

Uber vs. Taxi: A Driver's Eye View

Joshua D. Angrist
MIT, IZA and NBER

Sydnee Caldwell
MIT

Jonathan V. Hall
Uber Technologies, Inc.

Summary for Summer Institute (July 2017)

Like many internet-mediated service providers, ride-hailing platforms offer their drivers the freedom to schedule work freely. Traditional taxi drivers, regulated in most American cities by bodies like New York's Taxi and Limousine Commission (TLC) and Boston's Hackney Carriage Unit, also choose their hours freely. But this choice is not without risk. Taxi drivers in most large cities must own or lease a medallion granting them the right to drive. Until the advent of ride-hailing, limited supply of taxi medallions made them into assets costing hundreds of thousands of dollars. Consequently, most traditional taxi drivers lease their medallions for a shift or a week.

Facing substantially reduced entry costs, many new workers now have the opportunity to add to their earnings by providing hackney services. In the summer of 2016, Uber alone had almost 20,000 active drivers in Boston, a figure that can be compared with Boston's long-fixed 1,825 taxi medallions. While the entry of new service providers acts to reduce fares, competition for leases between drivers likely reduced and perhaps even eliminated any gains to drivers from medallion-related entry restrictions. Some Boston drivers own medallions, but most lease their medallions from investors or fleet owners.

In addition to reducing fares, an important feature of the ride-hailing model is a proportional compensation scheme, with few or no fixed costs. In return for a proportion of their earnings known to drivers as a fee or commission, ride-hailing drivers can choose hours of work without having to worry about covering a lease or medallion loan payment. Drivers who expect to work long hours are still better off leasing because they keep every dollar earned on a high farebox. But drivers with low hours should prefer work on a ride-hailing platform.

This paper looks at the economic value of ride-hailing work opportunities for drivers, focusing on differences in the compensation contract offered to traditional taxi and ride-hailing drivers. We evaluate these compensation models from a driver's point of view by analyzing the results of an experiment that offered random samples of Boston Uber drivers a virtual taxi medallion that eliminates the Uber fee. Some lease-paying drivers were offered a negative fee, capturing a possibly higher-than-Uber taxi wage. The labor supply response to our offers reveals a large and precisely estimated intertemporal substitution elasticity for the Uber wage effect on Uber hours, on the order of 1.2 and as much as 1.6 for drivers who agreed to participate in the experiment. These estimates are broadly consistent with experimental elasticity estimates reported for Swiss bicycle messengers by Fehr & Goette (2007), and belie claims that taxi driver labor supply is mediated by an empirically important degree of income targeting (as in, e.g., Camerer et al. 1997).

The labor supply elasticity is a key parameter in our evaluation of the Uber compensation contract. A large intertemporal substitution elasticity tends to make medallion-based contracts more attractive since the

medallion system raises wages. Elastic drivers collect additional surplus by driving longer hours when their pay goes up. And many drivers offered a medallion contract indeed take it.

However, many drivers would benefit from leasing fail to take advantage of the opportunity to do so, a phenomenon we call “lease aversion”. To quantify lease aversion, we compute a behavioral lease parameter that rationalizes empirical lease take-up rates. We find that the requisite behavioral lease is fifty percent larger than the nominal value. Even without lease aversion, the opportunity to drive for only a few hours with no lease payment at risk creates considerable surplus for Uber drivers. For weekly lease rates in the range of the 2010 Boston lease cap of \$700, the average compensation needed to make a driver indifferent between Uber and Taxi ranges from \$166 with a lease of \$600 and a wage difference of 50%, to \$710 when the lease is \$700 and the wage gap is only 15%. The imputed driver surplus enjoyed by Uber drivers is made even larger once lease aversion is accounted for.

An alternative compensation scenario allows former Uber drivers to stop driving completely when the opportunity to drive Uber disappears, receiving UI instead (this is fanciful since Uber drivers who stop driving don’t currently qualify for UI). UI reduces the monetary cost of compensation by allowing former Uber drivers to be compensating in part through additional leisure. We show that the UI option greatly reduces the cash compensation required to make former Uber drivers indifferent to the demise of Uber but reduces consumer welfare by reducing the volume of trips provided. With a \$200 lease and a 25% wage difference for example, 48% of non-lease-averse drivers take advantage of the opportunity to receive compensation without driving. This reduces the number of hours supplied to the market by 17%. In the UI scenario with lease aversion, UI reduces service by almost a third in this case.