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A list of Working Papers on the last pages

No. 292, 1991

**THE TELEPHONE USE IN SWEDEN AND
ITS SENSITIVITY TO PRICES**

by

Kent Rune Sjöholm

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February 1991

The telephone use in Sweden and its sensitivity to price

Kent Rune Sjöholm

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Abstract.

In a study published by Swedish Telecom (Televerket) twenty years ago, the price elasticity for trunk calls over a distance of 90 Km or more was reported to be -0.6. This result is surprisingly well in line with the main results of this study, despite the differences of methodology and empirical base. The price structure of telecommunication is in one sense fixed for years, and subject to a reform at certain points of time. However, for calls over certain distances such as local calls and trunk calls, there is a short run variation of the price over each day and the week. This short run price variation is used to formulate a demand model and estimate its parameters.

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1. Introduction.

Following a "tradition" from the late seventies, the Industrial Institute of Economic and Social Research (IUI) and Swedish Telecom (Televerket) have cooperated in order to estimate the price elasticities of telephone use in Sweden (Pousette, 1978). Reasonable estimates of the price elasticities are important information to design an efficient structure of the telephone tariffs. A discussion of efficiency criteria of the two components of the tariff, the price of the subscription and the price(s) of calling time, has recently been presented in an IUI-report, and this paper represents an empirical continuation of this work (Lang & Lundgren, 1990). Price elasticities for calling time only are discussed.

2. Main results, a summary.

The price elasticity of the use of a telephone service, is assumed to be proportional to its price. This prior assumption has been used in several international studies, and is also adopted here. Table I gives a summary of the results from the elasticity computations based on Swedish telecommunication data. The orders of magnitude seem to be well in line with elasticity estimates reported in various international studies, and also with Swedish results reported by Televerket in 1971.

Table I.,
Price elasticities of private households
June 1988 - March 1989, a survey

| Group of services | minimum own price elasticity | group price elasticity |
|-----------------------------------|------------------------------------|------------------------------|
| Local calls | -0.04 | -0.02 |
| Trunk calls ("Riks") >90 km | -0.60 | -0.40 |
| Nordic Countries | -1.0 | -1.0 |
| Nordic Mobile Telephone | -1.6 | -1.3 |
| USA & Canada | -3.1 | -2.8 |

In a recent study by Kling & Van der Ploeg, based on U.S. data, local call elasticities are estimated to (-0.03, -0.28) (Kling & van der Ploeg, 1990). These elasticities are based on another model than the one used below and also on the assumption of a price per call rather than a price per minute. In the Swedish study published twenty years ago, the elasticity for calls over a distance up to 90 Km was reported to be -0.4 and for longer distances -0.6. This study was made by Televerkets Centralförvaltning in 1971 (see Tomas Pousette, 1978). In this study no differentiation between households and firms was made. Further, at that time local calls had a low price per call (one local call = one marking) rather than a fixed price per minute.

One other result in this study is that there is no evidence that the telephone use of firms and public institutions as subscribers is price elastic at all. All estimated parameters of relevance either are insignificant or have a wrong sign.

3. Telephone prices in Sweden.

The price per minute to access the telephone network in Sweden during the weeks under consideration varied as follows. The prices of local calls, calls to the Nordic countries, to the USA & Canada and Nordic Mobile Telephone (NMT) calls, have two levels during various intervals of a week (T01, T02). The prices of trunk calls have four different levels during a week (T11, T12, T13, T14). All other prices have a fixed level (international group II & special services). The lack of price variation means that these categories of the demand can not be incorporated in the estimation procedure.

| Table II. | | | | |
|-------------------------------|----------------------|---------|---------|----|
| price SEK/minute; Local Calls | | | | |
| ***** | | | | |
| Distance class "TC" | Time during the week | | | |
| | W 08-18 | W 18-08 | & other | |
| | T01 | T02 | | |
| 100, 101, 102 | 0.08 | 0.04 | |)1 |
| ***** | | | | |
|)1 to March 31 1988, | 0.06 | 0.03 | | |

| Table III. | | | | | |
|--------------------------------|----------------------|---------|---------|--------------------|----|
| price, SEK/minute; Trunk calls | | | | | |
| ***** | | | | | |
| Distance class "TC" | Time during the week | | | | |
| | W 08-12 | W 12-18 | W 18-22 | W 22-08 & other | |
| | T11 | T12 | T13 | T14 | |
| 103 (d<45 km) reduced | 0.22 | 0.15 | 0.13 | 0.12 | |
| 104 (d<45 km) normal | 0.45 | 0.31 | 0.26 | 0.23 | |
| 105 (45<d<90 km) | 0.81 | 0.58 | 0.49 | 0.43 | |
| 106 (90<d<180 km) | 1.25 | 0.92 | 0.77 | 0.66 | |
| 107 (180<d<270 km) | 1.25 | 0.92 | 0.77 | 0.66 |)2 |
| 108 (d>270 km) | 1.25 | 0.92 | 0.77 | 0.66 |)2 |
| ***** | | | | | |
|)2 to March 31, 1988 (| 1.53 | 1.15 | 0.92 | 0.77 |) |

| Table IV. | | | | | | |
|---|----------------------|-------|---------|------------------|---------|------------------|
| price, SEK/minute; International group 1 & Nordic Mobile Telephone | | | | | | |
| Distance class "TC" | Time during the week | | | | | |
| | All d | All d | Mon-Sat | Mon-Sat | Mon-Fri | Mon-Fri |
| | 08-22 | 22-08 | 10-22 | 22-10 & other | 08-18 | 18-08 & other |
| | T01 | T02 | T01 | T02 | T01 | T02 |
| 58 Nordic C (high) | 2.23 | | | | | |
| 62 Nordic C (low) | | 1.58 | | | | |
| 21 USA & Canada (high) | | | 6.90 | | |)1 |
| 26 USA & Canada (low) | | | | 5.31 | |)1 |
| 109 NMT | | | | | 3.45 | 2.30 |
| ***** | | | | | | |
|)1 to March 31, 1988 | | | 9.72 | 7.50 | | |

| Table V. | | | | | | |
|--|-----------------------------------|-----------|----|--|--|--|
| price, SEK/minute; International group 2 & special services | | | | | | |
| Distance class "TC" | Time during the week | | | | | |
| | All days | | | | | |
| 78 Boarder NOR, FIN | 0.56 | | | | | |
| 69 Coast zone DEN | 1.02 | | | | | |
| 67 Nordkalotten | 1.21 | | | | | |
| 29 Northern Europe | 4.08 | (4.45) |)2 | | | |
| 27 Middle Europe | 4.93 | (5.31) |)2 | | | |
| 22 Southern Europe | 6.27 | (6.90) |)2 | | | |
| 16 Middle East | 10.62 | | | | | |
| 90 Oth intercontinental | 15.33 | (19.44) |)2 | | | |
| 40 PLUS-services | 2.30 SEK when used | | | | | |
| 41 collect call | 0.23 SEK per call (A-subscriber) | | | | | |
| 31 e.g. 90100 | 0.23 SEK per call | | | | | |
| 30 free | 0.00 SEK per call | | | | | |
| ***** | | | | | | |
|)2 to March 31, 1988 | | | | | | |

In the specification of a demand equation, we make use of all telephone services where the price per minute takes at least two different levels during a week. This implies that International services group 2 & special services (Table V) are excluded from the model specification and the estimation procedure.

4. Specification of a demand equation.

Let us, following Lang & Lundgren 1990, formulate an aggregate demand equation for telephone use. Consider the average subscribers' demand for calling time, measured in seconds, during a week. This demand is split into four distance classes, where the price per minute has two distinct levels (high & low) during a week (local calls, Nordic countries, USA & Canada and NMT), and six distance classes where the price has four different levels (trunk calls). This makes 32 observations of the z-variable available to the estimation procedure. The other distance classes, where the prices are fixed to one single level during a week, are left outside the estimation procedure.

$$z_{ij} = \alpha_i \exp(\Theta p_{ij}) [\beta_j + \delta \exp(\Theta \sum_{k \neq j} p_{ik})] + \epsilon_{ij}; \quad (1)$$

Let z_{ij} represent the average demand for calling time in distance class i and the price period j . The corresponding price is p_{ij} . The α_i parameter measures the mean level of the demand for calling time of distance class i , and the parameter β_j measures the 'natural' level of demand during the price interval j . The Θ and δ parameters represent the influence of the relative price differentiation within this distance class. In equation (1), all income effects are assumed to be null. Income data are not available and would be of little use in this aggregate formulation of the model.

$$\frac{\partial z_{ij}}{\partial p_{ij}} \cdot \frac{p_{ij}}{z_{ij}} = \Theta p_{ij}; \quad (2)$$

$$\frac{\partial z_{ij}}{\partial p_{ik}} \cdot \frac{p_{ik}}{z_{ij}} = \frac{\delta \cdot \Theta \cdot \exp(\Theta \sum_{q \neq k} p_{iq}) \cdot p_{ik}}{\beta_k + \delta \exp(\Theta \sum_{q \neq k} p_{iq})}; \quad k \neq j \quad (3)$$

When income elasticities are zero, the cross price derivatives should be equal in order to guarantee Slutsky symmetry. This is a particular feature of equation (1). One other feature follows from equation (2). The own-price elasticity of the demand of each distance and time is proportional to its price. The cross price elasticities within a given distance class are given by equation (3). In particular, the demand for calling time in a certain distance class is assumed to be independent of the prices of other distance classes. This assumption implies the third equation of the error specifications (4)

$$E(\epsilon_{ij}) = 0, \quad E(\epsilon_{ij}^2) = \sigma_{ij}^2, \quad E(\epsilon_{ij} \epsilon_{hk}) = 0; \quad \text{if } i \neq h, j \neq k \quad (4)$$

Equation (1) is estimated by weighted non linear least squares, where the weights attached to each observation of a distance class are equal and proportional to the budget share of the expenditures of this class among the ten distance classes considered. The idea is that it must be more important to consider a behaviour that favours a reallocation of the calls from "high price time" to "low price time" if a distance class has a great share of the telephone bill, than if this share is small. In order to obtain efficient and stable estimates of the parameters of particular interest, the Θ and δ parameters, the α_i

parameters that reflect the mean of the demand of a certain distance are computed as means from the sample and entered into the equation (1) as restrictions. The β_j parameters may be interpreted to reflect the 'natural' distribution of a given volume of demand over the price invariant time periods, i.e. the distribution that would occur if the price was constant. Two of the β parameters are normalized and set equal to 1 (their logarithms set to 0), one of the two-period group and one of the four-period group.

5. Results.

For each of the five measured weeks, seven demand matrices (see Appendix 2) are computed for the households. One represents the demand from all private households without any check for age and sex. Three of them represent the demand for calling time from young households, the subscriber being not older than 40. Men and women are accounted for separately and also combined in one group. The same procedure is also applied to households where the subscriber is at least 41 years old. For firms only an unrestricted accumulation of calling time is applied.

For each measured week, the estimated parameters and the associated elasticity measures seem to be internally consistent with reference to the sex differentiation within an age group. Further, women seem to be more price sensitive as compared to men, with exception of the March 1988 result. Otherwise, the estimated measures of price elasticity of young versus old households point in different directions. For the aggregate June 1988 to March 1989 no difference is found.

Table VI.

Private households, a survey of the estimated own-price elasticity of the most expensive trunk calls (working days 0800-1200).

| March 1988 | | | | June 1988 | | | |
|----------------|--------|--------|---------|----------------------|--------|--------|---------|
| | max 40 | min 41 | unlimit | | max 40 | min 41 | unlimit |
| M & W | -0.613 | -0.585 | -0.572 | M & W | -0.641 | -0.474 | -0.509 |
| M | -0.659 | -0.607 | | M | -0.609 | -0.443 | |
| W | -0.561 | -0.570 | | W | -0.655 | -0.521 | |
| September 1988 | | | | December 1988 | | | |
| | max 40 | min 41 | unlimit | | max 40 | min 41 | unlimit |
| M & W | -0.604 | -0.459 | -0.477 | M & W | -0.520 | -0.778 | -0.681 |
| M | -0.549 | -0.395 | | M | -0.507 | -0.798 | |
| W | -0.648 | -0.537 | | W | -0.523 | -0.725 | |
| March 1989 | | | | June 1988-March 1989 | | | |
| | max 40 | min 41 | unlimit | | max 40 | min 41 | unlimit |
| M & W | -0.695 | -0.769 | -0.656 | M & W | -0.601 | -0.610 | -0.569 |
| M | -0.626 | -0.691 | | M | -0.581 | -0.585 | |
| W | -0.768 | -0.888 | | W | -0.613 | -0.641 | |

M=Men, W=Women, max 40=of age 40 or less, min 41=of age 41 or more
unlimit=all private households without test age or sex (includes more subscribers than those included in M & W max 40 + min 41).

5.1. Private households, June 1988 - March 1989.

The aggregate demand for calling time of June, September and December 1988 plus March 1989 is considered to be the main result of this study and will be reported in detail below. Estimates of all private households of the first measured week in March 1988 will also be reported separately.

There are two reasons for this.

- The price structure was changed on April 1:st 1988
- An average over time reduces "seasonal" effects.

