CONSUMER DEMAND IN NORWEGIAN HOUSEHOLDS 1973-1977

A DATA BASE FOR MICRO-ECONOMETRICS

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PREFACE

From the year 1974, the Central Bureau of Statistics has been collecting individual consump-
tion data continuously on a sampling survey basis. Previously, large-scale surveys of consumer
expenditure were prepared at intervals of several years. This change has opened up interesting per-
spectives for econometric analyses of consumer behaviour.

An econometric project with the main intention to estimate consumer demand functions from the
Surveys of Consumer Expenditure from the years 1973 - 1977 is in progress in the Bureau. A rather
extensive data processing has been necessary to prepare this large body of data for the ensuing eco-
nometric treatment. This report surveys the data, and it is mainly intended to be a reference for
the following stages of the project, but it also provides a survey of the structure of consumption in
Norwegian households, and its changes at the middle of the 1970's.

Central Bureau of Statistics, Oslo, 20 December 1979

Petter Jakob Bjerve

FORORD

Perspektivene for økonometriske konsumanalyser ble betydelig utvidet da Statistisk Sentralbyrå gikk over til løpende innsamling av individuelle forbruksdata fra og med året 1974. Tidligere ble det gjennomført større forbruksundersøkelser med flere års mellomrom.

I Byrået pågår det for tiden et analyseprosjekt med hovedformål å tallfeste konsumetterspørselsfunksjoner på grunnlag av forbruksundersøkelsene for årene 1973 - 1977. Et forholdsvis omfattende forarbeid har vært nødvendig for å tilrettelegge dette store datamaterialet for økonometrisk behandling. Denne rapporten gir en dokumentasjon av datamaterialet slik det framtrer etter denne bearbeidingen. Den er først og fremst ment å skulle være en referanse for de følgende deler av analyseprosjektet, men har også mer generell interesse som en oversikt over forbruksstrukturen i norske husholdninger omkring midten av 1970-årene.

Statistisk Sentralbyrå, Oslo, 20. desember 1979

Petter Jakob Bjerve

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1. INTRODUCTION[*])

In this report, we shall present a data file which is specifically constructed for analytical purposes from the Norwegian Surveys of Consumer Expenditure 1973 - 1977. These data represent both the cross-sectional aspect and the time-serial aspect of consumer behaviour, and they will be utilized in a subsequent econometric study of consumer demand functions.[1])

Our data set constitutes what may be properly called *incomplete cross-section/time-series data*. The standard model discussed in the literature on combined cross-section/time series data assumes that *complete* time-series exist for all individuals under observation.[2]) This assumption is theoretically convenient, but in the context of sampling surveys of consumer expenditures it is not a very realistic one. The book-keeping of expenses is rather time-consuming and one cannot expect all, not even a majority of, the households selected for observation in one year, *e.g.* 1973, to accept participation in the *successive* four or five years as well. The proportion of non-respondents in the Norwegian household budget surveys is as high as 30 per cent, even for households asked to report only once. This explains why we are forced to accept that the sample of households changes over time.[3])

The report is organized as follows: In chapter 2, which is supplemented by two appendices, we give a general description of the construction of the data file. Section 2.1 contains a brief survey of the design of the Norwegian Surveys of Consumer Expenditure 1973 - 1977. We also comment on the sampling plan adopted in selecting the households. Section 2.2 deals with the commodity classification. Two levels of aggregation are specified, consisting of 28 and 5 commodity groups, respectively. In section 2.3, we give an account of the computation of the price indices of the different commodity groups. A main issue is the construction of price indices relating to accounting periods of two weeks from the monthly consumer price indices. Finally, in section 2.4, we describe briefly the removal of outliers and other "data massage" carried out to make the data set better suited to a subsequent analytical treatment.

