Why some restaurants charge couvert? Evidence from Czech restaurants

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What couvert is

Couvert is a fixed fee charged by some restaurants in addition to the food price when a customers orders a main dish.

Also known as

- *couvert* (France, Czech Republic, Slovakia, English countries)
- *pane e coperto* (Italy)
- *cubierto* (Spanish speaking countries)
- *table charge*, *cover charge* (English speaking countries)

Goal of the research

Goal of the research: find out why some restaurants charge it while others do not.

Hypotheses (non-exclusive):

- a cost-based practice: a lump-sum payment for the place setting, bread, sauces, etc.
- a monopolistic practice: two-part tariff
- a way to select customers when the physical capacity of the restaurant is lower than optimal

Previous literature

Unknown. Only entries in Wikipedia and tourists' guides.

Closest are papers on restaurants rationing by Becker (1991), Ungern-Sternberg (1991), and Bose (1996).

Literature on two-part tariff, originating from Oi (1971).

Data

Data gathered in 2011 in Brno restaurants.

A restaurant defined as *an enterprise whose major business is to serve hot food to customers which are provided with seats and are attended by waiters*.

Restaurant selection:

1. restaurants listed on e-restaurace.cz (1 140)
2. sub-sample of 284 restaurants that
   - had their web sites
   - had menu available on their web sites
   - were listed in at least three other registers
3. stratified sample of 70 restaurants (15 with couvert, 55 without)
4. final sample of 66 restaurants (4 refused to cooperate)
5. sample of 64 restaurants for econometrics (2 leverage points)

Data (cont.)

Survey and hard data gathering.

Hard data:

- couvert in CZK
- restaurant's average price in CZK
- extra payment for additional bread or sauce in CZK
- pizzeria (dummy)
- foreigners (dummy)
- capacity (number of seats inside)
- customers (number served daily)
- reservations (share of days when reservation needed)

Results of the survey (1)

Restaurants' definition of couvert:

- fee for extra bread, sauces, dressings, and table setting
- extra lump-sum fee for food

Why they charge couvert:

- to cover the cost of extra bread, sauces, etc.
- it is a usual practice; should be charged

Results of the survey (2)

What restaurants provide in exchange for couvert:

- ketchup (90 % agreed)
- bread (82 %)
- dressing (80 %)
- serviettes (78 %)
- table setting (71 %)
- mustard (50 %)

Other motives to charge it:

- customers order more food if charged couvert (43 %)
- it is usual practice in the Czech republic (36 %)
- it discourages undesirable customers (13 %)

Results of the survey (3)

Couvert is charged for "every" main dish with exception of lunch specials.

Lunch specials are exempt because

- less service is provided, extra bread etc. is charged separately
- highly elastic demand
- other restaurant do not charge for lunch specials

Many exceptions:

- when food shared by the customers
- when the food is local cheap food
- when the customers are perceived not to be willing to pay it (for soup, salad; constitutional court judges)

Results of the survey (4)

How long restaurants charge couvert:

- since their inception (most of them)
- started two or three years after their inception (2)

Few restaurants stopped charging couvert because their owners felt guilty and for other uncertain reasons.

Restaurants that do not charge couvert say:

