



On the fairness of pricing – An empirical survey among the general population

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A random survey reveals that a rise in price to cope with a situation of excess demand is considered unfair by 80% of the respondents. Pricing is considered less unfair as a decision-making procedure under recurrent situations than as a device to ration demand in a unique, fixed supply situation. Results contrasting with conventional economic theory are that traditional and administrative procedures are much preferred to pricing, and that an enlarged opportunity set leads to an even more negative evaluation of pricing. This may be explained by introducing ethical ('just price change') considerations into positive analysis.

1. Introduction

In telephone surveys of randomly selected residents in two Canadian metropolitan areas, Kahneman, Knetsch and Thaler (KKT) (1986, p. 729) found that many people consider the use of prices to eliminate excess demand to be unfair. This attitude contrasts with that of the economists who favor price adjustments in similar settings as shown in a multi-country survey of Frey et al. (1984). We replicated the KKT survey using samples from German and Swiss populations with similar results, which we describe in this paper.

The question is why pricing should be considered unfair when economists supposedly know better? In order to answer this question we augmented the original KKT questions with ones designed to discern individual attitudes toward fairness. On analysis of the data we suggest that consumer attitudes depart, not because of irrationality, but because they take into account

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normative or ethical judgements, evaluating 'fairness' with reference to an adaptively determined 'just price'.

Fairness and other ethical issues have not received much attention in contemporary orthodox economics. According to Sen's (1987) book *On Ethics and Economics*: 'If one examines the balance of emphases in the publications in modern economics, it is hard not to notice [...] the neglect of the influence of ethical considerations in the characterization of actual behavior' (p. 7). However, within the rather self-contained area of welfare economics there has been a discussion of the fairness of pricing strongly influenced by Rawls (1971); see also Alexander (1974), Phelps (1973, 1975) or Buchanan (1976). On different lines, Baumol (1986) has developed a theory of 'superfairness'.

These studies have been theoretical in nature; except for the KKT survey empirical support is completely missing. For this reason, we developed our survey to determine the robustness of the earlier findings and to provide a sound basis for explaining what appears to be anomalies from the narrow individualistic perspective. Part 2 offers a short description of our survey. The paper then discusses three major aspects of fairness. Part 6 offers concluding remarks.

2. The survey

In the summer and autumn of 1987 four types of questionnaire with different sets of questions were each mailed to 400 households in the canton of Zurich (Switzerland) or in West Berlin (Federal Republic of Germany). An additional pilot questionnaire was mailed to 150 households in Zurich, bringing the total number of questionnaires sent out to 1,750. The households were randomly selected from the telephone directory. In order not to overburden the potential respondents, each of the five types of questionnaire contained only four or five questions, and in order to allow a cross check, some questions were included in more than one questionnaire. The analysis of the responses (χ^2 -homogeneity tests) revealed that the same question was answered in the same way in the various samples.

The survey was anonymous, so each household could only be questioned once. In view of this, the response rate was quite satisfactory; 43% of the questionnaires were sent back from Zurich and 35% from Berlin, and were usable. The number of replies varied between 452 (for the central question 1) to 148 (for more peripheral questions), the mean number being 222.

The random survey reveals that pricing, at least in the context of an excess demand situation, is considered unfair by almost four out of five respondents. This result seems to hold for different situations and countries. The first and major conclusion is that economists tend to overestimate the price system as

far as its subjectively evaluated fairness among the general population is concerned.

The data lead to a second conclusion in line with standard economic analysis; pricing is considered less fair as a device for rationing excess demand when supply has to be assumed to be fixed, i.e. in a unique, unexpected setting characterized by a high degree of uncertainty. On the other hand, it is considered fairer in a recurrent, predictable situation in which supply may increase.

Conversely, a third conclusion suggests that conventional economics is unable to satisfactorily explain at least two issues involved:

First, people consider pricing to be a less fair allocation procedure than tradition ('first come, first served') or administrative allocation by government. Existing theories would provide few arguments why pricing should be taken to be less fair than these procedures.

Secondly, enlarging the opportunity set is not necessarily regarded favorably by the benefitting consumers, in the sense that price increases are taken to be less fair precisely when other products with constant prices become available. This evaluation can be understood by (re-)introducing the notion of a 'just' or 'fair' price change.

