

# The Distributional Impact of the Sharing Economy on the Housing Market

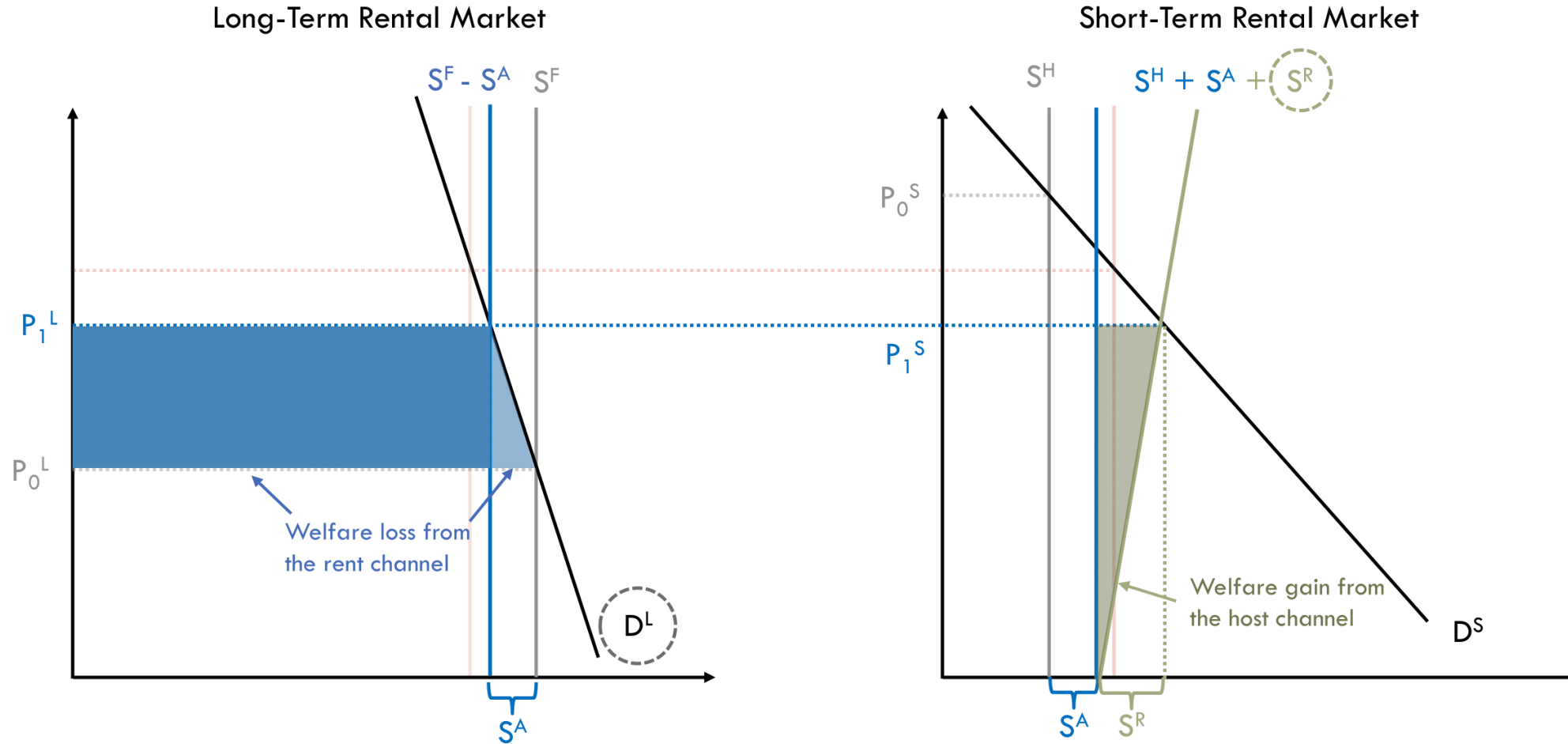
2021 NBER Summer Institute

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# What is the Impact of Airbnb on NYC Residents? A Stylized Model