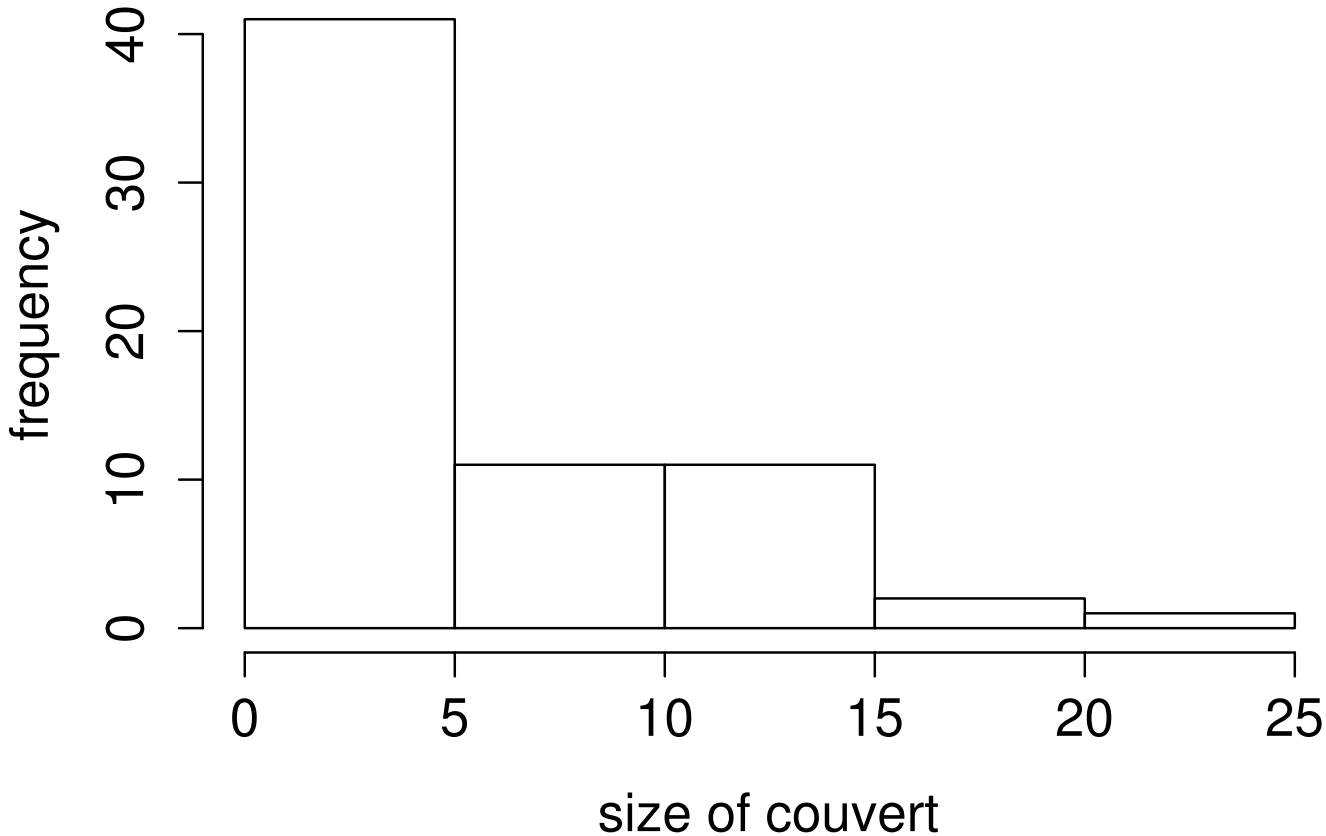
- all costs are covered by the price of the food
- they charge extra fee for an extra portion of bread etc.
- customers do not understand what couvert is and get angry when charged it

Data on couvert: frequency

	selection		sample	
charging couvert	59	21 %	25	38 %
total	284		66	

Restaurants often hide couvert both on their web sites and in their menus.

Data on couvert: size



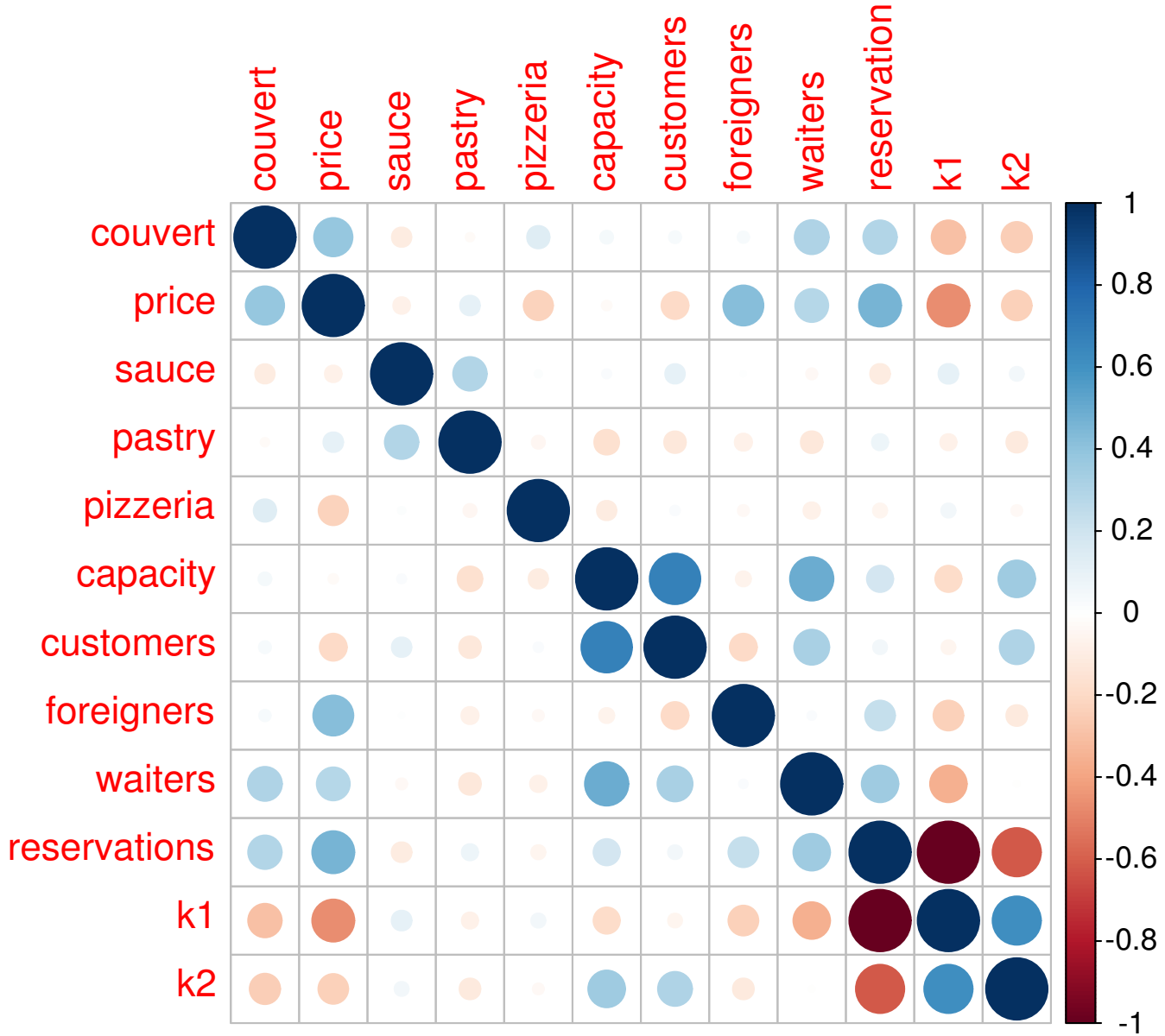
Revenue from couvert can finance one waiter in a median restaurant.