Chapter 3 contains an overall description of the data by means of a set of 'summary statistics'. Needless to say, a "data reduction" is highly required to make it possible to grasp the essential features of a data set containing more than 8 000 individual household reports. What we need is a set of statistics to capture the main differences between the commodity groups, without being involved into inessential details. Furthermore, by inspecting an appropriate selection of such summary statistics, we may hope to detect outliers and other anomalies in our data. This investigation is thus a prerequisite to the "data massage" referred to above, and is in fact one of the main reasons why we have found it worthwhile to perform the rather large-scale data exercise presented in this report. Finally, an inspection of summary statistics may call attention to changes in the consumption pattern over time, and may thus be regarded as an introduction to a more elaborate analysis based on formalized economic models and utilizing advanced econometric methods. After some brief introductory remarks (section 3.1), we give in section 3.2 formal definitions of the summary statistics considered, viz. the mean value of expenditures and budget shares, the coefficient of variation, the fraction of household with non-zero expenditures, the skewness, and the kurtosis. Year specific and overall values of these statistics are presented in section 3.3. Some comments on the rank correlations between the main statistics and their econometric implications are also included. In the concluding section 3.4, we present period specific summary statistics, *i.e.* statistics based on the observations from each different accounting period.[4]) These summary statistics are extensively discussed by means of diagrams, which visualize trends and seasonal variation.

All computations, except the rank correlations, have been carried out by means of the Statistical Package for the Social Sciences (SPSS), see Nie *et al.* (1975).[5])

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1) This project is still in progress and empirical results from its econometric part will be reported later on.
2) See *e.g.* Balestra and Nerlove (1966).
3) Some econometric problems related to incomplete cross-section/time-series data are discussed in Biørn (1979).
4) This concept is defined in section 2.1 below.
5) Tore Kristoffersen has carried out the computational tasks.

2. A GENERAL DESCRIPTION OF THE DATA BASE

2.1. The annual surveys of consumer expenditures 1973 - 1977

Since 1973, the Central Bureau of Statistics of Norway has carried out annual sampling surveys of consumer expenditures in Norwegian households. Previously, such surveys were performed at intervals of several years, the last ones taking place in 1967 and 1958. The survey of 1973 ended a series of large national household budget surveys covering several thousand households. The increased frequency was accompanied by notable changes in the survey design.

First, the *sample size* was cut by about two thirds. This can be observed from the first line of table 1, which shows the total number of complete households reports recorded on our data file in each year from 1973 to 1977. The year 1973 is clearly overrepresented, including more than 40 per cent of the total number of reports. The sample in 1974 also exceeds the normal sample size, since a certain category of households, viz. households with four persons or more, was intentionally overrepresented in that year. We saw no reason to delete the reports of these "atypical" households from our data set for fear of throwing away valuable information on the effect of household size on consumption.

Second, the *sampling plan* has undergone one notable change during the period. Before 1975, the participating households were selected by drawing the annual samples independently from the population of Norwegian households in each year. Thus, we can say that the 5 943 reports from the years 1973 - 1975 represent 5 943 *different* households with a probability close to one, since the probability of selecting at least one of about 1.2 million Norwegian households more than once *by chance* is negligible. In 1975, the sampling procedure was changed. The main principle of multi-stage, stratified sampling is still maintained, but a proportion of about 25 per cent of the households reporting in one year is asked to report once again in the following year. The number of households "rotating" from one year to the next in our data file is 209 from 1975 to 1976, and 235 from 1976 to 1977. Of course, the application of this sort of *rotation sampling* has important analytical implications, a fact that will be utilized in the econometric part of the project.

The *compiling method* has in principle remained the same throughout the period.[1] The consumption expenses were recorded by combining detailed accounting and interview. Each household was asked to keep accounts of its expenses during a 14 day's period. We shall refer to this period as the *accounting period* (or reporting period). In addition, expenses during the last 12 months for commodities and services with a low purchase frequency were registered in a concluding interview at the end of the accounting period.

· The number of households which report in the different accounting periods are given in table 1. At the outset, the original sample of households drawn from the population in each year is divided into 26 equal parts. 1/26 of the households keep the accounts between 1 and 14 January, another 1/26 between 15 and 28 January and so forth. However, the number of *non-respondents* are not evenly distributed over the year. Table 1 shows a peak in the non-response in the periods 14, 15 and 16, which is the common time for summer holidays in Norway. Other seasonal variation in the fraction of non-response is of relatively less importance.