There is empirical evidence that the use of prices is not welcomed by a large share of the population, at least in some circumstances in which most orthodox academic economists would strongly recommend its use:¹ many people consider pricing to be 'unfair'. In telephone surveys of randomly selected residents of two Canadian metropolitan areas, Toronto and Vancouver, Kahneman, Knetsch and Thaler (1986, p. 729) ask whether a price increase in a well-defined excess demand situation was considered to be 'fair' or 'unfair'. The basic scenario was:

Question 1a: A hardware store has been selling snow shovels for \$15. The morning after a large snow storm, the store raises the price to \$20. Please rate this action as: completely fair/acceptable/unfair/very unfair.

The two favorable and the two unfavorable categories were grouped to show the share of respondents who found the price rise fair or unfair. In the two Canadian cities, 82% of the respondents ($N=107$) considered the price rise unfair.

The same scenario was used in the representative survey undertaken in Switzerland and Germany:

Question 1b: A hardware store has been selling snow shovels for 30 Swiss francs (sfr) or 30 German marks (DM). The morning after a heavy snow

¹'Perceptions of fairness often diverge from those which seem natural to economists' [Thaler (1988, p. 205)].

storm, the store raises the price to sfr/DM 40. How do you evaluate this price rise?

The answers were ($N=215$)

completely fair	2%	}	17% fair
acceptable	15%		
unfair	14%	}	83% unfair
very unfair	69%		

More than four-fifths of the respondents find the price rise to be unfair. The reaction in Europe (Switzerland/Germany) and Canada are thus nearly identical.

This result can hardly be dismissed as coincidence, nor is it the result of the particular question posed. Two variations of corresponding excess demand situations result in a similarly negative evaluation of the use of pricing by the population. In the first case excess demand was put in a different framework.

Question 2: At a sight-seeing point reachable only on foot a well has been tapped. The bottled water is sold to thirsty hikers. The price is sfr/DM 1 per bottle. Daily production, and thus the stock, is 100 bottles. On a particularly hot day 200 hikers want to buy a bottle. As a consequence the supplier raises the price to sfr/DM 2 per bottle. How do you evaluate this price rise?

This question was answered by 452 persons. The respective proportions were

completely fair	5%	}	22% fair
acceptable	17%		
unfair	44%	}	78% unfair
very unfair	34%		

More than three-quarters of the respondents consider it unfair if excess demand for water is allocated via a price increase. One-third even considers it very unfair when the price system is used under the given conditions.

The responses to questions 1 and 2 suggest that people are rather adverse to pricing,² at least in so far as it is applied to cope with a situation of excess demand. This result is not surprising but in line with everyday

²Further empirical evidence derived in experimental environments is provided by Yaari and Bar-Hillel (1984), Bazerman (1985) and Farber and Bazerman (1986).

experience. When, for instance, a rise in the price of services by public enterprises is announced (in particular for postal services, the telephone and transport), one may regularly observe a strong opposition in the general public even when a situation of excess demand is apparent. This even holds when at the same time other public service prices are reduced in compensation. The reaction to the following question is an indication that price rises are even more strongly rejected when undertaken by a public supplier than in the case of a private supplier.

Question 3: Now consider the following situation: At the sight-seeing point the well has been tapped by the local authorities and the bottles are sold by them over a counter. On a particularly hot day the price per bottle is raised from sfr/DM 1 to sfr/DM 2. Do you find this price rise

- more acceptable,
- equally acceptable,
- less acceptable

then if a private supplier raises the price?

The answers are ($N = 148$)

- | | |
|----------------------|-----|
| - more acceptable | 11% |
| - equally acceptable | 29% |
| - less acceptable | 60% |

A clear majority of 60% consider it to be less fair when the government uses the price system to cope with excess demand than when this is done by a private supplier.

Economists who tend to find the market a superior allocation mechanism³ must feel challenged by these empirical results. The question is why pricing is considered to be unfair in this (and other) situations by such a large proportion of the population. This paper approaches this topic by analyzing the *empirical* evidence contained in the survey carried out. In line with the economists' approach to social questions [Becker (1982)] we try to avoid the temptation to argue that the population is averse to pricing owing to lack of intelligence, insufficient insight or too little training in economics [see the discussion in Frey (1986)]. Rather we look for *rational* reasons which may explain this aversion.