Unfortunately, beside appropriate seasonal effects, the number of telephone exchanges varies from one measured week to another. As an example, the Stockholm area participates with ten exchanges in March and June 1988, with one in September, nine in December and finally with seven in March 1989 (see Appendix 4). The demand per user for various distance categories is tabulated below.

| | | Table VII. The demand for calling time (seconds) | | | | |
|---------------------|----|--|--------|--------|--------|-----------|
| | | Jun 88 | Sep 88 | Dec 88 | Mar 89 | Average |
| Local calls | T1 | 2022.7 | 1991.7 | 2366.0 | 2236.3 | 2144.7 |
| | T2 | 2502.5 | 2371.9 | 2867.4 | 2691.6 | 2601.5 |
| Nordic Countries | T1 | 32.1 | 29.1 | 39.3 | 29.1 | 32.3 |
| | T2 | 4.6 | 2.5 | 4.4 | 0.6 | 3.0 |
| USA, Canada | T1 | 1.6 | 1.5 | 4.9 | 1.9 | 2.4 |
| | T2 | 3.0 | 1.9 | 3.9 | 1.8 | 2.6 |
| Mobile Telephone | T1 | 5.3 | 6.9 | 8.0 | 8.8 | 7.1 |
| | T2 | 5.2 | 3.4 | 6.4 | 5.9 | 5.2 |
| Trunk calls, TC 103 | T1 | 3.2 | 5.0 | 2.2 | 3.4 | 3.5 |
| | T2 | 7.6 | 7.4 | 12.9 | 12.5 | 9.9 |
| | T3 | 8.7 | 11.8 | 15.2 | 19.3 | 13.5 |
| | T4 | 11.3 | 6.6 | 11.8 | 13.2 | 10.8 |
| " " , TC 104 | T1 | 35.7 | 36.9 | 32.3 | 28.1 | 33.2 |
| | T2 | 47.0 | 60.4 | 57.3 | 51.4 | 53.7 |
| | T3 | 71.3 | 73.7 | 52.2 | 65.4 | 66.1 |
| | T4 | 59.2 | 57.0 | 70.8 | 63.5 | 62.5 |
| " " , TC 105 | T1 | 33.3 | 40.5 | 49.0 | 46.5 | 41.8 |
| | T2 | 52.0 | 65.1 | 62.5 | 63.4 | 60.2 |
| | T3 | 86.5 | 98.2 | 82.2 | 89.8 | 89.1 |
| | T4 | 74.7 | 83.9 | 83.1 | 79.5 | 80.1 |
| " " , TC 106 | T1 | 26.1 | 44.9 | 63.3 | 76.9 | 51.5 (*) |
| | T2 | 45.0 | 72.4 | 132.0 | 150.0 | 96.9 (*) |
| | T3 | 75.9 | 111.0 | 191.5 | 228.1 | 147.7 (*) |
| | T4 | 76.3 | 85.4 | 204.2 | 198.1 | 138.1 (*) |
| " " , TC 107 | T1 | 16.8 | 22.1 | 4.5 | 1.0 | 11.5 (*) |
| | T2 | 35.2 | 41.9 | 6.8 | 3.0 | 22.7 (*) |
| | T3 | 45.7 | 69.3 | 11.2 | 6.8 | 34.2 (*) |
| | T4 | 40.2 | 71.5 | 7.5 | 1.6 | 30.7 (*) |
| " " , TC 108 | T1 | 35.6 | 7.3 | 0.8 | 1.4 | 12.6 (*) |
| | T2 | 60.1 | 17.1 | 1.0 | 0.2 | 21.7 (*) |
| | T3 | 91.0 | 28.1 | 1.8 | 2.9 | 34.0 (*) |
| | T4 | 92.6 | 23.5 | 3.7 | 3.2 | 33.4 (*) |

(*) The distance classes 107 & 108 are gradually transferred to 106 (now economically equivalent)

5.1.1 All active private households.

Table VIII.
All active households,
June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-------------------|----------|-----------|
| ***** | | |
| B02 | 0.1639 | 0.0039 |
| B12 | 0.2867 | 0.0818 |
| B13 | 0.6300 | 0.0885 |
| B14 | 0.5144 | 0.0742 |
| DELTA | -0.0640 | 0.0051 |
| THETA | -0.4551 | 0.0561 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |

Table IX.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.036 | 0.001 | | T1 | -1.015 | 0.014 | | | |
| T2 | 0.002 | -0.018 | | T2 | 0.033 | -0.719 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.140 | 0.006 | | T1 | -1.570 | 0.012 | | | |
| T2 | 0.018 | -2.417 | | T2 | 0.036 | -1.047 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.100 | 0.004 | 0.003 | 0.003 | T1 | -0.205 | 0.007 | 0.005 | 0.006 |
| T2 | 0.004 | -0.068 | 0.002 | 0.002 | T2 | 0.006 | -0.141 | 0.003 | 0.004 |
| T3 | 0.003 | 0.002 | -0.059 | 0.002 | T3 | 0.005 | 0.004 | -0.123 | 0.003 |
| T4 | 0.003 | 0.002 | 0.001 | -0.050 | T4 | 0.004 | 0.003 | 0.002 | -0.105 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.369 | 0.009 | 0.006 | 0.007 | T1 | -0.569 | 0.010 | 0.007 | 0.008 |
| T2 | 0.008 | -0.259 | 0.004 | 0.005 | T2 | 0.008 | -0.419 | 0.004 | 0.005 |
| T3 | 0.006 | 0.005 | -0.223 | 0.004 | T3 | 0.006 | 0.005 | -0.350 | 0.004 |
| T4 | 0.005 | 0.004 | 0.003 | -0.196 | T4 | 0.005 | 0.004 | 0.003 | -0.300 |

Table X.
All active households,
June 88 - March 89

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|--------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2144.7 | -0.02 | 0.60 | T1 | 32.3 | -0.93 | -0.02 |
| T2 | 2601.5 | -0.01 | 0.37 | T2 | 3.0 | -0.03 | 0.05 |
| TOT | 4746.3 | -0.02 | 0.97 | TOT | 35.3 | -0.96 | 0.03 |
| USA & Canada | | | | NMT | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2.4 | -1.50 | -1.18 | T1 | 7.1 | -0.90 | -0.39 |
| T2 | 2.6 | -1.26 | -0.65 | T2 | 5.2 | -0.42 | 0.01 |
| TOT | 5.0 | -2.75 | -1.82 | TOT | 12.4 | -1.32 | -0.38 |

Trunk calls

| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 3.5 | -0.01 | 0.14 | T1 | 33.2 | -0.03 | 0.19 |
| T2 | 9.9 | -0.02 | 0.27 | T2 | 53.7 | -0.03 | 0.23 |
| T3 | 13.5 | -0.02 | 0.32 | T3 | 66.1 | -0.04 | 0.25 |
| T4 | 10.8 | -0.01 | 0.22 | T4 | 62.5 | -0.03 | 0.20 |
| TOT | 37.7 | -0.06 | 0.94 | TOT | 215.4 | -0.12 | 0.87 |
| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 41.8 | -0.05 | 0.15 | T1 | 51.5 | -0.06 | 0.08 |
| T2 | 60.2 | -0.05 | 0.18 | T2 | 96.9 | -0.09 | 0.15 |
| T3 | 89.1 | -0.07 | 0.23 | T3 | 147.7 | -0.12 | 0.21 |
| T4 | 80.1 | -0.06 | 0.19 | T4 | 138.1 | -0.09 | 0.18 |
| TOT | 271.3 | -0.23 | 0.76 | TOT | 434.2 | -0.36 | 0.62 |
| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 11.5 | -0.06 | 0.08 | T1 | 12.6 | -0.06 | 0.09 |
| T2 | 22.7 | -0.09 | 0.15 | T2 | 21.7 | -0.09 | 0.14 |
| T3 | 34.2 | -0.12 | 0.21 | T3 | 34.0 | -0.11 | 0.20 |
| T4 | 30.7 | -0.09 | 0.18 | T4 | 33.4 | -0.10 | 0.19 |
| TOT | 99.1 | -0.36 | 0.62 | TOT | 101.8 | -0.36 | 0.62 |

5.1.2 Men and women, 40 years old or less.

Table XI.
Households, men & women of age 40 or less
June 1988 - March 1989

| Parameter | Estimate | Std. Err. |
|-------------------|----------|-----------|
| ***** | | |
| B02 | 0.3861 | 0.0038 |
| B12 | 0.2988 | 0.0781 |
| B13 | 0.7676 | 0.0935 |
| B14 | 0.5085 | 0.0698 |
| DELTA | -0.2149 | 0.0050 |
| THETA | -0.4805 | 0.0588 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |

Table XII.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T2 | | |
| T1 | -0.038 | 0.003 | | T1 | -1.071 | 0.040 | | | |
| T2 | 0.010 | -0.019 | | T2 | 0.120 | -0.759 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T2 | | |
| T1 | -3.315 | 0.014 | | T1 | -1.658 | 0.032 | | | |
| T2 | 0.056 | -2.551 | | T2 | 0.127 | -1.105 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | |
| T1 | -0.106 | 0.016 | 0.009 | 0.013 | T1 | -0.216 | 0.026 | 0.016 | 0.021 |
| T2 | 0.015 | -0.072 | 0.006 | 0.008 | T2 | 0.024 | -0.149 | 0.010 | 0.013 |
| T3 | 0.013 | 0.009 | -0.062 | 0.007 | T3 | 0.020 | 0.014 | -0.130 | 0.011 |
| T4 | 0.011 | 0.008 | 0.004 | -0.053 | T4 | 0.017 | 0.012 | 0.007 | -0.111 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | |
| T1 | -0.389 | 0.033 | 0.020 | 0.026 | T1 | -0.601 | 0.033 | 0.020 | 0.026 |
| T2 | 0.028 | -0.274 | 0.012 | 0.016 | T2 | 0.028 | -0.442 | 0.013 | 0.016 |
| T3 | 0.023 | 0.017 | -0.235 | 0.013 | T3 | 0.022 | 0.016 | -0.370 | 0.013 |
| T4 | 0.020 | 0.014 | 0.009 | -0.207 | T4 | 0.018 | 0.013 | 0.008 | -0.317 |

Table XIII.
Households, men & women of age 40 or less
June 1988 - March 1989

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1844.9 | -0.01 | 0.53 | T1 | 27.0 | -0.95 | -0.07 |
| T2 | 3012.5 | -0.01 | 0.45 | T2 | 3.3 | 0.02 | 0.13 |
| TOT | 4857.4 | -0.02 | 0.98 | TOT | 30.3 | -0.93 | 0.06 |
| USA & Canada | | | | NMT | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2.9 | -1.17 | -0.97 | T1 | 9.0 | -0.80 | -0.39 |
| T2 | 5.2 | -1.62 | -0.89 | T2 | 9.3 | -0.50 | 0.03 |
| TOT | 8.1 | -2.79 | -1.87 | TOT | 18.2 | -1.30 | -0.36 |
| Trunk calls | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1.3 | 0.01 | 0.05 | T1 | 27.3 | -0.01 | 0.16 |
| T2 | 12.2 | -0.01 | 0.30 | T2 | 53.8 | -0.03 | 0.23 |
| T3 | 19.6 | -0.02 | 0.41 | T3 | 82.4 | -0.04 | 0.31 |
| T4 | 10.9 | -0.01 | 0.20 | T4 | 59.0 | -0.02 | 0.19 |
| TOT | 44.0 | -0.04 | 0.96 | TOT | 222.5 | -0.10 | 0.90 |
| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 42.5 | -0.03 | 0.15 | T1 | 47.4 | -0.04 | 0.08 |
| T2 | 67.0 | -0.05 | 0.18 | T2 | 96.3 | -0.08 | 0.15 |
| T3 | 109.1 | -0.07 | 0.26 | T3 | 171.2 | -0.13 | 0.23 |
| T4 | 87.8 | -0.05 | 0.19 | T4 | 137.9 | -0.09 | 0.18 |
| TOT | 306.4 | -0.20 | 0.78 | TOT | 452.7 | -0.34 | 0.64 |
| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 12.5 | -0.04 | 0.08 | T1 | 13.3 | -0.05 | 0.09 |
| T2 | 27.1 | -0.09 | 0.15 | T2 | 24.1 | -0.08 | 0.14 |
| T3 | 46.9 | -0.13 | 0.24 | T3 | 40.6 | -0.12 | 0.22 |
| T4 | 35.7 | -0.09 | 0.17 | T4 | 35.4 | -0.09 | 0.18 |
| TOT | 122.1 | -0.34 | 0.64 | TOT | 113.3 | -0.34 | 0.63 |

5.1.3 Men, 40 years old or less.

Table XIV.
Households, men of age 40 or less,
June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-------------------|----------|-----------|
| ***** | | |
| B02 | 0.3622 | 0.0045 |
| B12 | 0.2584 | 0.0754 |
| B13 | 0.7258 | 0.0898 |
| B14 | 0.5371 | 0.0701 |
| DELTA | -0.1976 | 0.0053 |
| THETA | -0.4648 | 0.0579 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |

Table XV.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.037 | 0.003 | | T1 | -1.036 | 0.038 | | | |
| T2 | 0.009 | -0.019 | | T2 | 0.109 | -0.734 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.207 | 0.014 | | T1 | -1.603 | 0.030 | | | |
| T2 | 0.055 | -2.468 | | T2 | 0.117 | -1.069 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.102 | 0.015 | 0.009 | 0.011 | T1 | -0.209 | 0.025 | 0.015 | 0.018 |
| T2 | 0.013 | -0.070 | 0.006 | 0.007 | T2 | 0.021 | -0.144 | 0.009 | 0.012 |
| T3 | 0.011 | 0.008 | -0.060 | 0.006 | T3 | 0.018 | 0.013 | -0.125 | 0.010 |
| T4 | 0.009 | 0.007 | 0.004 | -0.051 | T4 | 0.015 | 0.011 | 0.007 | -0.107 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.376 | 0.031 | 0.019 | 0.023 | T1 | -0.581 | 0.031 | 0.019 | 0.024 |
| T2 | 0.026 | -0.265 | 0.012 | 0.014 | T2 | 0.026 | -0.428 | 0.012 | 0.015 |
| T3 | 0.021 | 0.016 | -0.228 | 0.012 | T3 | 0.020 | 0.015 | -0.358 | 0.011 |
| T4 | 0.018 | 0.014 | 0.008 | -0.200 | T4 | 0.016 | 0.012 | 0.008 | -0.307 |