The extremely low number of households (6) in accounting period 1 of 1975, is due to an error in the data processing. All households from regions outside Oslo, actually reporting in this period were erroneously classified to be reporting in the following period. This explains the high number of households in period 2 of 1975. *This error is not corrected for in this report, and the reader should keep this in mind when interpreting specific results for this accounting period.*[2]

In table 2, we report the average values each year of two main background variables in our data file, namely the average age of the main income earner and the average number of persons in the households. For both variables the effect of the overrepresentation of large families in the 1974 sample is significant. As expected, the average age of main income earner is lower and the average household size larger in that year than in the other ones.

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1) See CBS (1975 a) and (1979) for a detailed description.
2) We shall attempt to correct for this error by transferring 42 randomly picked households (from regions outside Oslo) from accounting period 2 to accounting period 1 in 1975 before we do any further empirical research on the present data.

Table 1. The number of households in the sample for each accounting period. 1973 - 1977

Accounting period	Year				
	1973	1974	1975	1976	1977
Total	3 358	1 458	1 117	1 173	994
1	141	64	6	39	31
2	149	56	90	54	41
3	148	56	50	45	42
4	135	57	42	46	44
5	142	60	50	44	41
6	136	63	44	50	41
7	126	60	48	45	44
8	138	55	43	35	39
9	124	55	36	51	37
10	135	56	34	51	42
11	125	62	39	42	33
12	123	53	49	49	41
13	127	62	44	43	38
14	104	55	38	44	31
15	99	44	38	42	34
16	109	53	34	39	37
17	115	50	42	43	32
18	129	62	40	48	31
19	124	61	40	44	32
20	122	60	42	39	39
21	140	51	45	42	42
22	135	57	51	54	40
23	133	57	52	50	45
24	136	49	41	42	41
25	131	60	49	46	42
26	132	50	30	46	34

Table 2. Main background variables for the households. Year specific means.[*] 1973 - 1977

Characteristic	Year				
	1973	1974	1975	1976	1977
Average age of the main income earner in the household. Years	50.62 (16.23)	46.60 (14.51)	50.88 (15.41)	50.86 (16.26)	50.99 (16.51)
Average size of the households. Number of persons	3.08 (1.58)	4.32 (2.09)	3.05 (1.58)	3.04 (1.58)	2.99 (1.55)

[*] Sample standard deviations in parentheses.

2.2. The commodity classification

The ultimate aim of our analysis is to investigate systems of demand equations. Simultaneous maximum likelihood estimation of such systems is only feasible at a fairly high level of aggregation. Even if we consider functional forms for demand equations which are parsimonious in terms of unknown parameters, the computer costs would very rapidly become prohibitive with increasing number of commodities. For the purpose of simultaneous estimation of demand systems, we have therefore divided total expenditures into *five aggregated commodity groups*.

This aggregation, however, implies that we throw away a lot of the detailed information inherent in our data. We shall therefore also consider a much more disaggregated classification of the consumer expenditures, consisting of *28 disaggregated commodities*. We intend to estimate this system by means of single equation methods. In appendix 1, we give a detailed record of the definition of the commodity groups at both levels of aggregation (tables A1.1 and A1.2).

It is clear from the tables in appendix 1 that the 28-commodity grouping particularly satisfies two conditions:

i) Each commodity group can be obtained as an aggregate consisting of between one and four consumption commodities in the Norwegian medium term planning model MODIS IV (see Bjerkholt and Longva (1979)).

ii) Each commodity group can be completely defined in terms of the three- digit standard classification in the Surveys of Consumer Expenditures 1973 - 1977 (see *e.g.* table 3 in CBS (1975a)).

The 5-commodity grouping is a direct aggregation of the 28-commodity grouping. Moreover, this grouping can be established as an aggregation of the standard one-digit classification in the Surveys of Consumer Expenditures 1973 - 1977.

Neither of the commodity groupings distinguish between durable and non-durable goods. The shares of each commodity group which represent purchase of durables, are given in the second column of tables 3 and 4. The first column in both tables contains the percentages of the expenditures on each commodity group which have been registered on an annual basis by the interview at the end of the accounting period (confer section 2.1 above).[3] The latter percentages are generally higher than the former.