3. The comparative perspective

Confronted with an excess demand situation, the fairness of pricing should be judged relative to the *alternatives* which could be used in lieu of a price

³For empirical evidence see the multi-country survey among professional economists in Frey, Pommerchne, Schneider and Gilbert (1984).

increase. Questions 1a, 1b, 2 and 3 presented so far have not mentioned any alternative device for solving the excess demand situation. This was done in order to replicate the preceding KKT study in a European context and for excess demand in a similar situation (shortage of water instead of shovels).

In the following question the *relative fairness* of alternative ways of coping with a situation of excess demand was dealt with. Three relevant alternatives for allocation were considered [see e.g. Dahl and Lindblom (1953)]:

- (a) A *traditional* procedure where a *fixed rule* is applied irrespective of the extent to which demand exceeds supply. One of the rules commonly used is the principle of 'first come, first served', which allocates solely on the basis of the point in time the good or service is demanded. While this scheme is often applied, it does not a priori seem to be particularly 'fair', especially in the case of water shortage. After all, hikers who arrive at the sight-seeing point later in the day may easily be more thirsty, and therefore more in 'need' of water, than those arriving earlier.
- (b) The second device for allocating a scarce good may be a *random mechanism*. Each hiker has the same chance of getting water, but the probability is, of course, less than 100%. Random allocations may be expected to meet an important criterion of 'fairness', namely that each person is treated equally, but it does not take into consideration any aspect of 'need', i.e. that some hikers for some reason or other are thirstier. In academic writings, random mechanisms have been suggested as rational procedures particularly for voting [e.g. Intriligator (1973); Mueller (1973)].
- (c) The third allocation procedure suggested in the survey is distribution by a selected *group of people* acting according to their respective principles. The most important of such groups is *government* which is bound by democratic rules. These rules are put into effect by public officials. They follow administrative principles, i.e. a special form of rationality, and possibly also of justice or 'fairness'. In order not to evoke any negative feelings which may be connected with the government, the survey suggested that the allocation of water is undertaken by the local authorities, which distribute it 'according to their respective judgement'. This vague formulation was used on purpose in order to convey the notion that allocation depends on the evaluation of a selected group of people who act according to administrative principles which are only imperfectly known by the citizens affected. However, the economic theory of bureaucracy [Tullock (1965); Niskanen (1971); Breton and Wintrobe (1982)] points to many different systematic biases inherent in administrative decision-making; according to this theory the resulting allocation is neither expected to be efficient nor in any way 'fair':

None of the four allocation devices used in the survey can, according to a priori reasoning, be expected to be 'fair' when dealing with a situation of

Table 1
Subjective evaluations of alternative allocation procedures (in percentage of all respondents).

Evaluation	Allocation procedure			
	Price	Tradition	Random	Administration
Fair	27%	76%	14%	43%
Unfair	73% (N = 293)	24% (N = 299)	86% (N = 288)	57% (N = 289)

excess demand. If anything, economists may produce a number of arguments on why allocation by tradition, by a random procedure, or by administrative decision is *not* more just than using pricing, and some might even argue that they are relatively less just than raising the price. The wording of the question relating to the relative fairness was:

Question 4: Please indicate how fair you evaluate the following means to distribute the water among the hikers to be:

- (a) A price increase to sfr/DM 2 per bottle?
- (b) Selling the water at sfr/DM 1 per bottle according to the principle of 'first come, first served'?
- (c) Selling the water at sfr/DM 1 per bottle following a random procedure (e.g. to give to all persons whose surname starts with A through to P)?
- (d) The local authorities buy the water for sfr/DM 1 per bottle and distribute it according to their own judgement?

The answers are presented in table 1, for simplicity distinguishing only between fair and unfair.

The theoretical proposition on which this section is based is borne out: the price system is considered *relatively* fairer when other explicit procedures are presented, and where it is therefore made even more obvious that the excess demand must somehow be cleared. When the market's fairness is evaluated in an isolated context as in question 2, 22% of the respondents find it to be fair, while when confronted with alternatives as in question 4, 27% consider it to be fair. (The difference is statistically significant at the 90% level of confidence.)