Table XVI.
Households, men of age 40 or less,
June 88 - March 89

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1681.1 | -0.01 | 0.54 | T1 | 24.3 | -0.89 | -0.04 |
| T2 | 2646.9 | -0.01 | 0.44 | T2 | 3.7 | 0.00 | 0.12 |
| TOT | 4328.0 | -0.02 | 0.98 | TOT | 28.0 | -0.90 | 0.08 |
| USA & Canada | | | | NMT | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 5.4 | -1.89 | -1.45 | T1 | 11.2 | -0.85 | -0.38 |
| T2 | 3.8 | -0.98 | -0.48 | T2 | 9.6 | -0.43 | 0.04 |
| TOT | 9.2 | -2.87 | -1.94 | TOT | 20.8 | -1.28 | -0.34 |
| Trunk calls | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 0.6 | 0.01 | 0.04 | T1 | 24.2 | -0.01 | 0.17 |
| T2 | 7.4 | -0.01 | 0.28 | T2 | 45.9 | -0.03 | 0.23 |
| T3 | 15.3 | -0.03 | 0.51 | T3 | 70.9 | -0.04 | 0.31 |
| T4 | 4.4 | 0.00 | 0.13 | T4 | 47.7 | -0.02 | 0.19 |
| TOT | 27.6 | -0.04 | 0.96 | TOT | 188.7 | -0.10 | 0.90 |
| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 49.0 | -0.04 | 0.16 | T1 | 49.9 | -0.04 | 0.09 |
| T2 | 59.5 | -0.04 | 0.16 | T2 | 97.6 | -0.08 | 0.15 |
| T3 | 108.1 | -0.07 | 0.25 | T3 | 168.6 | -0.12 | 0.23 |
| T4 | 101.2 | -0.06 | 0.21 | T4 | 143.9 | -0.09 | 0.18 |
| TOT | 317.8 | -0.20 | 0.79 | TOT | 460.0 | -0.33 | 0.65 |
| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 13.7 | -0.04 | 0.08 | T1 | 13.9 | -0.05 | 0.10 |
| T2 | 31.0 | -0.09 | 0.16 | T2 | 26.7 | -0.10 | 0.17 |
| T3 | 50.4 | -0.12 | 0.23 | T3 | 35.3 | -0.11 | 0.20 |
| T4 | 39.6 | -0.08 | 0.17 | T4 | 30.7 | -0.08 | 0.17 |
| TOT | 134.7 | -0.33 | 0.65 | TOT | 106.6 | -0.34 | 0.64 |

5.1.4 Women, 40 years old or less.

Table XVII.
Households, women of age 40 or less,
June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-------------------|----------|-----------|
| ***** | | |
| B02 | 0.4067 | 0.0039 |
| B12 | 0.3338 | 0.0934 |
| B13 | 0.8055 | 0.1121 |
| B14 | 0.4710 | 0.0802 |
| DELTA | -0.2303 | 0.0056 |
| THETA | -0.4906 | 0.0692 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |

Table XVIII.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.039 | 0.003 | | T1 | -1.094 | 0.042 | | | |
| T2 | 0.011 | -0.020 | | T2 | 0.130 | -0.775 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.385 | 0.014 | | T1 | -1.693 | 0.033 | | | |
| T2 | 0.059 | -2.605 | | T2 | 0.136 | -1.128 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | |
| T1 | -0.108 | 0.017 | 0.010 | 0.014 | T1 | -0.221 | 0.028 | 0.016 | 0.024 |
| T2 | 0.016 | -0.074 | 0.007 | 0.009 | T2 | 0.026 | -0.152 | 0.011 | 0.015 |
| T3 | 0.014 | 0.010 | -0.064 | 0.008 | T3 | 0.022 | 0.015 | -0.132 | 0.013 |
| T4 | 0.012 | 0.008 | 0.005 | -0.054 | T4 | 0.018 | 0.013 | 0.008 | -0.113 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | |
| T1 | -0.397 | 0.034 | 0.021 | 0.029 | T1 | -0.613 | 0.034 | 0.021 | 0.029 |
| T2 | 0.030 | -0.280 | 0.013 | 0.018 | T2 | 0.030 | -0.451 | 0.013 | 0.018 |
| T3 | 0.025 | 0.017 | -0.240 | 0.015 | T3 | 0.023 | 0.016 | -0.378 | 0.014 |
| T4 | 0.021 | 0.015 | 0.009 | -0.211 | T4 | 0.019 | 0.013 | 0.008 | -0.324 |

Table XIX.
Households, women of age 40 or less,
June 88 - March 89

=> One per cent price increase of a distance class
the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2027.3 | -0.01 | 0.52 | T1 | 29.9 | -0.99 | -0.10 |
| T2 | 3418.8 | -0.01 | 0.45 | T2 | 2.9 | 0.05 | 0.14 |
| TOT | 5446.1 | -0.02 | 0.98 | TOT | 32.8 | -0.94 | 0.04 |

| USA & Canada | | | | NMT | | | |
|--------------|---------|-------|--------|-----|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 0.0 | 0.00 | 0.00 | T1 | 6.5 | -0.70 | -0.36 |
| T2 | 6.8 | -2.60 | -1.62 | T2 | 8.9 | -0.59 | 0.01 |
| TOT | 6.8 | -2.59 | -1.62 | TOT | 15.4 | -1.29 | -0.35 |

Trunk calls

| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1.9 | 0.01 | 0.06 | T1 | 30.8 | -0.01 | 0.16 |
| T2 | 17.6 | -0.01 | 0.30 | T2 | 62.6 | -0.03 | 0.23 |
| T3 | 24.4 | -0.02 | 0.37 | T3 | 95.2 | -0.04 | 0.31 |
| T4 | 18.1 | -0.01 | 0.23 | T4 | 71.6 | -0.02 | 0.20 |
| TOT | 62.1 | -0.04 | 0.96 | TOT | 260.2 | -0.09 | 0.90 |

| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
|--------------------|---------|-------|--------|---------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 35.2 | -0.02 | 0.13 | T1 | 44.5 | -0.04 | 0.08 |
| T2 | 75.3 | -0.06 | 0.21 | T2 | 94.9 | -0.08 | 0.14 |
| T3 | 110.3 | -0.08 | 0.27 | T3 | 174.0 | -0.14 | 0.24 |
| T4 | 72.8 | -0.04 | 0.17 | T4 | 131.3 | -0.09 | 0.17 |
| TOT | 293.7 | -0.20 | 0.78 | TOT | 444.6 | -0.35 | 0.63 |

| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
|----------------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 11.1 | -0.04 | 0.08 | T1 | 12.5 | -0.04 | 0.08 |
| T2 | 22.6 | -0.08 | 0.14 | T2 | 21.2 | -0.07 | 0.12 |
| T3 | 43.0 | -0.14 | 0.24 | T3 | 46.5 | -0.14 | 0.24 |
| T4 | 31.5 | -0.09 | 0.17 | T4 | 40.5 | -0.10 | 0.19 |
| TOT | 108.1 | -0.35 | 0.63 | TOT | 120.7 | -0.34 | 0.64 |

5.1.5 Men and women, 41 years old or more

Table XX.
Households, men & women of age 41 or more,
June 1988 - March 1989

| Parameter | Estimate | Std. Err. |
|-----------------------|----------|-----------|
| ***** | | |
| B02 | 0.0621 | 0.0049 |
| B12 | 0.2709 | 0.1024 |
| B13 | 0.6225 | 0.1106 |
| B14 | 0.5774 | 0.0968 |
| DELTA | -0.0029 | 0.0064 |
| THETA | -0.4880 | 0.0682 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |
| DEL assumed to be 0.0 | | |

Table XXI.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.039 | 0.000 | | T1 | -1.088 | 0.000 | | | |
| T2 | 0.000 | -0.020 | | T2 | 0.000 | -0.771 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.367 | 0.000 | | T1 | -1.684 | 0.000 | | | |
| T2 | 0.000 | -2.591 | | T2 | 0.000 | -1.122 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.107 | 0.000 | 0.000 | 0.000 | T1 | -0.220 | 0.000 | 0.000 | 0.000 |
| T2 | 0.000 | -0.073 | 0.000 | 0.000 | T2 | 0.000 | -0.151 | 0.000 | 0.000 |
| T3 | 0.000 | 0.000 | -0.063 | 0.000 | T3 | 0.000 | 0.000 | -0.132 | 0.000 |
| T4 | 0.000 | 0.000 | 0.000 | -0.054 | T4 | 0.000 | 0.000 | 0.000 | -0.112 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.395 | 0.000 | 0.000 | 0.000 | T1 | -0.610 | 0.000 | 0.000 | 0.000 |
| T2 | 0.000 | -0.278 | 0.000 | 0.000 | T2 | 0.000 | -0.449 | 0.000 | 0.000 |
| T3 | 0.000 | 0.000 | -0.239 | 0.000 | T3 | 0.000 | 0.000 | -0.376 | 0.000 |
| T4 | 0.000 | 0.000 | 0.000 | -0.210 | T4 | 0.000 | 0.000 | 0.000 | -0.322 |

Table XXII.
Households, men & women of age 41 or more,
June 1988 - March 1989

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2174.8 | -0.02 | 0.62 | T1 | 34.8 | -0.99 | -0.09 |
| T2 | 2359.9 | -0.01 | 0.34 | T2 | 3.5 | -0.07 | 0.01 |
| TOT | 4534.7 | -0.03 | 0.97 | TOT | 38.3 | -1.06 | -0.08 |

| USA & Canada | | | | NMT | | | |
|--------------|---------|-------|--------|-----|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2.0 | -2.15 | -1.67 | T1 | 4.2 | -1.05 | -0.50 |
| T2 | 1.2 | -0.94 | -0.49 | T2 | 2.6 | -0.42 | -0.04 |
| TOT | 3.2 | -3.09 | -2.16 | TOT | 6.8 | -1.47 | -0.54 |

Trunk calls

| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 4.6 | -0.01 | 0.17 | T1 | 34.2 | -0.03 | 0.19 |
| T2 | 8.8 | -0.02 | 0.23 | T2 | 53.9 | -0.04 | 0.22 |
| T3 | 13.0 | -0.02 | 0.30 | T3 | 61.9 | -0.04 | 0.22 |
| T4 | 12.1 | -0.02 | 0.24 | T4 | 68.9 | -0.04 | 0.22 |
| TOT | 38.6 | -0.07 | 0.93 | TOT | 218.8 | -0.14 | 0.85 |

| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
|--------------------|---------|-------|--------|---------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 41.8 | -0.06 | 0.14 | T1 | 46.3 | -0.07 | 0.06 |
| T2 | 57.8 | -0.06 | 0.17 | T2 | 91.6 | -0.10 | 0.13 |
| T3 | 82.5 | -0.08 | 0.22 | T3 | 142.4 | -0.13 | 0.20 |
| T4 | 79.7 | -0.06 | 0.19 | T4 | 142.6 | -0.11 | 0.18 |
| TOT | 261.8 | -0.26 | 0.72 | TOT | 422.9 | -0.40 | 0.58 |

| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
|----------------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 9.0 | -0.06 | 0.06 | T1 | 10.4 | -0.07 | 0.07 |
| T2 | 18.6 | -0.10 | 0.13 | T2 | 18.5 | -0.09 | 0.12 |
| T3 | 29.7 | -0.13 | 0.20 | T3 | 31.3 | -0.13 | 0.20 |
| T4 | 29.4 | -0.11 | 0.19 | T4 | 33.9 | -0.12 | 0.20 |
| TOT | 86.8 | -0.40 | 0.58 | TOT | 94.2 | -0.40 | 0.58 |

5.1.6 Men, 41 years old or more

Table XXIII.
Households, men of age 41 or more,
June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-----------------------|----------|-----------|
| ***** | | |
| B02 | 0.0304 | 0.0047 |
| B12 | 0.2991 | 0.0896 |
| B13 | 0.5913 | 0.0936 |
| B14 | 0.5301 | 0.0815 |
| DELTA | 0.0131 | 0.0057 |
| THETA | -0.4680 | 0.0579 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |
| DEL assumed to be 0.0 | | |

Table XXIV.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.037 | 0.000 | | T1 | -1.044 | 0.000 | | | |
| T2 | 0.000 | -0.019 | | T2 | 0.000 | -0.739 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.229 | 0.000 | | T1 | -1.615 | 0.000 | | | |
| T2 | 0.000 | -2.485 | | T2 | 0.000 | -1.076 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.103 | 0.000 | 0.000 | 0.000 | T1 | -0.211 | 0.000 | 0.000 | 0.000 |
| T2 | 0.000 | -0.070 | 0.000 | 0.000 | T2 | 0.000 | -0.145 | 0.000 | 0.000 |
| T3 | 0.000 | 0.000 | -0.061 | 0.000 | T3 | 0.000 | 0.000 | -0.126 | 0.000 |
| T4 | 0.000 | 0.000 | 0.000 | -0.051 | T4 | 0.000 | 0.000 | 0.000 | -0.108 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.379 | 0.000 | 0.000 | 0.000 | T1 | -0.585 | 0.000 | 0.000 | 0.000 |
| T2 | 0.000 | -0.267 | 0.000 | 0.000 | T2 | 0.000 | -0.431 | 0.000 | 0.000 |
| T3 | 0.000 | 0.000 | -0.229 | 0.000 | T3 | 0.000 | 0.000 | -0.360 | 0.000 |
| T4 | 0.000 | 0.000 | 0.000 | -0.201 | T4 | 0.000 | 0.000 | 0.000 | -0.309 |

