

The Hidden Costs of the Sharing Economy: Tax Dishonesty by Airbnb Hosts

Keywords: sharing economy, tax evasion, platform data, register data, machine learning

Extended Abstract

Over the last decade, sharing economy platforms such as Uber, Lyft, and Airbnb have risen to prominence and disrupted traditional industries by allowing individuals to capitalize on their underutilized resources such as cars or extra living space (Chang and Sokol, 2022). The rise of these platforms has also spurred academic interest around the sharing economy phenomenon over the last decade (Sutherland and Jarrahi, 2018). However, the evidence on the socio-economic effects these platforms have on their participants and the externalities they create for society at large is rather mixed (see e.g., Burtch et al., 2018; Ahsan, 2020). One particular aspect that has caught the attention of policymakers and regulators is the taxation of these new types of platform-mediated peer-to-peer transactions, given the growing concerns about individual tax compliance (Bibler et al., 2021; Uzunca and Borlenghi, 2019; PWC, 2015). Prior research confirms that tax compliance varies across individuals (Chung and Trivedi, 2003) and, importantly, also across modes of remittance, with self-reported income being more often incorrectly filed or undeclared (Hedeager and Skov, 2021). In the absence of enforcement tactics such as regular audits, audit threats, or third-party reporting (Kleven et al., 2011), sharing economy participants may thus be a substantial source of tax evasion. Surprisingly, however, there is minimal evidence on how serious tax evasion associated with sharing economy activities is.

In this study, we address the issue of individuals' tax dishonesty in the sharing economy and use Airbnb hosts in Copenhagen as an empirical setting. We build a unique data set combining web-scraped data on Airbnb listings with individual-level register data maintained by Statistics Denmark, using the approximate geo-location information of listings, the central building registers, and text matching. We further use machine learning to identify the most likely hosts for listing where we do identify multiple potential hosts, resulting in a sample of 27,734 unique listings and 22,834 Airbnb hosts. We estimate models explaining the entry into the sharing economy as a host, and the volume of income under-reporting. Using peer information we account for the fact that those who earned enough to be liable to taxation may be a selected (i.e. non-random) subsample of all hosts. We provide additional robustness checks to our baseline estimates with two alternative scenarios for income predictions.

We find that overall, women are more likely than men to act as hosts on Airbnb, as do individuals with a university degree relative to those with lower education levels. Moreover, compared to non-hosts living in the same municipality, hosts are significantly younger, and less likely to be married, have children, or be members of the church. Hosts also appear to be more likely to have a criminal record (mainly driven by traffic violations), some history of unemployment, or entrepreneurial experience than non-hosts. Some of these patterns vary across hosts who rent their full properties or only parts of them, which suggests the co-existence of different types of hosts who are possibly driven by heterogeneous motives to participate. Furthermore, our study uncovers non-negligible volumes of potential tax evasion among Airbnb hosts. Although less than 20% of hosts may have earned enough income to be subject to taxation, most of these (96%) have not filed any rental income in their annual tax declaration. As a result, we esti-

mate that nearly 420 million DKK of income have been undeclared by Airbnb hosts active in Copenhagen and its surroundings in 2017-2018.

Our study is among the first trying to measure the potential impact of the sharing economy on tax compliance with very fine-grained, individual-level data. We reveal important associations between individuals' socio-economic background and participation in the sharing economy and their tax dishonesty on those platform-mediated activities.