Table 1 reveals a clear ranking with respect to the subjective fairness of the various decision-making devices. The *traditional* procedure of 'first come, first served' is by far considered to be the fairest: more than three-quarters of the respondents judge it to be fair. As has been argued above, this result is not obvious and would not be expected from the point of view of economic theory because it does not take 'need' into account, except if it is assumed that late-comers to the sight-seeing point are generally less thirsty (which is difficult to imagine).

A distinct second rank is attributed to an allocation by an *administration*, which more than four out of ten respondents take to be fair. This is again surprising from the point of view of the economic theory of bureaucracy which advances good reasons why the general population could be quite unfavorably inclined towards that kind of decision-making institution. It would appear that the inhabitants of the canton of Zurich and the city of Berlin have considerable faith in the public administration. They tend to rely on public officials following what they consider to be the 'just' rules laid down in the administrative regulations.

Pricing ranks third with respect to subjective fairness under the conditions portrayed in the survey. Only slightly more than one-quarter consider it to be fair, i.e. people judge it to be by far less fair than clearing an existing excess demand via traditional or administrative rules.

Allocation by using a *random procedure* is ranked fourth; the respondents could not see any fairness properties in applying a principle they probably know best from gambling and lotteries. The low evaluation of the random mechanisms may be due to the fact that it is not widely known, and not considered suitable for 'serious matters', such as the allocation of water.

In order to find out whether the fairness ranking depends on the specific situation portrayed, an analogous question was posed for the case of an excess demand for shovels. Tradition (with 93% of the respondents judging it to be fair) and administration (48%) are again clearly favored. In this instance, however, a random allocation (with 27% finding it fair) is taken to be more acceptable than pricing (23%). This switch in ranking is due mainly to the random mechanism being judged more favorably (27% against 14% in the case of water allocation), while the subjective fairness of pricing falls only slightly (23% compared to 27% in question 4).

In both situations the use of prices to clear excess demand does not perform well: an allocation by means of queuing (tradition) is considered fairer by a factor of 3 to 4, and an administrative allocation by a factor of $1\frac{1}{2}$ to 2. This result can be theoretically explained for the case of queuing provided that demand and supply are both price inelastic and the distribution of income is unequal. The low income recipients will prefer the procedure of 'first come, first served' to a price increase because additional producer rents are prevented. But higher income recipients will profit more by applying pricing [see Weitzman (1977); Sah (1987)]. The overall result thus depends on the distribution of incomes.⁴

⁴The hypothesis could not be tested directly because the respondents were deliberately not asked to state their income as this would have unduly reduced the response rate. However, using a revenue function depending on job characteristics, the level of formal education and the age of individuals, we were able to estimate the income level of each respondent. On this basis, the responses of higher and lower income recipients did not differ in a statistically significant way.

4. Rationing device vs. decision-making system

The subjective evaluation of fairness when dealing with excess demand depends on whether the situation is unique and unpredictable, or recurrent and to be expected. In the first case, supply is more or less given, and excess demand must be cleared by a *rationing device*. If, on the other hand, the situation occurs often and is to some extent a normal event, it can be expected that suppliers adjust. The procedure envisaged is then not only applied in one instance but in many future cases, i.e. there is a choice between *decision-making systems*, partly behind the veil of ignorance [see Buchanan (1977); Frey (1983)].

It may be hypothesized that a price rise is judged to be fairer when it is part of a decision-making system than when it is a pure rationing device. In a recurrent situation, a price rise gives suppliers an incentive to produce more, so that the excess demand situation will be mitigated or completely removed in the future.

The following question was asked to test the *relative fairness* of pricing as a rationing device compared to a decision-making mechanism.

Question 5: How do you evaluate the price rise when a hot day was *completely unforeseeable*?

Do you then consider a price rise to sfr/DM 2 per bottle of water to be more, equally or less acceptable than when hot days normally occur in the season considered?

The answers were ($N = 148$):

- more acceptable	8%
- equally acceptable	28%
- less acceptable	64%

The empirical evidence is consistent with the theoretical expectation. Price rises are considered particularly unfair in situations where they serve to ration demand, compared to when they serve as a decision-making mechanism. This implies that there is less aversion to pricing when it may be expected that supply is therefore raised.

