover, although monopoly routes have higher fares than competitive routes, Norwegian operates its routes at significantly lower fares than other carriers operating monopoly routes. Hence, to the extent that policymakers want to promote lower fares on transatlantic routes, they should monitor fares between gateways dominated by carriers from the same alliance. These routes appear to have significantly higher fares compared to other competitive routes. Moreover, they should encourage operations by LCCs on transatlantic routes. Data show that Norwegian has had a similar impact lowering fares on the long-haul transatlantic routes as LCCs have had in Europe and the U.S.

Title: Segment and network pricing in the airline industry

Authors: Gaggero, A., Piga, A.

Abstract

This paper uses Southwest's fares for trips with one layover to investigate empirically the relationship between the overall price of the trip and the prices of the two segments forming the full itinerary. We find that price differential between the fare of the full itinerary and the sum of the fares of the segments is always negative, in line with the theoretical result by Brueckner et al 1992. Such a price differential varies during the booking period, widening as the departure date approaches because of the lower expected opportunity cost of the seat of each segment.



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Critical issues in transport economics

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Title: Optimal Administered Incentive Pricing

Authors: Avenali, A., D'Alfonso, T., Reverberi, P.

Abstract

Network infrastructures such as airports and railways have special features. First, their deployment involves significant fixed costs to be recovered by infrastructure owners. Second, they are congestible facilities, because the demand for services presses against the available capacity. Generally, an infrastructure serves many service markets (such as local/long distance trips for passenger/freight transport) with varying demand elasticities and production technologies. Indeed, services have different needs in terms of infrastructure capacity. As long as facilities are capacity-constrained, if a unit of capacity is used for a given service then it is no longer available for alternative services. In this framework, we aim at studying two important and related issues: i) Which prices determine the optimal allocation of capacity to the different services?; and ii) What is the optimal infrastructure capacity that is consistent with such prices? We address these issues by considering both a budget constraint and a capacity constraint for the infrastructure owner, which is a novelty in the literature.