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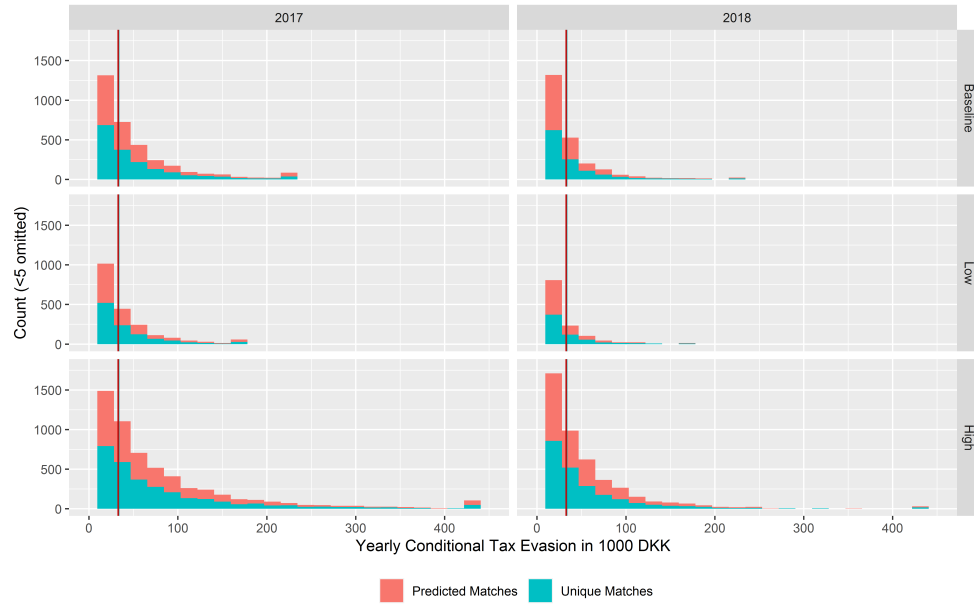


Figure 1: Income Underreporting from AirBnB Hosts

Table 1: Predictors of Airbnb hosts Undeclared Income (2017-2018)

	Dependent variable: $\text{Log}(\text{Undeclared Income}+1)$					
	OLS: Full Sample		OLS: Taxable Income>0		Heckman (MLE)	
	(1)	(2)	(3)	(4)	(5)	(6)
2017	0.56***	0.57***	0.66***	0.64***	0.03	0.08*
Age	0.04***	0.04***	0.01*	0.01***	-0.03***	-0.03***
Female	0.10*	0.06	-0.16**	-0.11**	-0.31***	-0.20***
Married	-0.01	0.002	0.15*	0.09	0.12	0.07
Children	-0.36***	-0.42***	-0.06	-0.01	0.33***	0.38***
Danish	-0.06	-0.02	0.07	0.09	0.06	0.04
Nat. Church	-0.09	-0.10**	0.05	-0.01	0.15*	0.09
Conviction	0.21***	0.22***	0.07	0.22***	-0.16	0.004
Unemployed≤6M	-0.02	-0.01	-0.03	0.01	-0.02	0.03
Unemployed>6M	0.17	0.26*	-0.19	0.06	-0.49**	-0.33**
Entrepreneur (Solo)	0.86**	0.53*	0.35	-0.33	-0.26	-0.70**
Entrepreneur (P-ship)	0.03	0.32*	0.02	0.13	0.08	-0.13
Log(Wage)	-0.01	-0.01**	-0.0003	-0.01	0.0005	-0.001
Log(Assets)	0.01	0.03***	-0.02	-0.01	-0.02	-0.03**
Log(Liabilities)	0.01***	0.02***	0.003	-0.001	-0.01*	-0.02***
B.Sc.	-0.08	-0.05	0.13	-0.01	0.21*	0.03
M.Sc.	-0.20**	-0.17**	0.03	-0.11	0.29**	0.09
Ph.D.	0.06	-0.01	0.05	-0.14	0.04	-0.04
Owner-Occupied	0.09	0.07	-0.12	-0.14**	-0.18*	-0.18**
Summer House	0.49***	0.52***	-0.11	-0.04	-0.56***	-0.49***
Square Meter	-0.0002	0.0002	0.001	0.002**	0.003***	0.003***
Construction Year	-0.01***	-0.01***	-0.002*	-0.0003	0.01***	0.01***
Includes Predicted	No	Yes	No	Yes	No	Yes
N	24,666	44,797	4,082	8,176	24,329	44,351
Number of Hosts	12,676	22,834	3,102	3,102	12,582	22,715
Log Likelihood					-17,263.18	-33,964.44
ρ					-0.99*** (0.002)	-0.98*** (0.001)

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ Standard errors clustered on the individual-level; Undeclared income winsorized on the 99th percentile; Controls include Neighborhood, 2-Digit DISCO Codes and Field of Education; Heckman models use peer prices as exclusion restriction.