**Step 1.** Estimate **the long-term rental demand** to capture the loss from housing reallocation

**Step 2.** Estimate **the short-term rental supply** to capture the gain from increased utilization

# A Structural Model of an *Integrated* Housing Market

## 1. Demand for Long-Term Rental

## 2. Supply for Short-Term Rental

Utility Specification

$$u_{i,j}^L = \underbrace{\alpha_i^L}_{\text{price coef.}} \underbrace{p_h^L}_{\text{rental price}} + \underbrace{\beta_i^L}_{\text{household-specific preference}} \underbrace{X_h^L}_{\text{housing attributes}} + \underbrace{\xi_h^L}_{\text{unobserved quality}} + \epsilon_{i,j}^L$$

$$u_{i,t}^R = \underbrace{\alpha_i^R}_{\text{price coef.}} \underbrace{p_{n,t}^A}_{\text{Airbnb price for a room in nbhd. } n} + \underbrace{\beta_i^R}_{\text{household-specific cost of hosting}} \underbrace{X_{n,t}^R}_{\text{constant, time FEs}} + \underbrace{\xi_{n,t}^R}_{\text{unobserved cost}} + \epsilon_{i,t}^R$$

Market Clearing

$$\forall h: D_h^L(p_h^L, p_{-h}^L) = S_h^F - S_h^A(p_h^L, p_{h,\cdot}^A)$$

$$\forall h, t: D_{h,t}^A(p_{h,t}^A, p_{-h,t}^A) = S_{h,t}^A(p_h^L, p_{h,\cdot}^A) + S_{h,t}^R(p_{h,t}^A)$$

Data

- American Community Survey Microdata: Individual-level data with housing attributes