Data on couvert: variables

	all		w. couvert		w./o. couvert	
	mean	st. dev.	mean	st. dev.	mean	st. dev.
price	170.59	53.38	189.16	53.23	159.27	50.83
sauce	8.94	10.27	6.69	11.07	10.31	9.63
bread	4.35	6.10	3.76	5.67	4.71	6.39
pizzeria	0.17	0.38	0.24	0.44	0.12	0.33
capacity	87.27	59.22	93.00	79.14	83.78	43.68
customers	151.97	110.08	164.00	119.05	144.63	105.07
foreigners	0.21	0.41	0.20	0.41	0.22	0.42
reservations	0.31	0.31	0.41	0.32	0.25	0.29

Restaurant charging couvert are more expensive, charge less / less often for extra bread and sauces, their customers more often need reservations, and are more often pizzerias.

Data on couvert: correlations



Model: setup

Chamberlin's monopolistic industry.

Total cost: $C = cQ + rN$

Individual inverse demand: $p = \theta - bq, \qquad \theta \sim U(0, \bar{\theta}]$

Assumptions:

- $b > 0$ same for all customers in all restaurants
- $c = a(\bar{\theta}) : \qquad 0 < a(\bar{\theta}) < \bar{\theta}, \quad 0 < da(\bar{\theta})/d\bar{\theta} < 1$
- $r \geq 0$ same for each restaurant of a particular type, independent from $\bar{\theta}$; may be lowered if its part is charged separately

Restaurant's profit:

$$\pi(x, p, A) = \int_x^{\bar{\theta}} [(p - c)(\theta - p)/b + (A - r)] d\theta \qquad (1)$$

Model: Oi's algorithm

$$\pi(x, p, A) = \int_{x}^{\bar{\theta}} [(p - c)(\theta - p)/b + (A - r)] d\theta \qquad (1)$$

Optimization with unconstrained capacity is solved in three steps:

1. calculate optimal A for given p and x
2. plug the optimal A into (1) and calculate optimal p for a given x
3. plug the optimal A and p into (1), calculate optimal x, and then calculate uncodintional optimal A and p

Constrained optimization is solved in two steps ($x = \bar{\theta} - k$ is fixed):

1. calculate optimal A for given p and x
2. plug the optimal A into (1) and calculate unconditional optimal p and A

Model: optimal two-part tariff with sufficient capacity

Set A and p to maximize (1) s.t. $CS(x) \geq 0$.

Proposition 1: The optimal two-part tariff has the following properties:

1. $A \geq r$ and rises with r if it is optimal for the restaurant to operate; $A > 0$ if $r = 0$, $A > r$ if the restaurant operates with a positive profit.
2. $dA^*/d\bar{\theta} > 0$, $dp^*/d\bar{\theta} > 0$
3. $A^* = f(p^*, r)$ where $df(p^*, r)/dp^* > 0$
4. A^* decreases for any given p^* when r decreases

Model: optimal two-part tariff with insufficient capacity

Set A and p to maximize (1) s.t. $x = \bar{\theta} - k$ where $k < N^* = \bar{\theta} - x^*$.