Table XXV.
Households, men of age 41 or more,
June 88 - March 89

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2110.0 | -0.02 | 0.63 | T1 | 31.0 | -0.90 | -0.05 |
| T2 | 2214.4 | -0.01 | 0.34 | T2 | 5.1 | -0.10 | 0.03 |
| TOT | 4324.4 | -0.03 | 0.97 | TOT | 36.2 | -1.00 | -0.02 |
| USA & Canada | | | | NMT | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2.4 | -2.04 | -1.56 | T1 | 5.4 | -1.00 | -0.45 |
| T2 | 1.4 | -0.91 | -0.47 | T2 | 3.3 | -0.41 | -0.03 |
| TOT | 3.7 | -2.96 | -2.03 | TOT | 8.6 | -1.41 | -0.47 |
| Trunk calls | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 3.9 | -0.01 | 0.16 | T1 | 35.2 | -0.03 | 0.18 |
| T2 | 7.5 | -0.02 | 0.22 | T2 | 60.2 | -0.04 | 0.23 |
| T3 | 11.6 | -0.02 | 0.30 | T3 | 65.0 | -0.04 | 0.23 |
| T4 | 10.9 | -0.02 | 0.24 | T4 | 68.6 | -0.03 | 0.21 |
| TOT | 33.9 | -0.06 | 0.93 | TOT | 229.0 | -0.14 | 0.85 |
| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 39.7 | -0.06 | 0.14 | T1 | 53.4 | -0.07 | 0.07 |
| T2 | 62.3 | -0.06 | 0.19 | T2 | 99.8 | -0.10 | 0.14 |
| T3 | 82.2 | -0.07 | 0.22 | T3 | 145.4 | -0.12 | 0.19 |
| T4 | 74.6 | -0.06 | 0.18 | T4 | 144.5 | -0.10 | 0.18 |
| TOT | 258.8 | -0.25 | 0.73 | TOT | 443.2 | -0.39 | 0.59 |
| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 10.2 | -0.07 | 0.07 | T1 | 11.4 | -0.07 | 0.07 |
| T2 | 18.0 | -0.09 | 0.13 | T2 | 16.4 | -0.07 | 0.11 |
| T3 | 30.8 | -0.13 | 0.21 | T3 | 36.6 | -0.14 | 0.23 |
| T4 | 29.5 | -0.10 | 0.18 | T4 | 31.4 | -0.10 | 0.18 |
| TOT | 88.5 | -0.38 | 0.59 | TOT | 95.8 | -0.38 | 0.59 |

5.1.7 Women, 41 years old or more

Table XXVI.
Households, women of age 41 or more,
June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-------------------|----------|-----------|
| ***** | | |
| B02 | 0.1008 | 0.0055 |
| B12 | 0.2129 | 0.1278 |
| B13 | 0.6615 | 0.1453 |
| B14 | 0.6428 | 0.1288 |
| DELTA | -0.0231 | 0.0080 |
| THETA | -0.5126 | 0.0894 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |

Table XXVII.
Price elasticities

| Local calls | | | | Nordic countries | | | | | |
|-------------------------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -0.041 | 0.000 | | T1 | -1.143 | 0.005 | | | |
| T2 | 0.001 | -0.021 | | T2 | 0.012 | -0.810 | | | |
| USA & Canada | | | | NMT | | | | | |
| | T1 | T2 | | T1 | T2 | | T1 | T2 | |
| T1 | -3.537 | 0.002 | | T1 | -1.768 | 0.004 | | | |
| T2 | 0.005 | -2.722 | | T2 | 0.013 | -1.179 | | | |
| Trunk calls | | | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.113 | 0.002 | 0.001 | 0.001 | T1 | -0.231 | 0.003 | 0.002 | 0.002 |
| T2 | 0.001 | -0.077 | 0.001 | 0.001 | T2 | 0.002 | -0.159 | 0.001 | 0.001 |
| T3 | 0.001 | 0.001 | -0.067 | 0.001 | T3 | 0.002 | 0.002 | -0.138 | 0.001 |
| T4 | 0.001 | 0.001 | 0.001 | -0.056 | T4 | 0.002 | 0.001 | 0.001 | -0.118 |
| 45<d<90 km, TC 105 | | | | d>90 km, TC 106-108 | | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.415 | 0.004 | 0.002 | 0.002 | T1 | -0.641 | 0.004 | 0.002 | 0.002 |
| T2 | 0.003 | -0.292 | 0.001 | 0.001 | T2 | 0.003 | -0.472 | 0.001 | 0.001 |
| T3 | 0.002 | 0.002 | -0.251 | 0.001 | T3 | 0.002 | 0.002 | -0.395 | 0.001 |
| T4 | 0.002 | 0.002 | 0.001 | -0.220 | T4 | 0.002 | 0.001 | 0.001 | -0.338 |

Table XXVIII
Households, women of age 41 or more,
June 88 - March 89

One per cent price increase of a distance class
=> the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2266.7 | -0.02 | 0.61 | T1 | 40.3 | -1.11 | -0.15 |
| T2 | 2565.5 | -0.01 | 0.35 | T2 | 1.1 | -0.01 | 0.02 |
| TOT | 4832.2 | -0.03 | 0.97 | TOT | 41.3 | -1.12 | -0.14 |
| USA & Canada | | | | NMT | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1.6 | -2.29 | -1.81 | T1 | 2.6 | -1.11 | -0.56 |
| T2 | 0.9 | -0.96 | -0.51 | T2 | 1.5 | -0.43 | -0.05 |
| TOT | 2.4 | -3.25 | -2.32 | TOT | 4.1 | -1.54 | -0.61 |
| Trunk calls | | | | | | | |
| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 5.6 | -0.01 | 0.17 | T1 | 32.7 | -0.04 | 0.19 |
| T2 | 10.7 | -0.02 | 0.23 | T2 | 45.1 | -0.03 | 0.20 |
| T3 | 15.0 | -0.02 | 0.29 | T3 | 57.5 | -0.04 | 0.22 |
| T4 | 13.9 | -0.02 | 0.23 | T4 | 69.1 | -0.04 | 0.23 |
| TOT | 45.1 | -0.07 | 0.93 | TOT | 204.5 | -0.15 | 0.84 |
| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 44.7 | -0.07 | 0.15 | T1 | 36.3 | -0.06 | 0.05 |
| T2 | 51.5 | -0.06 | 0.15 | T2 | 80.0 | -0.09 | 0.12 |
| T3 | 83.0 | -0.08 | 0.21 | T3 | 138.1 | -0.14 | 0.20 |
| T4 | 86.8 | -0.07 | 0.20 | T4 | 139.8 | -0.12 | 0.19 |
| TOT | 266.0 | -0.27 | 0.71 | TOT | 394.3 | -0.41 | 0.57 |
| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 7.3 | -0.05 | 0.05 | T1 | 9.0 | -0.06 | 0.06 |
| T2 | 19.4 | -0.11 | 0.14 | T2 | 21.4 | -0.11 | 0.14 |
| T3 | 28.3 | -0.13 | 0.19 | T3 | 24.0 | -0.10 | 0.15 |
| T4 | 29.3 | -0.12 | 0.19 | T4 | 37.5 | -0.14 | 0.22 |
| TOT | 84.3 | -0.41 | 0.57 | TOT | 91.9 | -0.41 | 0.57 |

5.2. Private households, March 1988.

Now, we will present the estimated parameters and derived elasticities of one single month, March 1988. That month, all 59 exchanges were measured. In order to prepare for an evaluation of the price adjustments that took place on April 1:st 1988, the elasticities of a subset of 40 exchanges that were also measured in March 1989 will be presented. Further details will be presented below.

Table XXIX.

March 1988, active private households

| Parameter | All available | | The 40 exchanges comp. March 1989 | |
|-------------------|---------------|-----------|--------------------------------------|-----------|
| | Estimate | Std. Err. | Estimate | Std. Err. |
| B02 | 0.1464 | 0.0051 | 0.1393 | 0.0051 |
| B12 | 0.1851 | 0.1081 | 0.2029 | 0.1064 |
| B13 | 0.5303 | 0.1135 | 0.5382 | 0.1115 |
| B14 | 0.5587 | 0.1044 | 0.5303 | 0.1009 |
| DELTA | -0.0635 | 0.0055 | -0.0591 | 0.0054 |
| THETA | -0.3739 | 0.0722 | -0.3782 | 0.0716 |
| ***** | | | | |
| B01=0.0 & B11=0.0 | | | | |

Table XXX.

Price elasticities, "the 40 comparable exchanges"

| Local calls | | | Nordic countries | | |
|--------------|--------|--------|------------------|--------|--------|
| | T1 | T2 | | T1 | T2 |
| T1 | -0.023 | 0.001 | T1 | -0.843 | 0.014 |
| T2 | 0.001 | -0.011 | T2 | 0.028 | -0.598 |
| USA & Canada | | | NMT | | |
| | T1 | T2 | | T1 | T2 |
| T1 | -3.676 | 0.004 | T1 | -1.305 | 0.012 |
| T2 | 0.013 | -2.837 | T2 | 0.033 | -0.870 |

Trunk calls

| d<45 km reduced, TC 103 | | | | | d<45 km normal, TC 104 | | | | |
|-------------------------|--------|--------|--------|--------|-------------------------|--------|--------|--------|--------|
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.083 | 0.004 | 0.003 | 0.003 | T1 | -0.170 | 0.006 | 0.004 | 0.004 |
| T2 | 0.003 | -0.057 | 0.002 | 0.002 | T2 | 0.005 | -0.117 | 0.003 | 0.003 |
| T3 | 0.003 | 0.002 | -0.049 | 0.001 | T3 | 0.004 | 0.004 | -0.102 | 0.003 |
| T4 | 0.002 | 0.002 | 0.001 | -0.042 | T4 | 0.004 | 0.003 | 0.002 | -0.087 |
| 45<d<90 km, TC 105 | | | | | 90<d<180 km, TC 106 (*) | | | | |
| | T1 | T2 | T3 | T4 | | T1 | T2 | T3 | T4 |
| T1 | -0.306 | 0.009 | 0.006 | 0.006 | T1 | -0.473 | 0.010 | 0.007 | 0.007 |
| T2 | 0.007 | -0.216 | 0.004 | 0.004 | T2 | 0.008 | -0.348 | 0.004 | 0.004 |
| T3 | 0.006 | 0.005 | -0.185 | 0.003 | T3 | 0.006 | 0.005 | -0.291 | 0.004 |
| T4 | 0.005 | 0.004 | 0.003 | -0.163 | T4 | 0.005 | 0.004 | 0.003 | -0.250 |

| | d>180 km, TC 107-108 (**) | | | | weighted average of (*) & (**) | | | |
|----|---------------------------|--------|--------|--------|--------------------------------|--------|--------|--------|
| | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| T1 | -0.579 | 0.010 | 0.007 | 0.007 | -0.544 | 0.010 | 0.007 | 0.007 |
| T2 | 0.008 | -0.435 | 0.004 | 0.005 | 0.008 | -0.401 | 0.004 | 0.005 |
| T3 | 0.006 | 0.005 | -0.348 | 0.003 | 0.006 | 0.005 | -0.327 | 0.003 |
| T4 | 0.004 | 0.004 | 0.003 | -0.291 | 0.004 | 0.004 | 0.003 | -0.275 |

Table XXXI.
Active private households
March 1988, "the 40 comparable exchanges"

=> One per cent price increase of a distance class
the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2295.6 | -0.01 | 0.62 | T1 | 30.3 | -0.79 | 0.14 |
| T2 | 2691.4 | -0.01 | 0.37 | T2 | 2.0 | -0.01 | 0.04 |
| TOT | 4987.0 | -0.02 | 0.98 | TOT | 32.3 | -0.80 | 0.19 |

| USA & Canada | | | | NMT | | | |
|--------------|---------|-------|--------|-----|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 1.7 | -2.01 | -1.65 | T1 | 6.1 | -0.77 | -0.21 |
| T2 | 1.4 | -1.28 | -0.72 | T2 | 4.2 | -0.34 | 0.06 |
| TOT | 3.0 | -3.29 | -2.37 | TOT | 10.3 | -1.10 | -0.15 |

Trunk calls

| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 5.9 | -0.01 | 0.22 | T1 | 31.0 | -0.02 | 0.18 |
| T2 | 7.9 | -0.01 | 0.20 | T2 | 53.1 | -0.02 | 0.22 |
| T3 | 14.7 | -0.02 | 0.33 | T3 | 65.6 | -0.03 | 0.24 |
| T4 | 10.4 | -0.01 | 0.20 | T4 | 77.7 | -0.03 | 0.25 |
| TOT | 38.8 | -0.05 | 0.95 | TOT | 227.4 | -0.10 | 0.89 |

| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
|--------------------|---------|-------|--------|---------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 40.2 | -0.03 | 0.14 | T1 | 28.1 | -0.05 | 0.09 |
| T2 | 84.3 | -0.05 | 0.22 | T2 | 54.6 | -0.07 | 0.16 |
| T3 | 99.9 | -0.05 | 0.23 | T3 | 82.4 | -0.09 | 0.22 |
| T4 | 99.7 | -0.05 | 0.21 | T4 | 90.4 | -0.09 | 0.22 |
| TOT | 324.2 | -0.19 | 0.80 | TOT | 255.4 | -0.29 | 0.69 |

| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
|----------------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 22.3 | -0.08 | 0.10 | T1 | 35.7 | -0.07 | 0.09 |
| T2 | 35.6 | -0.10 | 0.15 | T2 | 49.6 | -0.07 | 0.12 |
| T3 | 46.1 | -0.10 | 0.18 | T3 | 99.9 | -0.12 | 0.22 |
| T4 | 50.1 | -0.09 | 0.18 | T4 | 98.4 | -0.10 | 0.19 |
| TOT | 154.0 | -0.37 | 0.60 | TOT | 283.6 | -0.36 | 0.62 |

5.3. Firms and public institutions

The estimated Θ and δ parameters of the average firm and public institution, are in no case significantly different from zero. The cases considered are all five single weeks and the average demand of the four weeks in June, September and December 1988 and March 1989. The result from this aggregate over time is shown as an example. The obvious conclusion is that the firm's demand for calling time seems to be totally price inelastic.

Table XXXII.
All measured active firms,
average demand, four weeks
of June 88 - March 89

| Parameter | Estimate | Std. Err. |
|-----------------------|----------|-----------|
| ***** | | |
| B02 | -1.7499 | 0.0395 |
| B12 | 0.2715 | 0.1732 |
| B13 | -1.4954 | 0.1389 |
| B14 | -1.7481 | 0.1378 |
| DELTA | 0.4425 | 0.0293 |
| THETA | -0.0461 | 0.0597 |
| ***** | | |
| B01=0.0 & B11=0.0 | | |
| DEL assumed to be 0.0 | | |
| THT assumed to be 0.0 | | |

The own- and cross price elasticities are zero in all instances. That does not mean that firms ignore their costs. The implication may well be that the cost of using the telephone at high-price periods, is negligible as compared to the cost of not using it, if seen from an overall firm perspective. Further, high-price time and normal working hours coincide to a large extent, which makes the demand equation (1) somewhat inappropriate when applied to firms.

