

This paper is:

A well organized marketing study applicable to other services

- restaurants
- repair shop
- English school in Asian countries
- pub in England, izakaya in Japan
- medical care services in Japan
- Buddhist temple in Japan?

An proposal to controlling quality in measuring productivity of services

## Exploring determinants of quality

outcome of quality #1: the number of visits

- count variable

  - Poisson regression

  - Zero-inflated Poisson

  - Zero-inflated negative binomial

outcome of quality #2: payment by a customer

- continuous variable

  - Double hurdle model

## Candidates of determinants (covariates):

### Attributes of customers:

age, gender, place where they live.

### Demand side variables:

making or not making appointment,  
received treatments in the hair salon,  
expenditures for hair care products  
recommended by hair salon.

### Supply side variables:

salon's congestion,  
hairdresser's congestion,  
fatigue of hairdressers,  
skill/capacity of hairdressers.

## Results:

- Customers who make appointments and buy recommended hair care products are more likely to revisit.
- Congestion of hair salon gives negative impression to the first-time customers, but positive impression for regular customers.
- A busy hairdresser can raise probability for the first-time customers to repeat, but a tired hairdresser gives bad impressions for all customers.
- An increase in skill/ capacity of hairdressers raises the probability for the first-time customers to repeat and also increases the expenditures for the services.

## Questions

- 1) The skill/capacity of hairdressers is measured by the maximum number of total customers .  
Thus, this is a proxy for capacity. Why is it indicative of skill?
- 2) How typical is the hair salon analyzed?
- 3) Data is terminated on March 2010. We do not know which customers repeat after April 2010.
- 4) Are matched data of customers and hairdressers available?  
We need more attributes about customers.

5) Approaching to measurement of productivity of hair salon, we should combine the managerial or financial data with the current data set.

The cost function or revenue function based approach could be possible to measure a quality adjusted productivity index.

6) Also, a quality adjusted labor productivity could be measured.

Productivity of labor intensive services like hair salon is attributable to skills embodied in people (craftsman).

Labor productivity is sometimes more relevant than TFP.