Work in the sharing economy is flexible but does not offer classical legal protections like minimum hourly wages.

In 2019, NYC implemented a minimum earnings regulation for ridesharing:

\[
\text{minimum payment} = \frac{0.287 \cdot \text{minutes driven} + 0.631 \cdot \text{miles driven}}{\text{company’s utilization rate}},
\]

with the utilization being remeasured every 6 months.

This law could potentially create a dynamic where wages and prices spiral out of control, an outcome we call \textit{instability}.

- Under what conditions is such a marketplace stable?
- What are the implications for a market such as NYC’s?
The Model

- A platform sets prices $p_t$ and wages $w_t$ for each period.
- Demand is $D(p)$ and revenue is $R(p) \triangleq p \cdot D(p)$, with peak $p^*$.
- Supply is $S(z)$ and cost curve is $C(z) \triangleq z \cdot S(z)$.
- Supply and demand intersect at $w^*$: $D(w^*) = S(w^*)$.
- Supply is a function of earnings $z$, not wages $w$.
- $Q(p, z) \triangleq \min\{D(p), S(z)\}$: quantity of ride hours produced.
- $u(p, z) \triangleq Q(p, z) / S(z)$: driver utilization.
- $z = w \cdot u(p, z)$: driver earning equilibrium condition.
- The market is **M-minimum-earnings stable** if there exists a policy with nonnegative profits in almost all periods where
  \[ w_{t+1} \geq M / u(p_t, z_t). \]
Main Theorem

- Inverse cost function: \( H(x) \triangleq C^{-1}(x) \)

\[ C(z) = z \cdot S(z) \]

Theorem

An \( M \)-minimum-earnings marketplace is stable if and only if:

\[
M \leq \begin{cases} 
  w^* & \text{if } p^* \leq w^* \quad \text{(tight supply)} \\
  H(R(p^*)) & \text{if } p^* > w^* \quad \text{(loose supply)}
\end{cases}
\]
Calibration Results

We use elasticity estimates from the literature to calibrate our model.

With \( w^* = $22.79 \) (and net earnings of $14.25), demand elasticity = \(-0.6\), and supply elasticity = 4.8:

- maximum gross earnings = \( H(R(p^*)) = $23.23 \) (1.9% gain)
- maximum net earnings = $14.69 (3.0% gain)

Why so little? Because supply is very elastic.

Ride-hailing providers are likely to remove free-entry from their marketplaces in order to maintain stability.