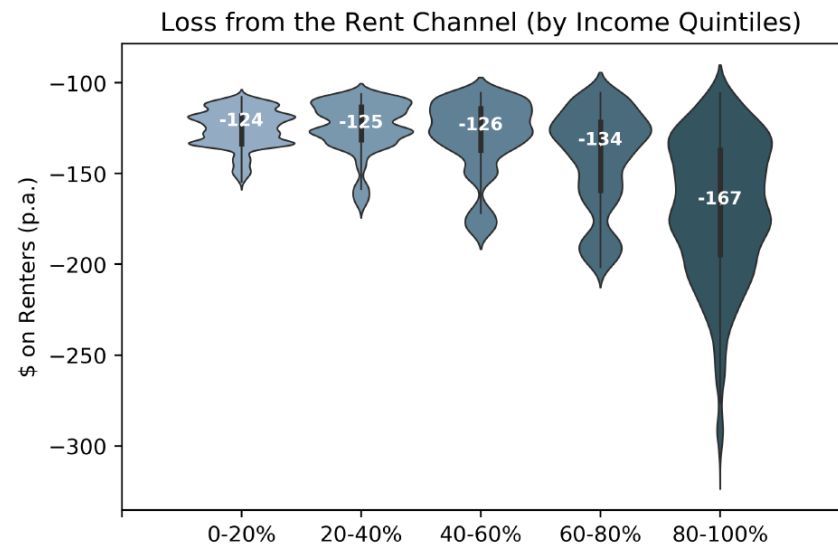
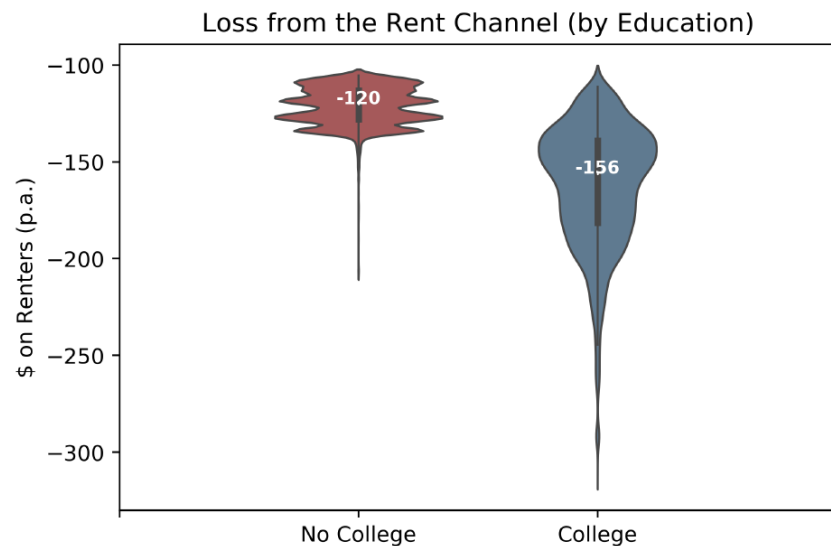
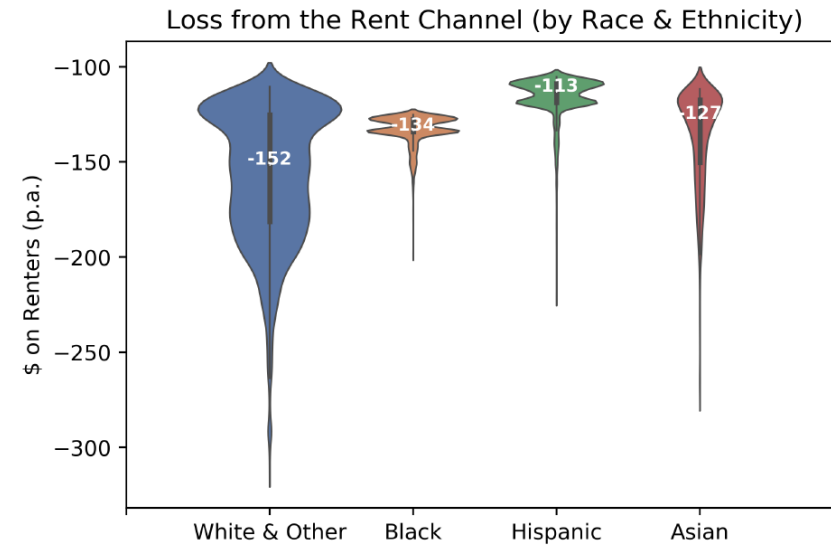
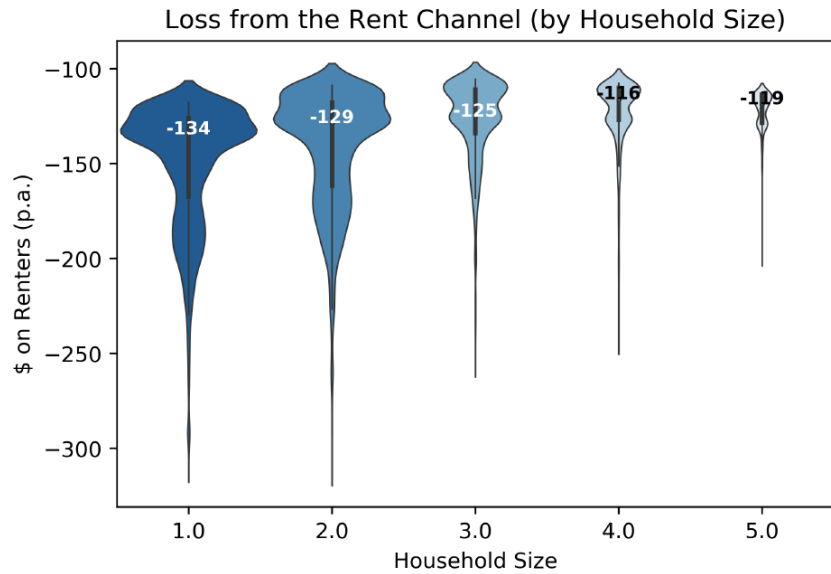
- Airbnb usage scraped at daily-property level: Starting from 2014 for every property in NYC

Estimation & Identification

- Estimated with micro-BLP
- BLP instruments adapted for the housing market using the space of housing attributes

