Continuous Random Arrival Markets: 
A New Experimental Environment for 
the Study of Price Discovery

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Classical Supply and Demand

\[ D(P^*) = S(P^*) \]
Random Arrival of Incentives

\[ G(p) \]
\[ LS(P) = \lambda_s \int_0^P g_s(y) \, dy = \lambda_s \left( G_s(P) - G_s(0) \right) \]

\[ P^* = G^{-1} \left( \frac{\lambda_b + \lambda_s G(0)}{\lambda_s + \lambda_b} \right) \]

\[ LD(P) = \lambda_b \int_P^\infty g_b(x) \, dx = \lambda_b \left( 1 - G_b(P) \right) \]
Changing Distributions
Changing Distributions
Changing Arrival Rates
Changing Arrival Rates
Environment

Opportunities for buyers begin with fast arrival and then the arrival rate is decreased.

Law of market demand formulation

\[ T \int_{1150}^{P} kf(x)dx \]
Opportunities for sellers begin with a slow arrival rate which is then increased.
The classical environment is a set of periods or days in which each starts fresh with a new set of incentives. Notice the “sawtooth” feature of the data – a direct consequence of refreshing the parameters each period.
Formulation of market Equilibrium \[ P: D(P) = S(P) \]