2.3. The computation of price indices

In this report, we shall, to a large extent, focus on the according period as the unit of time. (Confer the remarks on the compiling method in section 2.1.) This necessitates the construction of price indices with this periodicity for each commodity group.

Our starting point is the data base which underlies *the official Norwegian Consumer Price Index*.[4] This is a Laspeyres' index based on monthly registrations of the prices of a selection of 770 goods and services, the *"representative commodities"*. The weights of the index are, for the present, calculated from the average expenditures as recorded in the Survey of Consumer Expenditure 1973.[5] The Consumer Price Index is published monthly.

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3) The counterpart is of course those items which are recorded by means of book-keeping during the 14 days' accounting period.
4) A documentation (in Norwegian) of this index is given in CBS (1975 b).
5) These weights were introduced from 1974 onwards. The weights for 1973 were based on the average expenditures as recorded in the Survey of Consumer Expenditure 1967 (see CBS (1969)). At the same time, the compiling methods was revised; the number of representative commodities was, for instance, increased from 700 to 770. We have chained the indices for 1973 with those for the years 1974 - 1977 in the usual way, by applying the 1973 weights for the entire period. The representative commodities deleted from the index in 1974 are given a price index in 1973 equal to the average price index of the aggregate commodity group to which it belongs.

Table 3. The 28 disaggregated commodity groups

Commodity group	Share of the expenditure registered by the interview at the end of the accounting period*). Percentages	Share of the expenditure representing purchases of durable goods*). Percentages
1. Flour and bread	0.0	0
2. Meat and eggs	0.0	0
3. Fish	0.0	0
4. Canned meat and fish	0.0	0
5. Dairy products	0.0	0
6. Butter and margarine	0.0	0
7. Potatoes and vegetables	0.0	0
8. Other foods	0.0	0
9. Beverages	0.0	0
10. Tobacco	0.0	0
11. Clothing	19.8	0
12. Footwear	0.0	0
13. Housing	100.0	0[a]
14. Fuel and power	100.0	0
15. Furniture	63.8	64[b]
16. Household equipment	54.5	63[c]
17. Miscellaneous household goods	7.1	0
18. Medical care	0.0	0
19. Motorcars, bicycles	100.0	100
20. Running costs of vehicles	0.5	0
21. Public transport	10.2	0
22. P.T.T. charges	0.0	0
23. Recreation	39.5	42[d]
24. Public entertainment	3.1	0
25. Books and newspapers	0.0	0
26. Personal care	0.0	0
27. Miscellaneous goods and services .	0.0	0
28. Restaurants, hotels, etc.	18.2	0

*) The percentages are calculated from the average expenditures in the 1973 Survey of Consumer Expenditure (CBS (1975a)).

a) Housing is measured by rent (including repairs and maintenance).
b) This includes 411 Furniture, 412 Flour coverings and 33 per cent of 422 Ornamental articles (e.g. "Paintings and graphics").
c) This includes all three digit groups belonging to 43 Cooking appliances, refrigerators and other electric appliances, and 25 per cent of 445 Other (i.e. "Lawn movers").
d) This includes 710 Television sets, 711 Radio receivers and record players, 713 Photographic and optical instruments, an estimated 66 per cent of 712 Musical instruments (pianos etc.), 76 per cent of 714 Purchases of boats, boat engines and weapons (excluding boat repairs and weapons).

Table 4. The 5 aggregated commodity groups

Commodity group	Share of the expenditure registered by the interview at the end of the accounting period*). Percentages	Share of the expenditure representing purchases of durable goods*). Percentages
I. Food, beverages and tobacco	0.0	0
II. Clothing and footwear	16.5	0
III. Housing, fuel and furniture	77.6	20[a]
IV. Travel and recreation	29.6	28[a]
V. Other goods and services	6.0	0

*) The percentages are calculated from the average expenditures in the 1973 Survey of Consumer Expenditure (CBS (1975a)).

a) See footnotes a) - d) of table 3.