Table XXXIII
 All measured active firms,
 average demand, four weeks
 of June 88 - March 89

One per cent price increase of a distance class
 => the following relative change of demand & cost

| Local calls | | | | Nordic countries | | | |
|-------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 2800.2 | 0.00 | 0.86 | T1 | 98.3 | 0.00 | 0.98 |
| T2 | 932.6 | 0.00 | 0.14 | T2 | 2.5 | 0.00 | 0.02 |
| TOT | 3732.9 | 0.00 | 1.00 | TOT | 100.8 | 0.00 | 1.00 |

| USA & Canada | | | | NMT | | | |
|--------------|---------|-------|--------|-----|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 10.7 | 0.00 | 0.93 | T1 | 48.1 | 0.00 | 0.78 |
| T2 | 1.1 | 0.00 | 0.07 | T2 | 19.9 | 0.00 | 0.22 |
| TOT | 11.8 | 0.00 | 1.00 | TOT | 68.0 | 0.00 | 1.00 |

Trunk calls

| d<45 km reduced, TC 103 | | | | d<45 km normal, TC 104 | | | |
|-------------------------|---------|-------|--------|------------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 12.0 | 0.00 | 0.50 | T1 | 74.5 | 0.00 | 0.36 |
| T2 | 9.2 | 0.00 | 0.26 | T2 | 128.7 | 0.00 | 0.42 |
| T3 | 2.7 | 0.00 | 0.07 | T3 | 46.6 | 0.00 | 0.13 |
| T4 | 8.4 | 0.00 | 0.18 | T4 | 36.4 | 0.00 | 0.09 |
| TOT | 32.3 | 0.00 | 1.00 | TOT | 286.2 | 0.00 | 1.00 |

| 45<d<90 km, TC 105 | | | | 90<d<180 km, TC 106 | | | |
|--------------------|---------|-------|--------|---------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 111.0 | 0.00 | 0.36 | T1 | 312.8 | 0.00 | 0.44 |
| T2 | 159.3 | 0.00 | 0.36 | T2 | 372.1 | 0.00 | 0.39 |
| T3 | 93.9 | 0.00 | 0.18 | T3 | 113.2 | 0.00 | 0.10 |
| T4 | 59.9 | 0.00 | 0.10 | T4 | 96.1 | 0.00 | 0.07 |
| TOT | 424.1 | 0.00 | 1.00 | TOT | 894.3 | 0.00 | 1.00 |

| 180<d<270 km, TC 107 | | | | d>270 km, TC 108 | | | |
|----------------------|---------|-------|--------|------------------|---------|-------|--------|
| | SECONDS | % VOL | % COST | | SECONDS | % VOL | % COST |
| T1 | 68.5 | 0.00 | 0.45 | T1 | 64.4 | 0.00 | 0.43 |
| T2 | 80.9 | 0.00 | 0.39 | T2 | 71.9 | 0.00 | 0.35 |
| T3 | 18.4 | 0.00 | 0.07 | T3 | 31.5 | 0.00 | 0.13 |
| T4 | 25.3 | 0.00 | 0.09 | T4 | 24.9 | 0.00 | 0.09 |
| TOT | 193.1 | 0.00 | 1.00 | TOT | 192.7 | 0.00 | 1.00 |

6. The price reform of April 1:st 1988

On the 1:st of April 1988, Sweden became "rounder" with respect to the price differences among some distance classes. Local calls became more expensive while long distance trunk calls and calls to the USA and Canada became cheaper.

| | | Table XXXIV. Price (SEK/minute) | | |
|---|----|---------------------------------|------------|--------------------|
| | | March 1988 | March 1989 | Relative change, % |
| Local calls | T1 | 0.06 | 0.08 | 33.3 |
| | T2 | 0.03 | 0.04 | 33.3 |
| USA, Canada | T1 | 9.72 | 6.90 | -29.0 |
| | T2 | 7.50 | 5.31 | -29.2 |
| Trunk calls d>180 km /107,108/ | T1 | 1.53 | 1.25 | -13.2 |
| | T2 | 1.15 | 0.92 | -13.2 |
| | T3 | 0.92 | 0.77 | -11.5 |
| | T4 | 0.77 | 0.66 | - 9.6 |
| Trunk calls d>90 km /106,107,108/ * weighted avg | T1 | 1.44 * | 1.25 | -13.2 |
| | T2 | 1.06 * | 0.92 | -13.2 |
| | T3 | 0.87 * | 0.77 | -11.5 |
| | T4 | 0.73 * | 0.66 | - 9.6 |

In March 1988 the telephone traffic was logged for all participating exchanges. One year later, only 40 exchanges were measured. All eleven exchanges of the Gotherburg area were excluded as were three exchanges in Stockholm and one in each of the medium sized country towns Borås, Gävle, Jönköping, Sundsvall and Luleå. If we select the same set of exchanges in March 1988 that participated one year later, we should hopefully be in as good conditions as possible to compare the demand before and after the price reform.

| | | Table XXXV. Volume (seconds) | | | |
|------------------------|----|------------------------------|-----------------------------|----------------------------|--|
| | | March 1988 observed | March 1989 predicted (%) | March 1989 observed (%) | |
| Local calls | T1 | 2295.6 | 2278.8 (-0.73) | 2236.3 (-2.6) | |
| | T2 | 2691.4 | 2682.4 (-0.33) | 2691.6 (0.0) | |
| USA, Canada | T1 | 1.7 | 3.5 (106.5) | 1.9 (11.8) | |
| | T2 | 1.4 | 2.6 (82.5) | 1.8 (28.6) | |
| Trunk calls d>90 km | T1 | 86.1 | 92.0 (6.9) | 79.3 (-7.9) | |
| | T2 | 139.8 | 146.9 (5.1) | 153.2 (9.6) | |
| | T3 | 228.4 | 236.6 (3.6) | 237.8 (4.1) | |
| | T4 | 238.9 | 244.9 (2.5) | 202.9 (-15.1) | |

There is one obvious comment to these results. The assumption of a direct proportionality of price elasticity and price level seems too strong if the price level is high enough, like it is for calls to the USA and Canada. Another comment is that the demand for calling time is determined by the price but also by other circumstances. Equation (1), that makes use of the available aggregate information, is probably incomplete, i.e. at least one independent variable is missing.

In spite of that, the predictions made by the model seem to be correct with respect to the direction of the change, with two exceptions. There is of course no guarantee for this outcome in other experiments.

7. Final comments

The demand equation (1) is to be consistent with the standard microeconomic theory of a utility maximizing consumer under the restriction that the own price elasticity of demand of a certain category is directly proportional to its price. The model is parsimonious with respect to its parametric representation of the price effects (own- and cross price effects). The benefits of this application of "the Ockhams' razor principle" is a considerable stability and efficiency of the parameter estimates. The problem is certainly that particular features of the demand within each particular distance class, are "swept under the carpet". With reference to the available 32 aggregate observations, this simplification seems to be necessary.

8. References

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9. Appendix 1, The frequency of markings in Sweden (1988-1989)

The price of a telephone call is proportional to the number of markings produced by the activity. In 1988-1989 the price per marking was 23 öre (0.23 SEK). The marking frequency of all distance classes is tabulated below.

TableXXXVI.

| # seconds / marking; | Local Calls | |
|----------------------|----------------------|--------------------|
| Distance class | Time during the week | |
| "TC" | W 08-18 | W 18-08 & other |
| 100, 101, 102 | 180 | 360 |
|)1 to March 31 1988, | 240 | 480 |

Table XXXVII

| # seconds / marking; | Trunk calls | | | |
|-----------------------|----------------------|---------|---------|--------------------|
| Distance class | Time during the week | | | |
| "TC" | W 08-12 | W 12-18 | W 18-22 | W 22-08 & other |
| 103 (d<45 km) reduced | 62 | 90 | 105 | 120 |
| 104 (d<45 km) normal | 31 | 45 | 52 | 60 |
| 105 (45<d<90 km) | 17 | 24 | 28 | 32 |
| 106 (90<d<180 km) | 11 | 15 | 18 | 21 |
| 107 (180<d<270 km) | 11 | 15 | 18 | 21 |
| 108 (d>270 km) | 11 | 15 | 18 | 21 |
|)2 to March 31, 1988 | 9 | 12 | 15 | 18 |

Appendix 1, The frequency of markings in Sweden (1988-1989)

| # seconds / marking; "TC" | Table XXXVII International group 1 & Nordic Mobile Telephone | | | | | |
|------------------------------|--|-------|---------|---------|---------|---------|
| | Time during the week | | | | | |
| Distance class | All d | All d | Mon-Sat | Mon-Sat | Mon-Fri | Mon-Fri |
| | 08-22 | 22-08 | 10-22 | 22-10 | 08-18 | 18-08 |
| | | | | & other | | & other |
| 58 Nordic C (high) | 6.20 | | | | | |
| 62 Nordic C (low) | | 8.72 | | | | |
| 21 USA & Canada (high) | | | 2.00 | | |)1 |
| 26 USA & Canada (low) | | | | 2.60 | |)1 |
| 109 NMT | | | | | 4.0 | 6.0 |
|)1 to March 31, 1988 | | | 1.42 | 1.84 | | |

| # seconds / marking; "TC" | Table XXXIX. International group 2 & special services | | | |
|------------------------------|---|--------|--|----|
| | Time during the week | | | |
| Distance class | All days | | | |
| 78 Boarder NOR, FIN | 24.8 | | | |
| 69 Coast zone DEN | 13.5 | | | |
| 67 Nordkalotten | 11.4 | | | |
| 29 Northern Europe | 3.38 | (3.10) | |)2 |
| 27 Middle Europe | 2.80 | (2.60) | |)2 |
| 22 Southern Europe | 2.20 | (2.00) | |)2 |
| 16 Middle East | 1.30 | | | |
| 90 Oth intercontinental | 0.90 | (0.71) | |)2 |
| 40 PLUS-services | 10 markings when used | | | |
| 41 collect call | 1 marking (A-subscriber) | | | |
| 31 e.g. 90100 | 1 marking | | | |
| 30 free | 0 marking | | | |
|)2 to March 31 1988 | | | | |

10. Appendix 2, Matrices of accumulated calling time.

Table XL., March 1988
 Row number survey of the demand matrix

| Distance class TC | Period of equal price | | | | | | 24-hours comments |
|----------------------|-----------------------|-----|-----|-----|-----|-----|-----------------------|
| | T01 | T02 | T11 | T12 | T13 | T14 | |
| 100-102 | 1 | 2 | | | | | local calls |
| 103 | | | 3 | 4 | 5 | 6 | Swe, d<45 low |
| 104 | | | 7 | 8 | 9 | 10 | Swe, d<45 normal |
| 105 | | | 11 | 12 | 13 | 14 | Swe, 45<d<90 |
| 106 | | | 15 | 16 | 17 | 18 | Swe, 90 <d<180 |
| 107 | | | 19 | 20 | 21 | 22 | Swe, 180<d<270 |
| 108 | | | 23 | 24 | 25 | 26 | Swe, d>270 |
| 58, 62 | 27 | 28 | | | | | Nordic Countries |
| 78 | | | | | | | 29 Boarder NO & FI |
| 69 | | | | | | | 30 Coast zone |
| 67 | | | | | | | 31 Nordkalotten |
| 28 | | | | | | | 32 Northern Europe |
| 26 | | | | | | | 33 Middle Europe |
| 21 | | | | | | | 34 Southern Europe |
| 19 | | | | | | | 35 North Africa |
| 17, 10 | 36 | 37 | | | | | USA, Canada |
| 16 | | | | | | | 38 Iran, Israel |
| 97 | | | | | | | 39 other intercont |
| 30 | | | | | | | 40 free |
| 31 | | | | | | | 41 1 marking at start |
| 40 | | | | | | | 42 AXE-service |
| 41 | | | | | | | 43 national 020 |
| 61 | | | | | | | 44 MBS |
| 82 | | | | | | | 45 "Inmarsat" |
| 109 | 46 | 47 | | | | | NMT |