5. Just price re-enters

One of the basic tenets of welfare theory is that individuals gain when their opportunity set is larger: those whose utility increases when they choose a bundle of goods in the enlarged set are better off, while all the others do not lose. Following economic theory one would therefore expect that when the respondents are confronted with a situation in which they have more opportunities available, they would be more content. Specifically, our survey

Table 2
The effect of enlarging the opportunity set on subjectively evaluated fairness.

	Question 6	Question 7
More acceptable	26%	26%
Equally acceptable	19%	22%
Less acceptable	55%	52%

introduced two possibilities for consumers to circumvent excess demand: in the first case an *additional beverage* is introduced and only the price of this second beverage is raised in the excess demand situation (question 6); in the second case an *additional supplier* is introduced who offers the bottles of water at a constant price (question 7). It is hypothesized that the price increase for bottles of water by the first supplier is considered to be *fairer* because the would-be consumers can easily switch to the other beverage or to the other supplier.

The actual questions posed were

Question 6: Consider the following situation: The supplier at the sight-seeing point offers a *more expensive* beverage at sfr/DM 5 per bottle. On a particularly hot day the price of *this more expensive* beverage is raised to sfr/DM 8 per bottle. Do you consider this price rise to be

- more acceptable,
- equally acceptable,
- less acceptable,

than when *only water* is offered and its price is raised?

Question 7: We now have a situation in which *another* supplier located near the sight-seeing point also offers water, but at a price of sfr/DM 1 per bottle. Do you consider the price increase to sfr/DM 2 by the supplier at the sight-seeing point to be

- more acceptable,
- equally acceptable,
- less acceptable,

than if this second supplier did *not* exist?

Table 2 lists the answers to these two questions.

Enlarging the opportunity set for consumers leads in both questions to similar *adverse* reactions. The answers are inconsistent with the theoretical ideas mentioned above: the price system should be judged more favorably. These responses are rather surprising because it is difficult to see why a price

increase for a good is considered *less* acceptable when consumers can easily switch to another beverage (question 6) or to another supplier (question 7).

The unexpected result is explicable when a particular *normative* or *ethical* attitude of individuals is assumed. Consumers evaluate fairness by starting from a 'fair' or '*just price*' price which in psychology corresponds to an adaptation level [Helson (1964)] or to an anchor [Kahneman, Slovic and Tversky (1982)]. This concept is well known in marketing [see e.g. Emery (1969)]. In economics, reference points have been introduced, among others, by Duesenberry (1949) with respect to consumption, and more recently by Frank (1985) with respect to income distribution. When a supplier raises the price for a particular good while keeping the prices for comparable goods constant, the price increase for this good (or by a particular supplier) is seen as a signal that consumers are treated unfairly. Observing that other prices are not increased conveys the impression to consumers that the supplier has acted willfully. The price rise has not been 'forced' by external factors such as a price rise in inputs [see Thaler (1985); Kahneman, Knetsch and Thaler (1986)]. Raising prices in order to profit from an increase in demand is considered illegitimate. Opportunity cost (the supplier not using the possibility to make a profit) is taken to differ sharply from a rise in 'real' cost in the consumers' evaluation of fairness. In economics, no such distinction between 'real' cost and opportunity cost is made. As long as one abides within a normative or optimizing framework the two costs are identical, but the survey results suggest that one should be most careful to transfer this identity to an *explanatory* framework. There are good reasons to assume that individuals have a notion of a 'just' or 'fair price', and of *changes* thereof, which it is important to take into account in positive analysis. If this is not done, individual behavior may well be modelled in an inappropriate way, leading to systematical errors in explanation and prediction.

6. Concluding remarks

Our survey suggests that issues of fairness in economics should not be considered in an isolated setting and without regard to whether a given supply is to be rationed or whether supply may increase. In an excess demand situation an increase in price is considered to be fairer by consumers when other allocation devices are simultaneously available. It turns out that an allocation according to tradition is taken to be fairest, followed by an administration allocation procedure. A price raise is clearly considered to be less fair.

Our survey also reveals that the perceived fairness of pricing is higher when it is used in a recurrent predictable situation in which the supply may expand than when it is fixed.

Economics would benefit by taking ethical or moral aspects in positive

analysis more seriously. Either an individual preference function must be constructed to include such arguments, or the set of constraints with which an individual is confronted must be appropriately redefined. This step needs to be undertaken if economics wishes to explain actual behavior, and based on it, is to fulfill a policy-advising role.

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