Noting that the accounting period and the month has the day as a common unit period, we start by constructing *daily indices* for each commodity group. We assume that the monthly consumer price indices refer to the 15th day in the respective months. The price indices for the dates 1 - 14 in each month are defined as weighted averages of the price indices for the *past* and the *current* month, whereas the price indices for the dates 16 - 31 are weighted averages of the price indices for the *current* and the *next* month. The weights are given in table 5. Formally, the algorithm can be written as follows:

$$(2.1) \quad P^D_{ij} = \begin{cases} \frac{15+j}{30} P^M_i + \frac{15-j}{30} P^M_{i-1} = P^M_i - \frac{15-j}{30} (P^M_i - P^M_{i-1}) \text{ for } j = 1, \dots, 15, \\ \\ \frac{45-j}{30} P^M_i + \frac{j-15}{30} P^M_{i+1} = P^M_i + \frac{j-15}{30} (P^M_{i+1} - P^M_i) \text{ for } j = 16, \dots, 31, \end{cases}$$

where P^D_{ij} is the price index for the j'th day in month i, and P^M_i is the price index for month i of any commodity group in question.

The *price indices for each accounting period* are then computed as simple unweighted averages of the corresponding 14 daily indices. In doing this, we make the following three simplifications:

- Each year is defined to consist of exactly 26 accounting periods of 14 days = 364 days.
- Each quarter has 364/4 = 91 days = 6 1/2 accounting periods.
- All the 26 accounting periods start on the same date in the years 1973 - 1977. (The accounting periods actually follow the calendar week.)

These assumptions are stated explicitly in table 6.

Formally, the complete algorithm for obtaining price indices relating to accounting periods can be written in matrix notation in the following way: Let, for any commodity group, P^M be the (62 x1) vector containing the monthly indices from December 1972 to January 1978, and P^D the (1820 x1) vector of daily indices from January 1 1973 to December 30 1977. We then have

$$(2.2) \quad P^D = WP^M,$$

where W is the (1 820 X 62) matrix of weights defined according to eqs. (2.1). Futhermore, let P^A denote the (130 x 1) vector of price indices for the different accounting periods, and A the (130 x 1 820) aggregation matrix

$$A = \frac{1}{14} I_{130} \otimes e'_{14},$$

where e_{14} is the (14 x 1) vector consisting entirely of ones, I_{130} is the (130 x 130) identity matrix, and $\otimes$ is the Kronecker product operator. We then have

$$(2.3) \quad P^A = AP^D.$$

Thus, the formula giving the transformation from monthly to period specific price indices becomes

$$(2.4) \quad P^A = AWP^M.$$

The resulting indices are reproduced *in extenso* in appendix 2.

Table 5. Weights used in defining daily price indices

Date	Weight		
	Past month	This month	Next month
1	14/30	16/30	0
2	13/30	17/30	0
3	12/30	18/30	0
4	11/30	19/30	0
5	10/30	20/30	0
6	9/30	21/30	0
7	8/30	22/30	0
8	7/30	23/30	0
9	6/30	24/30	0
10	5/30	25/30	0
11	4/30	26/30	0
12	3/30	27/30	0
13	2/30	28/30	0
14	1/30	29/30	0
15	0	1	0
16	0	29/30	1/30
17	0	28/30	2/30
18	0	27/30	3/30
19	0	26/30	4/30
20	0	25/30	5/30
21	0	24/30	6/30
22	0	23/30	7/30
23	0	22/30	8/30
24	0	21/30	9/30
25	0	20/30	10/30
26	0	19/30	11/30
27	0	18/30	12/30
28	0	17/30	13/30
29	0	16/30	14/30
30	0	15/30	15/30
31	0	14/30	16/30

Table 6. Simplifying assumptions applied in the construction of price indices for the different accounting periods

Month	Number of days in the month	The first day in the month is day no.	Accounting periods start on the following dates in the month:
January	31	1	1, 15, 29
February	29	32	12, 26
March	31	61	11, 25
April	30	92	8, 22
May	31	122	6, 20
June	30	153	3, 17
July	31	183	1, 15, 29
August	30	214	12, 26
September	30	244	10, 24
October	31	274	8, 22
November	30	305	5, 19
December	30	335	3, 17