March 1988, all private households, # seconds calling time during one week

| period | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 |
|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|--------|--------|---------|--------|--------|
| #activ | 3378 | 3744 | 3756 | 3980 | 3998 | 4117 | 3902 | 3902 | 3276 | 3517 | 3742 | 3531 | 3531 | 343 |
| 1 | 597582 | 1064228 | 634526 | 1067898 | 752115 | 1218236 | 725531 | 1066630 | 547121 | 952214 | 0 | 0 | 0 | |
| 2 | 63890 | 1168436 | 58717 | 1063574 | 80470 | 1149152 | 75459 | 1273802 | 61567 | 745333 | 655733 | 1365356 | 561534 | 166254 |
| 3 | 3412 | 0 | 6429 | 0 | 3757 | 0 | 3612 | 0 | 2567 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 5324 | 0 | 7775 | 0 | 3896 | 0 | 6030 | 0 | 3171 | 0 | 0 | 0 | |
| 5 | 0 | 11520 | 0 | 10747 | 0 | 8382 | 0 | 10918 | 0 | 10999 | 0 | 0 | 0 | |
| 6 | 111 | 0 | 0 | 35 | 84 | 3052 | 428 | 2322 | 815 | 0 | 3329 | 12171 | 2088 | 1147 |
| 7 | 14846 | 0 | 35704 | 0 | 25413 | 0 | 20163 | 0 | 21796 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 43806 | 0 | 40361 | 0 | 53231 | 0 | 34559 | 0 | 35807 | 0 | 0 | 0 | |
| 9 | 0 | 58325 | 0 | 50666 | 0 | 49637 | 0 | 48163 | 0 | 33765 | 0 | 0 | 0 | |
| 10 | 2252 | 2665 | 1765 | 849 | 2299 | 15954 | 155 | 6332 | 1852 | 2887 | 41502 | 69169 | 23254 | 8338 |
| 11 | 25249 | 0 | 26802 | 0 | 35711 | 0 | 26839 | 0 | 24137 | 0 | 0 | 0 | 0 | |
| 12 | 0 | 57011 | 0 | 60619 | 0 | 63418 | 0 | 74326 | 0 | 55918 | 0 | 0 | 0 | |
| 13 | 0 | 56285 | 0 | 101113 | 0 | 82589 | 0 | 71285 | 0 | 45658 | 0 | 0 | 0 | |
| 14 | 2850 | 3822 | 590 | 4633 | 1067 | 16478 | 5252 | 4814 | 2659 | 3764 | 90707 | 94621 | 45085 | 11169 |
| 15 | 21485 | 0 | 20844 | 0 | 17839 | 0 | 17454 | 0 | 16462 | 0 | 0 | 0 | 0 | |
| 16 | 0 | 25795 | 0 | 36529 | 0 | 52403 | 0 | 39021 | 0 | 40084 | 0 | 0 | 0 | |
| 17 | 0 | 63904 | 0 | 41292 | 0 | 74815 | 0 | 68453 | 0 | 55872 | 0 | 0 | 0 | |
| 18 | 2490 | 19600 | 2111 | 18105 | 2115 | 5604 | 1875 | 10325 | 1552 | 5350 | 25582 | 55994 | 27271 | 12406 |
| 19 | 12224 | 0 | 18822 | 0 | 28331 | 0 | 19826 | 0 | 14542 | 0 | 0 | 0 | 0 | |
| 20 | 0 | 33864 | 0 | 30904 | 0 | 26998 | 0 | 23908 | 0 | 21143 | 0 | 0 | 0 | |
| 21 | 0 | 53197 | 0 | 33278 | 0 | 51510 | 0 | 37975 | 0 | 25144 | 0 | 0 | 0 | |
| 22 | 615 | 8542 | 61 | 10494 | 393 | 4442 | 18 | 7558 | 682 | 6560 | 17675 | 49818 | 16260 | 4033 |
| 23 | 29244 | 0 | 21597 | 0 | 28039 | 0 | 24637 | 0 | 27029 | 0 | 0 | 0 | 0 | |
| 24 | 0 | 42121 | 0 | 36403 | 0 | 36381 | 0 | 38763 | 0 | 41558 | 0 | 0 | 0 | |
| 25 | 0 | 74925 | 0 | 75619 | 0 | 89576 | 0 | 90915 | 0 | 62642 | 0 | 0 | 0 | |
| 26 | 5949 | 15202 | 3594 | 7079 | 7349 | 15137 | 2752 | 11392 | 2829 | 11474 | 38973 | 91342 | 34589 | 12251 |
| 27 | 774 | 10554 | 2842 | 16479 | 819 | 13961 | 307 | 14894 | 9088 | 12736 | 138 | 10269 | 491 | 1827 |
| 28 | 616 | 183 | 1429 | 2820 | 2 | 30 | 0 | 631 | 1469 | 0 | 0 | 0 | 1619 | 44 |
| 29 | 9 | 75 | 303 | 75 | 1074 | 248 | 14 | 134 | 621 | 41 | 0 | 23 | 6 | |
| 30 | 0 | 1535 | 0 | 1408 | 0 | 0 | 1062 | 1886 | 206 | 631 | 0 | 0 | 0 | 249 |
| 31 | 0 | 0 | 0 | 0 | 0 | 895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 32 | 1564 | 6394 | 809 | 7443 | 4052 | 7162 | 1401 | 4154 | 1166 | 4127 | 1714 | 3008 | 0 | 292 |
| 33 | 1033 | 6275 | 1733 | 7745 | 974 | 9936 | 57 | 2768 | 3601 | 1850 | 3997 | 4001 | 837 | 542 |
| 34 | 2243 | 1135 | 246 | 4071 | 0 | 859 | 1473 | 4332 | 5887 | 842 | 564 | 4766 | 912 | 331 |
| 35 | 0 | 0 | 0 | 296 | 0 | 416 | 0 | 547 | 112 | 37 | 36 | 698 | 0 | 47 |
| 36 | 0 | 2466 | 0 | 896 | 0 | 1663 | 0 | 648 | 0 | 962 | 0 | 209 | 0 | |
| 37 | 0 | 800 | 0 | 1107 | 0 | 396 | 89 | 1211 | 1141 | 272 | 0 | 0 | 0 | |
| 38 | 0 | 950 | 0 | 0 | 0 | 481 | 0 | 0 | 0 | 0 | 0 | 170 | 0 | |
| 39 | 66 | 332 | 1875 | 205 | 0 | 0 | 0 | 0 | 301 | 1227 | 0 | 0 | 0 | |
| 40 | 10 | 70 | 8 | 38 | 5 | 366 | 32 | 46 | 9 | 79 | 12 | 50 | 23 | 28 |
| 41 | 8402 | 8345 | 3198 | 11660 | 9467 | 9599 | 4273 | 6114 | 2182 | 7612 | 3553 | 2744 | 1652 | 4135 |
| 42 | 12 | 19 | 21 | 16 | 14 | 24 | 14 | 24 | 12 | 15 | 14 | 12 | 0 | 8 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 46 | 1355 | 3883 | 950 | 2590 | 1952 | 3282 | 467 | 3128 | 765 | 2725 | 0 | 0 | 0 | |
| 47 | 1121 | 538 | 18 | 685 | 263 | 2393 | 27 | 2719 | 163 | 676 | 385 | 2737 | 582 | 2342 |

Table XLI., June 1988 - March 1989
 Row number survey of the demand matrix

| Distance class TC | Period of equal price | | | | | | 24-hours comments |
|----------------------|-----------------------|------|-----|-----|-----|-----|-----------------------|
| | T01 | T02 | T11 | T12 | T13 | T14 | |
| 100-102 | 1 | 2 | | | | | local calls |
| 103 | | | 3 | 4 | 5 | 6 | Swe, d<45 low |
| 104 | | | 7 | 8 | 9 | 10 | Swe, d<45 normal |
| 105 | | | 11 | 12 | 13 | 14 | Swe, 45<d<90 |
| 106 | | | 15 | 16 | 17 | 18 | Swe, 90 <d<180 |
| 107 | | | 19 | 20 | 21 | 22 | Swe, 180<d<270 |
| 108 | | | 23 | 24 | 25 | 26 | Swe, d>270 |
| 58, 62 | 27 | 28 | | | | | Nordic Countries |
| 78 | | | | | | | 29 Boarder NO & FI |
| 69 | | | | | | | 30 Coast zone |
| 67 | | | | | | | 31 Nordkalotten |
| 29 * | | | | | | | 32 Northern Europe |
| 27 * | | | | | | | 33 Middle Europe |
| 22 * | | | | | | | 34 Southern Europe |
| 21, 26 * | 35 | 36 * | | | | | USA, Canada |
| 16 | | | | | | | 37 * Iran, Israel |
| 11 * | | | | | | | 38 * Hong Kong, Sing |
| 90 * | | | | | | | 39 other intercont |
| 30 | | | | | | | 40 free |
| 31 | | | | | | | 41 l marking at start |
| 40 | | | | | | | 42 AXE-service |
| 41 | | | | | | | 43 national 020 |
| 61 | | | | | | | 44 MBS |
| 82 | | | | | | | 45 "Inmarsat" |
| 109 | 46 | 47 | | | | | NMT |

note: * means difference from March 1988 table

June 1988, all private households, # seconds calling time during one week

| period | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------|--------|--------|--------|--------|--------|---------|--------|---------|--------|--------|--------|---------|--------|---------|
| #activ | 2430 | 3134 | 3369 | 3444 | 3647 | 3731 | 3731 | 3731 | 3481 | 3428 | 3416 | 3416 | 3416 | 3185 |
| 1 | 399675 | 790586 | 475034 | 843372 | 565322 | 979693 | 553439 | 919242 | 576403 | 830099 | 0 | 0 | 0 | 0 |
| 2 | 55293 | 910404 | 62725 | 988119 | 92945 | 1191682 | 69679 | 1000429 | 76973 | 668370 | 577099 | 1122240 | 499509 | 1246200 |
| 3 | 423 | 0 | 5535 | 0 | 1674 | 0 | 1712 | 0 | 1683 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 4788 | 0 | 4601 | 0 | 3404 | 0 | 4574 | 0 | 8982 | 0 | 0 | 0 | 0 |
| 5 | 0 | 5205 | 0 | 10839 | 0 | 7866 | 0 | 3706 | 0 | 2565 | 0 | 0 | 0 | 0 |
| 6 | 208 | 268 | 274 | 645 | 0 | 0 | 1914 | 0 | 0 | 0 | 2978 | 11183 | 5719 | 14488 |
| 7 | 22944 | 0 | 22908 | 0 | 26350 | 0 | 24710 | 0 | 19606 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 29993 | 0 | 27932 | 0 | 31689 | 0 | 27359 | 0 | 46419 | 0 | 0 | 0 | 0 |
| 9 | 0 | 55557 | 0 | 53171 | 0 | 56267 | 0 | 54509 | 0 | 28951 | 0 | 0 | 0 | 0 |
| 10 | 2459 | 1091 | 1155 | 4575 | 1614 | 7160 | 1551 | 7331 | 2473 | 2786 | 19413 | 51083 | 31147 | 64121 |
| 11 | 16985 | 0 | 17920 | 0 | 22532 | 0 | 28304 | 0 | 25201 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 30537 | 0 | 42879 | 0 | 31159 | 0 | 37716 | 0 | 38931 | 0 | 0 | 0 | 0 |
| 13 | 0 | 61828 | 0 | 57706 | 0 | 63006 | 0 | 68182 | 0 | 50871 | 0 | 0 | 0 | 0 |
| 14 | 1236 | 1470 | 5863 | 9578 | 2426 | 16448 | 5800 | 9237 | 2747 | 2529 | 24836 | 59968 | 34171 | 75583 |
| 15 | 12360 | 0 | 19725 | 0 | 12613 | 0 | 19092 | 0 | 23087 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 21952 | 0 | 28229 | 0 | 33495 | 0 | 36508 | 0 | 37703 | 0 | 0 | 0 | 0 |
| 17 | 0 | 48266 | 0 | 65597 | 0 | 61819 | 0 | 45763 | 0 | 43299 | 0 | 0 | 0 | 0 |
| 18 | 501 | 5539 | 1318 | 11795 | 2281 | 13077 | 1661 | 13051 | 614 | 5592 | 30964 | 55982 | 35973 | 78578 |
| 19 | 5510 | 0 | 13702 | 0 | 10317 | 0 | 14313 | 0 | 13270 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 14066 | 0 | 25410 | 0 | 28019 | 0 | 26307 | 0 | 30010 | 0 | 0 | 0 | 0 |
| 21 | 0 | 27885 | 0 | 25191 | 0 | 50739 | 0 | 37496 | 0 | 20106 | 0 | 0 | 0 | 0 |
| 22 | 141 | 9576 | 3084 | 3053 | 1603 | 1415 | 340 | 6373 | 952 | 3264 | 15306 | 36353 | 13751 | 39013 |
| 23 | 11583 | 0 | 24176 | 0 | 23157 | 0 | 29447 | 0 | 32928 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 36796 | 0 | 44160 | 0 | 41567 | 0 | 44701 | 0 | 42542 | 0 | 0 | 0 | 0 |
| 25 | 0 | 77025 | 0 | 59245 | 0 | 65528 | 0 | 62552 | 0 | 51021 | 0 | 0 | 0 | 0 |
| 26 | 7279 | 14168 | 3238 | 16741 | 3940 | 17955 | 3040 | 12503 | 2484 | 2314 | 37611 | 61594 | 31729 | 93755 |
| 27 | 141 | 15898 | 3071 | 14532 | 1217 | 12802 | 2510 | 10737 | 7372 | 14204 | 4012 | 11362 | 2769 | 9385 |
| 28 | 0 | 3739 | 0 | 168 | 0 | 524 | 0 | 849 | 0 | 5917 | 546 | 0 | 0 | 3570 |
| 29 | 11 | 160 | 31 | 1012 | 1027 | 17 | 25 | 45 | 8 | 13 | 5 | 15 | 0 | 52 |
| 30 | 0 | 45 | 21 | 1689 | 0 | 2556 | 0 | 0 | 0 | 391 | 0 | 0 | 0 | 0 |
| 31 | 0 | 0 | 0 | 515 | 0 | 0 | 0 | 2415 | 373 | 0 | 525 | 0 | 0 | 0 |
| 32 | 1368 | 6269 | 1287 | 1382 | 1419 | 4592 | 1009 | 5067 | 695 | 7762 | 1601 | 2879 | 426 | 5541 |
| 33 | 307 | 1425 | 664 | 5752 | 3663 | 7460 | 435 | 6262 | 0 | 4075 | 1217 | 6814 | 1305 | 4148 |
| 34 | 0 | 1817 | 488 | 714 | 376 | 1248 | 2780 | 1537 | 29 | 979 | 0 | 778 | 0 | 0 |
| 35 | 0 | 108 | 0 | 0 | 0 | 696 | 0 | 1305 | 0 | 724 | 0 | 2766 | 0 | 0 |
| 36 | 4 | 2449 | 940 | 417 | 1170 | 22 | 538 | 743 | 0 | 435 | 0 | 185 | 0 | 3072 |
| 37 | 0 | 0 | 0 | 0 | 0 | 539 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1648 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 | 966 | 0 | 891 | 0 | 0 | 0 | 0 | 1286 | 356 | 284 | 0 |
| 40 | 9 | 37 | 23 | 44 | 7 | 34 | 41 | 51 | 5 | 62 | 48 | 64 | 14 | 33 |
| 41 | 4847 | 6391 | 6801 | 9118 | 4130 | 5524 | 7026 | 6341 | 3407 | 8587 | 3479 | 4142 | 2095 | 3472 |
| 42 | 1 | 11 | 14 | 15 | 17 | 24 | 20 | 11 | 14 | 21 | 30 | 15 | 17 | 7 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 3 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 325 | 2919 | 391 | 1816 | 547 | 1716 | 672 | 3356 | 1801 | 4584 | 0 | 0 | 0 | 0 |
| 47 | 109 | 454 | 369 | 1087 | 726 | 3351 | 74 | 2043 | 197 | 3488 | 895 | 2579 | 895 | 1864 |

