

Review of: "The cost of non-coordination in urban on-demand mobility"

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This is a very elegant and pertinent study that attempts to align transport and economics theories with, hopefully, innovative transport public policies, using the case of ride-hailing (i.e. Uber, Lyft) to assess traffic efficiency. Authors utilize public data from five cities, Singapore, New York, San Francisco, Vienna and Curitiba to investigate how segmentation of ride-hailing may *transit* a non-linear association with fleet size, and in turn a proper assessment of what the *ideal* number of vehicles, as a function of number of transport providers, could be obtained. In short, they articulate that given specific city characteristics (i.e. size, traffic speed average, density), in which transport providers compete among each other, an unplanned and inefficient growth of vehicles will be the rule not the exception. From economics, authors suggest that monopoly of ride-hailing, can theoretically provide an optimum solution, since it would have full information to satisfy in a **coordinated** manner the demand of transportation made by individual consumers.^[1] From transport theory, they follow classic principles, which state that exponential increasing of number of vehicles leads to congestion.^[2] Thus a combination of the right number of ride-hailing providers, which contain a modifiable number of vehicles available, can ultimately be traffic efficient, if and only if, these act in a synchronized manner. Authors suggest that coordination between ride-hailing services, must be arranged by city governments. Essentially, they suggest that these transport authorities could be both collector and processor, via an open smart phone application, of all passengers' transport demand information, whereby passengers could simultaneously observe at least two key pieces of information: waiting time and price--which the available transport providers could offer (a great example of this idea is the online platforms to assess airline ticket prices). This will not be naturally limited, the authors argue and I fully support their position, to the already consolidated ride-hailing providers such as Uber or Didi, but it will also include taxis (i.e. yellow cabs).

This work has three interrelated limitations that should temper part of the results, by integrating them more explicitly in the methodology developed in the article, but **not** to explore further the implications of attempting to regulate ride-hailing by purposely integrating taxi services, via a local government transport application. First, while authors, intuitively chose five cities in which the continuum of density can be existent across all the cities, which currently have ride-hailing services, the low density values, represented by both Curitiba and Vienna, may be very well underestimated. In other words, it is highly likely that low density of trips may be explained by a combination of low quality of transport infrastructure^[3] and safety^[4], which in these two cities are relatively standard.^{[5][6]} So when ride-hailing services arrive to specific cities, not only they are stronger to compete with taxis that do not have immediate demand information, but they can exploit uneven

differences within the cities, rapidly displacing older competitors, because that demand is not randomly distributed. The service consolidates its offer to users whose engagement with technology and income are both high, and depending on the cities these individuals are usually living in wealthy neighborhoods.^[7] Second, the offer of ridehailing is not necessarily a function of demand. Its offer can be limited to neighborhoods whereby drivers acknowledge the existence of safety risks,^[8] where they can be subject of assaults or robberies. They therefore are likely to restrict their presence, impacting both prices and waiting time for users going to more vulnerable neighborhoods. Last, and relatedly to these two points, traffic efficiency in relation to ride-hailing providers, should be conceptualized and treated comprehensively. That is, when understanding its changes not only transport parameters should be considered but also how the labor market is regulated, how crime is tackled, as well as the development of road infrastructure is moved forward. Understandably, a parsimonious approach, as the one promoted by the authors, is certainly a very first step that should be taken to bridge theoretical with policy knowledges. However a second step is to locally integrate those variables that each city may recognize as key to its own dynamics, to define and obtain traffic efficiency with notions of territorial integration and justice.

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