Proposition 2: The optimal two-part tariff with insufficient capacity has the following properties:

1. A' and p' are independent from r
2. $dA'/d\bar{\theta} > 0$, $dp'/d\bar{\theta} > 0$
3. $A' = g(p', r)$ where $dg(p', r)/dp' > 0$
4. A' decreases for any given p' when k increases

Model: cost-based couvert

Set p to maximize (1) s.t. $A^\circ = r$ and $CS(x) \geq 0$
(sub-optimal two-part tariff).

Proposition 3: The optimal two-part tariff with insufficient capacity has the following properties:

1. there is no relationship between A° and p°
2. A° decreases for any given p° when r decreases

Identification strategy

Testable hypotheses:

1. cost-based couvert: decreases when the restaurant charges for any place-setting item (which lowers r); does not depend on the restaurant's price or its capacity; is higher for the types of restaurants which have higher r
2. monopolistic couvert not used to select customers: decreases when the restaurants charges for any place-setting items; increases in the restaurant's price; does not depend on the capacity; can be higher for types of restaurants with higher r
3. monopolistic couvert that is used to select customers: increases in the restaurant's price and its utilization rate (decreases in its physical capacity); does not change when the restaurants charges for any place-setting items and should be the same for all types of restaurants (i.e. independent from r)

Identification strategy (cont.)

Hypotheses:

- H1 = cost-based couvert
- H2 = monopolistic two-part tariff but not selection tool
- H3 = monopolistic two-part tariff used as selection tool

Couvert

- decreases with decrease in r (pizzeria, bread, sauces)
  $\Rightarrow$ H1 or H2, not H3
- rises with increase in price
  $\Rightarrow$ H2 or H3, not H1
- depends on restaurant's capacity
  $\Rightarrow$ H3, not H1 or H2

Identification strategy: econometric models

Three possible ways to check the theory:

- whether couvert is charged or not
  - LPM
  - probit
- the size of the couvert
  - tobit

The models are not that different:

- the latent variable is the same
- the models' parameters in roughly fixed ratios

Identification strategy: the latent variable

Latent index $\equiv$ the optimal value of couvert $-$ a cost of charging it.

$$\text{binary couvert} = \begin{cases} 1, & \text{if the latent index} > 0, \\ 0, & \text{if the latent index} \leq 0. \end{cases}$$

$$\text{size of couvert} = \begin{cases} \text{the latent index}, & \text{if the latent index} > 0, \\ 0, & \text{if the latent index} \leq 0. \end{cases}$$

(This part is missing in the theoretical model.
How should I incorporate it into the model?)

Identification strategy: definition of the capacity

Two empirical definitions of the capacity:

1. capacity $= (1 -$ reservations$)$
2. capacity $= (1 -$ reservations$) \times$ number of seats

The difference in r tested

- type of the restaurant: pizzeria dummy
- lowered when extra charge for extra bread (not for sauces—it was never statistically significant and deteriorated the fit; perhaps because of its high correlation with bread)
- no test whether the impact of bread depends on the capacity (never statistically significant; perhaps too few observations to fit interactions)

Econometric model: estimates

	LPM1	LPM2	probit1	probit2	tobit1	tobit2
price	0.005***	0.007***	0.014***	0.030***	0.151***	0.279***
	(0.001)	(0.002)	(0.005)	(0.008)	(0.049)	(0.070)
bread	−0.016*	−0.021**	−0.047	−0.076**	−0.423	−0.638**
	(0.010)	(0.009)	(0.030)	(0.033)	(0.318)	(0.308)
free cap.	−0.003*	−0.003**	−0.010*	−0.012**	−0.097*	−0.107**
	(0.001)	(0.001)	(0.005)	(0.006)	(0.055)	(0.051)
foreign.		−0.346**		−1.650**		−14.246**
		(0.151)		(0.666)		(6.009)
pizzeria		0.340**		1.323**		12.245***
		(0.145)		(0.528)		(4.578)
const.	−0.139	−0.517*	−1.967**	−4.343***	−20.363**	−39.617***
	(0.259)	(0.271)	(0.878)	(1.254)	(9.185)	(11.732)

Econometric model: relative importance of the hypotheses

Estimated by hierarchical partitioning on binary models:

model	price	pastry	free capacity	foreigners	pizzeria
LPM2	53.33	8.94	15.22	8.29	14.22
probit2	45.96	10.62	17.30	11.38	14.73

Grouping:

- monopolistic: price, free capacity
- cost-based: bread, pizzeria
- uncertain: foreigners

model	monopolistic	cost-based	uncertain
LPM2	68.56	23.16	8.29
probit2	63.26	25.36	11.38

Conclusion and discussion

Restaurants explain couvert as a cost-based practice.

Our econometric study provides an evidence that it is a monopolistic two-part tariff and a selection mechanism too (perhaps more efficient than queuing by Bose, 1996).

Other possible explanation: couvert is a hidden fee, i.e. “robbing” (but less often charged to tourists).