September 1988, all active households, # seconds calling time during one week

| period | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| #activ | 2304 | 2854 | 3024 | 3024 | 3024 | 3024 | 3024 | 2951 | 2877 | 2869 | 2942 | 2942 | 2776 | 2776 |
| 1 | 396085 | 751148 | 420280 | 734888 | 478664 | 725053 | 430871 | 698052 | 452307 | 689302 | 0 | 0 | 0 | 0 |
| 2 | 35279 | 778271 | 45124 | 819817 | 47241 | 753599 | 45577 | 805314 | 39188 | 554110 | 503270 | 933307 | 441608 | 1085321 |
| 3 | 1290 | 0 | 2857 | 0 | 2817 | 0 | 6881 | 0 | 916 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 4496 | 0 | 6104 | 0 | 4508 | 0 | 3778 | 0 | 2872 | 0 | 0 | 0 | 0 |
| 5 | 0 | 5338 | 0 | 6884 | 0 | 7903 | 0 | 7140 | 0 | 7393 | 0 | 0 | 0 | 0 |
| 6 | 0 | 0 | 0 | 0 | 384 | 1038 | 324 | 0 | 0 | 0 | 4570 | 5277 | 481 | 6878 |
| 7 | 13022 | 0 | 21228 | 0 | 32142 | 0 | 18929 | 0 | 21175 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 39471 | 0 | 40031 | 0 | 26017 | 0 | 35214 | 0 | 36641 | 0 | 0 | 0 | 0 |
| 9 | 0 | 33664 | 0 | 55823 | 0 | 33570 | 0 | 59543 | 0 | 34926 | 0 | 0 | 0 | 0 |
| 10 | 5153 | 5161 | 2927 | 467 | 1762 | 7694 | 539 | 959 | 3533 | 0 | 18598 | 38672 | 23411 | 52851 |
| 11 | 16043 | 0 | 22215 | 0 | 24482 | 0 | 19976 | 0 | 32950 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 29910 | 0 | 39468 | 0 | 32979 | 0 | 50435 | 0 | 39019 | 0 | 0 | 0 | 0 |
| 13 | 0 | 67138 | 0 | 62988 | 0 | 62361 | 0 | 56953 | 0 | 39850 | 0 | 0 | 0 | 0 |
| 14 | 1532 | 1350 | 1151 | 6436 | 1032 | 8532 | 3164 | 15382 | 3915 | 6636 | 36733 | 58084 | 30298 | 66766 |
| 15 | 26605 | 0 | 34616 | 0 | 26783 | 0 | 19607 | 0 | 18760 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 51319 | 0 | 36515 | 0 | 46241 | 0 | 37596 | 0 | 40999 | 0 | 0 | 0 | 0 |
| 17 | 0 | 72773 | 0 | 62662 | 0 | 73203 | 0 | 62978 | 0 | 55142 | 0 | 0 | 0 | 0 |
| 18 | 3086 | 2310 | 813 | 6510 | 2106 | 11252 | 639 | 11773 | 3077 | 4764 | 21961 | 53342 | 29395 | 92423 |
| 19 | 8347 | 0 | 12153 | 0 | 19911 | 0 | 13868 | 0 | 9554 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 24194 | 0 | 24698 | 0 | 30356 | 0 | 24912 | 0 | 19547 | 0 | 0 | 0 | 0 |
| 21 | 0 | 45345 | 0 | 40939 | 0 | 43116 | 0 | 48698 | 0 | 26216 | 0 | 0 | 0 | 0 |
| 22 | 640 | 7918 | 1911 | 13082 | 2544 | 7117 | 1123 | 6660 | 4183 | 3898 | 23518 | 50962 | 10686 | 71261 |
| 23 | 5421 | 0 | 4650 | 0 | 2025 | 0 | 4409 | 0 | 3803 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 10471 | 0 | 11309 | 0 | 10854 | 0 | 14521 | 0 | 3263 | 0 | 0 | 0 | 0 |
| 25 | 0 | 20746 | 0 | 18028 | 0 | 17174 | 0 | 12005 | 0 | 14581 | 0 | 0 | 0 | 0 |
| 26 | 133 | 317 | 337 | 2148 | 1017 | 872 | 42 | 870 | 1045 | 0 | 8752 | 17018 | 4037 | 30624 |
| 27 | 1430 | 11802 | 8864 | 10592 | 3764 | 8120 | 1400 | 9679 | 4114 | 9058 | 486 | 5600 | 2738 | 7171 |
| 28 | 1156 | 0 | 425 | 379 | 91 | 0 | 853 | 814 | 1886 | 0 | 771 | 389 | 223 | 0 |
| 29 | 392 | 14 | 89 | 7 | 11 | 0 | 4 | 807 | 12 | 35 | 0 | 8 | 253 | 307 |
| 30 | 1181 | 496 | 0 | 75 | 11 | 0 | 0 | 361 | 211 | 347 | 171 | 0 | 248 | 83 |
| 31 | 23 | 396 | 0 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 | 3782 | 2585 | 1182 | 1759 | 1579 | 1574 | 1742 | 1673 | 553 | 1560 | 0 | 1789 | 960 | 2648 |
| 33 | 434 | 836 | 489 | 2348 | 0 | 894 | 1225 | 5379 | 691 | 932 | 88 | 3531 | 521 | 3782 |
| 34 | 5 | 0 | 0 | 76 | 254 | 2565 | 228 | 110 | 288 | 52 | 628 | 188 | 147 | 2303 |
| 35 | 0 | 662 | 0 | 0 | 0 | 1099 | 1277 | 582 | 0 | 665 | 0 | 103 | 0 | 0 |
| 36 | 0 | 0 | 0 | 1572 | 0 | 0 | 0 | 2437 | 0 | 0 | 170 | 0 | 0 | 1396 |
| 37 | 604 | 0 | 0 | 1372 | 0 | 0 | 0 | 0 | 0 | 710 | 0 | 0 | 0 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 | 0 | 698 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1029 |
| 40 | 30 | 73 | 12 | 99 | 14 | 108 | 26 | 117 | 41 | 112 | 34 | 56 | 10 | 50 |
| 41 | 2895 | 5014 | 2766 | 6581 | 2500 | 8901 | 2483 | 3707 | 2904 | 9479 | 1293 | 3710 | 1802 | 2300 |
| 42 | 15 | 14 | 12 | 13 | 12 | 4 | 23 | 6 | 12 | 0 | 15 | 8 | 5 | 25 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 1623 | 1542 | 1007 | 1152 | 1276 | 1887 | 1034 | 6206 | 1608 | 2589 | 0 | 0 | 0 | 0 |
| 47 | 168 | 916 | 78 | 668 | 33 | 1320 | 808 | 1336 | 0 | 579 | 298 | 2425 | 654 | 733 |

December 1988, all private households, # seconds calling time during one week

| period | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|
| #activ | 2237 | 2718 | 2683 | 2767 | 2767 | 2677 | 2677 | 2767 | 2446 | 2675 | 2747 | 2747 | 2829 | 2829 |
| 1 | 407430 | 852162 | 492310 | 766856 | 481439 | 773056 | 481623 | 806955 | 434476 | 796619 | 0 | 0 | 0 | 0 |
| 2 | 34700 | 897733 | 48468 | 829265 | 43219 | 784068 | 51308 | 818891 | 49690 | 682205 | 497156 | 1303836 | 529192 | 1307520 |
| 3 | 1133 | 0 | 2741 | 0 | 1072 | 0 | 520 | 0 | 254 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 10786 | 0 | 7074 | 0 | 7878 | 0 | 6727 | 0 | 2628 | 0 | 0 | 0 | 0 |
| 5 | 0 | 3302 | 0 | 15023 | 0 | 7270 | 0 | 8963 | 0 | 6958 | 0 | 0 | 0 | 0 |
| 6 | 479 | 2169 | 154 | 0 | 0 | 0 | 1536 | 0 | 0 | 0 | 2506 | 12167 | 79 | 13583 |
| 7 | 8928 | 0 | 21325 | 0 | 17982 | 0 | 18175 | 0 | 17249 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 27209 | 0 | 36348 | 0 | 23168 | 0 | 34466 | 0 | 34879 | 0 | 0 | 0 | 0 |
| 9 | 0 | 25440 | 0 | 30942 | 0 | 19174 | 0 | 43814 | 0 | 23292 | 0 | 0 | 0 | 0 |
| 10 | 172 | 2157 | 1762 | 4267 | 3650 | 3078 | 2120 | 4216 | 2392 | 4397 | 23609 | 43112 | 35279 | 66599 |
| 11 | 15932 | 0 | 34041 | 0 | 27446 | 0 | 26055 | 0 | 23419 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 25466 | 0 | 43368 | 0 | 45414 | 0 | 20464 | 0 | 35039 | 0 | 0 | 0 | 0 |
| 13 | 0 | 42473 | 0 | 45152 | 0 | 48855 | 0 | 54355 | 0 | 33082 | 0 | 0 | 0 | 0 |
| 14 | 1767 | 48 | 567 | 6718 | 5616 | 3883 | 1865 | 10786 | 1105 | 3185 | 20497 | 71845 | 19369 | 83338 |
| 15 | 27791 | 0 | 38465 | 0 | 31590 | 0 | 30870 | 0 | 33332 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 71514 | 0 | 72065 | 0 | 67993 | 0 | 73241 | 0 | 74184 | 0 | 0 | 0 | 0 |
| 17 | 0 | 145513 | 0 | 111240 | 0 | 99101 | 0 | 93322 | 0 | 72138 | 0 | 0 | 0 | 0 |
| 18 | 1817 | 24344 | 1270 | 14042 | 2832 | 19140 | 908 | 14694 | 2358 | 6849 | 51331 | 182558 | 49998 | 194378 |
| 19 | 393 | 0 | 1268 | 0 | 1314 | 0 | 5510 | 0 | 3250 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 3341 | 0 | 4967 | 0 | 5634 | 0 | 1901 | 0 | 2711 | 0 | 0 | 0 | 0 |
| 21 | 0 | 1911 | 0 | 4157 | 0 | 9259 | 0 | 9909 | 0 | 5170 | 0 | 0 | 0 | 0 |
| 22 | 106 | 0 | 0 | 1280 | 51 | 54 | 0 | 0 | 0 | 0 | 705 | 7799 | 2762 | 8249 |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 1233 | 0 | 914 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 1520 | 0 | 371 | 0 | 444 | 0 | 73 | 0 | 211 | 0 | 0 | 0 | 0 |
| 25 | 0 | 0 | 0 | 0 | 0 | 2071 | 0 | 1735 | 0 | 1189 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 2195 | 0 | 8248 |
| 27 | 2213 | 12730 | 2587 | 12881 | 5252 | 10064 | 778 | 11783 | 4205 | 14358 | 251 | 9444 | 6466 | 13818 |
| 28 | 0 | 66 | 52 | 4827 | 399 | 1286 | 396 | 0 | 3136 | 107 | 829 | 61 | 225 | 342 |
| 29 | 0 | 25 | 22 | 393 | 14 | 21 | 2208 | 197 | 0 | 69 | 32 | 10 | 18 | 9 |
| 30 | 0 | 2715 | 170 | 0 | 0 | 2038 | 41 | 138 | 23 | 2910 | 291 | 1495 | 0 | 599 |
| 31 | 0 | 522 | 0 | 637 | 0 | 613 | 0 | 1587 | 0 | 95 | 0 | 0 | 0 | 0 |
| 32 | 481 | 4089 | 140 | 7819 | 343 | 7237 | 970 | 1692 | 1092 | 3580 | 1502 | 2797 | 3007 | 5182 |
| 33 | 325 | 4437 | 1140 | 6575 | 502 | 4050 | 446 | 2844 | 0 | 9298 | 1539 | 6585 | 591 | 5187 |
| 34 | 412 | 0 | 1110 | 372 | 113 | 630 | 83 | 991 | 0 | 2271 | 0 | 551 | 0 | 2809 |
| 35 | 303 | 3211 | 0 | 227 | 0 | 3551 | 0 | 1715 | 0 | 3203 | 0 | 885 | 0 | 0 |
| 36 | 0 | 687 | 0 | 176 | 521 | 1762 | 0 | 5277 | 0 | 712 | 864 | 181 | 0 | 645 |
| 37 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 688 | 0 | 0 | 0 | 583 | 0 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 | 13 | 1395 | 0 | 0 | 435 | 0 | 315 | 800 | 0 | 0 | 370 |
| 40 | 23 | 88 | 20 | 68 | 17 | 65 | 21 | 55 | 43 | 95 | 13 | 81 | 19 | 137 |
| 41 | 2627 | 4452 | 2079 | 4089 | 2482 | 4983 | 2043 | 3964 | 3349 | 4836 | 962 | 2653 | 883 | 2307 |
| 42 | 8 | 19 | 1 | 14 | 0 | 9 | 11 | 12 | 2 | 0 | 2 | 0 | 0 | 5 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 667 | 4237 | 969 | 1540 | 1861 | 3479 | 830 | 1472 | 3196 | 3065 | 0 | 0 | 0 | 0 |
| 47 | 237 | 1271 | 1136 | 1841 | 408 | 1464 | 452 | 1119 | 167 | 952 | 3691 | 1611 | 1175 | 1843 |