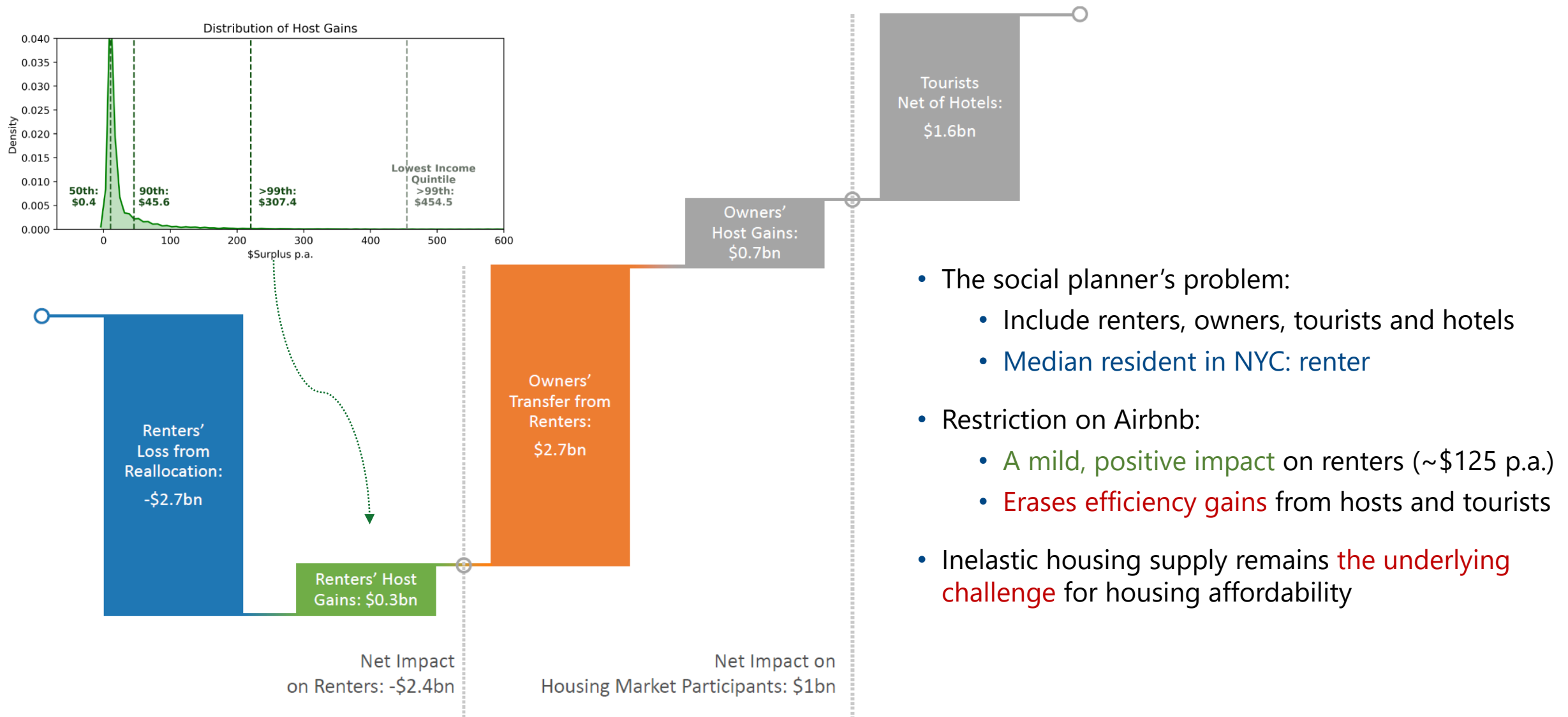
- Adapted canonical BLP to estimate supply
- Tourist demand seasonality as an instrument for Airbnb supply

# Distribution of Welfare Loss from the Rent Channel



- The equilibrium rise in rents affects all renters
- *White, educated, and higher income* households are hurt the most
- Driven largely by the geography of Airbnb entry

# Net Welfare Impact of Airbnb and Regulatory Implications



- The social planner's problem:
  - Include renters, owners, tourists and hotels
  - Median resident in NYC: renter
- Restriction on Airbnb:
  - A mild, positive impact on renters (~\$125 p.a.)
  - Erases efficiency gains from hosts and tourists
- Inelastic housing supply remains the underlying challenge for housing affordability