March 1989, all private households, # seconds calling time during one week

| period | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|
| #activ | 2319 | 2818 | 3033 | 3068 | 2988 | 2988 | 2990 | 3068 | 2842 | 2839 | 3068 | 2915 | 2834 | 2834 |
| 1 | 450299 | 761422 | 509724 | 838309 | 496939 | 819489 | 478584 | 808993 | 475236 | 849067 | 0 | 0 | 0 | 0 |
| 2 | 38176 | 801403 | 47932 | 908456 | 58970 | 790647 | 93023 | 868924 | 80490 | 673308 | 567476 | 1131548 | 471267 | 1346884 |
| 3 | 1180 | 0 | 4860 | 0 | 2470 | 0 | 943 | 0 | 429 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 7262 | 0 | 6742 | 0 | 5424 | 0 | 9513 | 0 | 7991 | 0 | 0 | 0 | 0 |
| 5 | 0 | 13311 | 0 | 17416 | 0 | 6486 | 0 | 16571 | 0 | 3852 | 0 | 0 | 0 | 0 |
| 6 | 0 | 0 | 0 | 3687 | 1120 | 645 | 3406 | 756 | 261 | 0 | 3093 | 13133 | 854 | 11608 |
| 7 | 11926 | 0 | 15326 | 0 | 18888 | 0 | 22903 | 0 | 11110 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 42071 | 0 | 29328 | 0 | 28520 | 0 | 22266 | 0 | 28720 | 0 | 0 | 0 | 0 |
| 9 | 0 | 39376 | 0 | 55716 | 0 | 44033 | 0 | 31834 | 0 | 23273 | 0 | 0 | 0 | 0 |
| 10 | 634 | 1884 | 1627 | 2117 | 1393 | 3197 | 1890 | 1089 | 1923 | 1682 | 29540 | 53287 | 20920 | 63009 |
| 11 | 28503 | 0 | 25287 | 0 | 22921 | 0 | 20600 | 0 | 32285 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 24145 | 0 | 42184 | 0 | 47438 | 0 | 30823 | 0 | 43113 | 0 | 0 | 0 | 0 |
| 13 | 0 | 63586 | 0 | 49868 | 0 | 50036 | 0 | 64918 | 0 | 37265 | 0 | 0 | 0 | 0 |
| 14 | 2341 | 13811 | 1378 | 6185 | 1278 | 6194 | 3265 | 8316 | 2338 | 2885 | 33226 | 51124 | 28146 | 69854 |
| 15 | 35883 | 0 | 55331 | 0 | 43786 | 0 | 38159 | 0 | 44893 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 84919 | 0 | 98720 | 0 | 95228 | 0 | 82679 | 0 | 82020 | 0 | 0 | 0 | 0 |
| 17 | 0 | 140557 | 0 | 140599 | 0 | 148258 | 0 | 136876 | 0 | 108327 | 0 | 0 | 0 | 0 |
| 18 | 1572 | 14356 | 6473 | 15605 | 5267 | 14339 | 1958 | 16283 | 4390 | 5562 | 60658 | 154674 | 69916 | 202833 |
| 19 | 450 | 0 | 136 | 0 | 882 | 0 | 267 | 0 | 1044 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 510 | 0 | 3522 | 0 | 3251 | 0 | 1706 | 0 | 186 | 0 | 0 | 0 | 0 |
| 21 | 0 | 2646 | 0 | 3830 | 0 | 3995 | 0 | 7738 | 0 | 2135 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3997 | 0 | 685 |
| 23 | 2299 | 0 | 1265 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 573 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0 | 7910 | 0 | 0 | 0 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3339 | 1220 | 1332 | 3319 |
| 27 | 2155 | 9407 | 6617 | 9441 | 1482 | 10345 | 3448 | 7446 | 901 | 14063 | 582 | 6033 | 1774 | 10887 |
| 28 | 0 | 185 | 659 | 0 | 0 | 0 | 357 | 0 | 0 | 0 | 0 | 456 | 90 | 157 |
| 29 | 13 | 181 | 5 | 340 | 20 | 863 | 46 | 328 | 25 | 167 | 136 | 574 | 209 | 358 |
| 30 | 0 | 1810 | 61 | 69 | 146 | 228 | 0 | 0 | 204 | 682 | 254 | 0 | 104 | 818 |
| 31 | 0 | 0 | 576 | 0 | 0 | 396 | 0 | 0 | 0 | 1816 | 0 | 0 | 908 | 513 |
| 32 | 319 | 5972 | 683 | 1632 | 1492 | 5285 | 152 | 2850 | 1285 | 3896 | 1027 | 1016 | 3603 | 4782 |
| 33 | 415 | 4317 | 2787 | 7244 | 739 | 5852 | 591 | 5030 | 514 | 3767 | 2269 | 4187 | 2630 | 6196 |
| 34 | 0 | 1034 | 249 | 1541 | 52 | 187 | 0 | 2174 | 0 | 122 | 118 | 1147 | 0 | 1849 |
| 35 | 0 | 1359 | 0 | 1266 | 0 | 172 | 0 | 1083 | 0 | 0 | 0 | 1863 | 0 | 0 |
| 36 | 1875 | 1043 | 0 | 85 | 196 | 0 | 0 | 0 | 0 | 0 | 0 | 306 | 0 | 1249 |
| 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 797 | 0 | 1266 | 0 | 0 | 0 | 599 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 381 | 0 | 698 | 0 | 1433 | 369 | 106 | 0 | 115 | 1302 | 742 | 0 | 0 |
| 40 | 42 | 121 | 38 | 152 | 32 | 141 | 24 | 190 | 18 | 161 | 57 | 115 | 12 | 113 |
| 41 | 2275 | 7005 | 2714 | 3810 | 2044 | 11842 | 3698 | 3691 | 2978 | 6887 | 1246 | 2578 | 976 | 2623 |
| 42 | 24 | 15 | 22 | 4 | 30 | 6 | 6 | 5 | 18 | 0 | 24 | 0 | 34 | 12 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 752 | 2812 | 1945 | 4378 | 4587 | 1674 | 1209 | 1972 | 3027 | 3412 | 0 | 0 | 0 | 0 |
| 47 | 495 | 995 | 380 | 1343 | 0 | 2662 | 661 | 1448 | 201 | 3020 | 1927 | 2028 | 0 | 2153 |

11. Appendix 3, Participating telephone exchanges

| ID | Administrative area | AXE-exchange | Area number |
|-------|---------------------|--------------|-------------|
| 011A | Norrköping | Norrköping | 011 |
| 0155A | Norrköping | Nyköping | 0155 |
| 016A | Västerås | Eskilstuna | 016 |
| 0176A | Uppsala | Norrtälje | 0176 |
| 018A | Uppsala | Uppsala/A | 018 |
| 021A | Västerås | Västerås | 021 |
| 021B | Västerås | Vedbo | 021 |
| 023A | Falun | Falun | 023 |
| 026A | Gävle | Gävle | 026 |
| 026B | Gävle | Bomhus | 026 |
| 026C | Gävle | Sandviken | 026 |
| 031A | Göteborg | Masthugget | 031 |
| 031B | Göteborg | Tranered | 031 |
| 031C | Göteborg | Örgryte | 031 |
| 031D | Göteborg | Kaserntorget | 031 |
| 031E | Göteborg | Frölunda | 031 |
| 031F | Göteborg | Änggården | 031 |
| 031G | Göteborg | Sävedalen | 031 |
| 031H | Göteborg | Källtorp | 031 |
| 031I | Göteborg | Hisingen | 031 |
| 031J | Göteborg | Backadalen | 031 |
| 0322K | Göteborg | Alingsås | 0322 |
| 033A | Borås | Borås | 033 |
| 0346A | Helsingborg | Falkenberg | 0346 |
| 036A | Jönköping | Jönköping | 036 |
| 040A | Malmö | Kirseberg | 040 |
| 040B | Malmö | Rosengård | 040 |
| 040C | Malmö | Sparven | 040 |
| 0410A | Malmö | Trelleborg | 0410 |
| 0413A | Malmö | Eslöv | 0413 |
| 042A | Helsingborg | Helsingborg | 042 |
| 044A | Kristianstad | Kristianstad | 044 |
| 0455A | Kalmar | Karlskrona | 0455 |
| 046A | Malmö | Lund | 046 |
| 0470A | Kristianstad | Växjö | 0470 |
| 0480A | Kalmar | Kalmar | 0480 |
| 0491A | Kalmar | Oskarshamn | 0491 |
| 0500A | Borås | Skövde | 0500 |
| 0522A | Uddevalla | Uddevalla | 0522 |
| 054A | Karlstad | Karlstad | 054 |
| 0570A | Karlstad | Arvika | 0570 |
| 0586A | Örebro | Karlskoga | 0586 |
| 060A | Sundsvall | Sundsvall | 060 |
| 063A | Östersund | Östersund | 063 |

| ID | Administrative area | AXE-exchange area | Area number |
|-------|---------------------|-------------------|-------------|
| 0753A | Stockholm | Tumba | 0753 |
| 0755A | Stockholm | Södertälje | 0755 |
| 08A | Stockholm | Kista | 08 |
| 08B | Stockholm | Örby | 08 |
| 08C | Stockholm | Djursholm | 08 |
| 08D | Stockholm | Råsunda | 08 |
| 08E | Stockholm | Hässelby | 08 |
| 08F | Stockholm | Ulriksdal | 08 |
| 08G | Stockholm | Aspudden | 08 |
| 08H | Stockholm | Sundbyberg | 08 |
| 08I | Stockholm | Birka | 08 |
| 08J | Stockholm | City | 08 |
| 090A | Umeå | Umeå | 090 |
| 0910A | Umeå | Skellefteå | 0910 |
| 0920A | Luleå | Luleå | 0920 |

12. Appendix 4a, measured exchanges, March 1988

| Exchange ID | Measured during period | | | | | | | | | | | | | # measured subscribers | | |
|-------------|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|------------------------|-------|----|
| | 1=yes, 0=no | | | | | | | | | | | | | HOUSE HOLDS | FIRMS | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 1 | 1 | | | 1 |
| 011A | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 93 | 7 |
| 0155A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 92 | 8 |
| 016A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 85 | 14 |
| 0176A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 169 | 0 |
| 018A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 144 | 0 |
| 021A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 88 | 10 |
| 021B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 91 | 7 |
| 023A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 84 | 17 |
| 026A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 85 | 15 |
| 026B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 102 | 6 |
| 026C | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 101 | 5 |
| 031A | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 47 | 3 |
| 031B | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 6 |
| 031C | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 8 |
| 031D | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 7 | 2 |
| 031E | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 41 | 7 |
| 031F | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 5 |
| 031G | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 48 | 1 |
| 031H | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 1 |
| 031I | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 4 |
| 031J | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 5 |
| 031K | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 3 |
| 033A | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 88 | 12 |
| 0346A | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 91 | 16 |
| 036A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 94 | 12 |
| 040A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 83 | 17 |
| 040B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 91 | 8 |
| 040C | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 80 | 20 |
| 0410A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 92 | 7 |
| 0413A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 93 | 7 |
| 042A | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 41 | 8 |
| 044A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 89 | 10 |
| 0455A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 93 | 6 |
| 046A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 105 | 3 |
| 0470A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 86 | 16 |
| 0480A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 97 | 11 |
| 0491A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 95 | 14 |
| 0500A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 85 | 15 |
| 0522A | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 99 | 8 |
| 054A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 86 | 16 |
| 0570A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 99 | 8 |
| 0586A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 101 | 6 |
| 060A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 50 | 0 |
| 063A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 95 | 10 |
| 0753A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 64 | 4 |
| 0755A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 91 | 17 |

Appendix 4a, measured exchanges, March 1988

| Exchange ID | Measured during period 1=yes, 0=no | | | | | | | | | | | | | # measured subscribers | | |
|----------------|---------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---------------------------|----------------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 1 | 1 | 1 | HOUSE HOLDS | FIRMS |
| 08A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 89 | 10 |
| 08B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 87 | 4 |
| 08C | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 91 | 10 |
| 08D | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 15 |
| 08E | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 5 |
| 08F | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 14 |
| 08G | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 91 | 9 |
| 08H | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 16 |
| 08I | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 82 | 17 |
| 08J | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 49 | 49 |
| 090A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 88 | 10 |
| 0910A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 87 | 13 |
| 0920A | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 98 | 12 |

Appendix 4b, measured exchanges, June 1988

| Exchange ID | Measured during period | | | | | | | | | | | | | | # measured subscribers | |
|-------------|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|------------------------|-------|
| | 1=yes, 0=no | | | | | | | | | | | | | | HOUSE | FIRMS |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 1 | 1 | 1 | | |
| 016A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 80 | 14 |
| 0176A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 166 | 0 |
| 018A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 139 | 0 |
| 021A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 85 | 10 |
| 021B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 89 | 6 |
| 023A | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 81 | 17 |
| 026A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 81 | 15 |
| 026B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 102 | 6 |
| 026C | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 98 | 5 |
| 031A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 3 |
| 031B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 6 |
| 031C | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 42 | 8 |
| 031D | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 7 | 2 |
| 031E | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 41 | 7 |
| 031F | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 5 |
| 031G | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 49 | 1 |
| 031H | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 1 |
| 031I | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 44 | 4 |
| 031J | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 5 |
| 031K | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 45 | 3 |
| 033A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 87 | 12 |
| 0346A | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 85 | 15 |
| 036A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 91 | 12 |
| 040A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 76 | 16 |
| 040B | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 83 | 7 |
| 040C | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 78 | 18 |
| 0410A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 89 | 7 |
| 0413A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 93 | 7 |
| 042A | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 7 |
| 0455A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 92 | 6 |
| 046A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 103 | 3 |
| 0480A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 95 | 10 |
| 0491A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 94 | 13 |
| 0500A | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 81 | 14 |
| 0522A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 97 | 8 |
| 054A | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 85 | 16 |
| 0570A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 92 | 8 |
| 0586A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 98 | 5 |
| 0753A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 63 | 4 |
| 0755A | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 90 | 16 |

Appendix 4b, measured exchanges, June 1988

| Exchange ID | Measured during period 1=yes, 0=no | | | | | | | | | | | | | # measured subscribers | | |
|----------------|---------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---------------------------|----------------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 1 | 1 | 1 | HOUSE HOLDS | FIRMS |
| 08A | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 87 | 10 |
| 08B | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 81 | 3 |
| 08C | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 89 | 10 |
| 08D | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 83 | 12 |
| 08E | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 94 | 5 |
| 08F | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 85 | 13 |
| 08G | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 90 | 9 |
| 08H | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 69 | 15 |
| 08I | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 47 | 47 |
| 08J | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 78 | 17 |
| 090A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 85 | 10 |
| 0910A | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 87 | 13 |
| 0920A | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 95 | 11 |