Table 7. Annual price indices for each commodity group. 1973 - 1977. (1974 = 100)

Commodity group	1973	1974	1975	1976	1977
All commodities	91.95	100.00	111.67	121.91	132.97
1. Flour and bread	88.43	99.99	112.33	117.29	123.39
2. Meat and eggs	99.58	99.99	116.31	132.58	145.30
3. Fish	86.07	100.02	101.38	102.56	114.23
4. Canned meat and fish	88.28	99.98	106.64	114.24	125.52
5. Dairy products	103.89	99.99	120.71	133.96	125.65
6. Butter and margarine	91.66	99.97	106.61	105.19	118.04
7. Potatoes and vegetables	92.77	99.98	118.09	135.33	139.96
8. Other foods	84.84	99.99	115.56	123.88	156.30
9. Beverages	93.14	99.99	117.32	128.65	141.06
10. Tobacco	96.68	99.99	108.39	122.87	126.42
11. Clothing	91.45	99.99	107.42	114.55	126.01
12. Footwear	89.77	99.99	106.93	119.47	134.85
13. Housing	91.48	100.02	108.34	116.05	125.03
14. Fuel and power	86.32	100.00	113.62	125.30	140.37
15. Furniture	87.65	100.00	111.12	119.24	129.51
16. Household equipment	91.13	99.99	111.44	119.29	125.70
17. Misc. household goods	87.38	99.97	119.25	132.50	146.11
18. Medical care	94.03	100.00	115.00	127.53	138.14
19. Motorcars, bicycles	96.39	100.00	113.17	124.02	134.31
20. Running costs of vehicles	85.60	100.00	106.60	116.76	130.42
21. Public transport	90.47	100.00	111.61	129.55	146.09
22. P.T.T. charges	89.69	100.00	102.44	102.93	113.23
23. Recreation	96.89	99.99	109.42	117.08	124.28
24. Public entertainment	97.91	99.99	105.98	110.86	119.97
25. Books and newspapers	91.22	100.00	112.79	128.39	142.34
26. Personal care	89.91	100.00	115.99	126.93	137.76
27. Misc. goods and services	88.44	100.00	118.41	127.51	135.60
28. Restaurants, hotels, etc.	92.63	100.00	114.26	125.30	141.46
I. Food, beverages and tobacco	94.08	99.99	114.89	126.72	137.03
II. Clothing and footwear	91.17	99.99	107.34	115.37	127.48
III. Housing, fuel and furniture	89.43	100.01	111.26	120.29	130.69
IV. Travel and recreation	92.16	100.00	109.17	119.29	130.92
V. Other goods and services	91.57	100.00	115.62	126.66	138.66

These tables show on the whole quite plausible results. Changes in indirect taxation, *e.g.* substantical changes in subsidies and the introduction of compensation for the value added tax on some commodities[6], are set off markedly in the computed indices. Commodity group 27 Misc. goods and services, contains some services for which there are no price observations.[7] The price index of these services is assumed to be equal to the overall consumer price index.

For each commodity group we have also computed annual price indices for the years 1973 - 1977. They are taken to be the average value of the twelve monthly indices. These price indices are given in table 7.

2.4. "Massaging" of data. The treatment of outliers

The principal aim of the Norwegian Surveys of Consumer Expenditure is to give a detailed *average* description of the consumption in the private households in order to bring up to date the weights to be used in the official Consumer Price Index. This detailed average description is a *macro-economic* concept. Individual errors do not really matter if they cancel out against each other. This has an important impact on the compiling method as well as the processing of the data within the Bureau.

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6) Such compensation was introduced for *e.g.* commodity group 3 Fish (from 15/8 1975) and 5 Dairy products (from 1/9 1975).
7) The missing items are "financial services" and "other services", which have a relative weight of 25 per cent in commodity group 27.

The intention of the present project is to pursue the *individual* behaviour by analyzing empirically consumer demand functions based on *micro-economic* observations. An immediate consequence of this is that we shall not be primarily concerned with whether the samples each year are *representative* samples for the total population of all Norwegian households or not.[8]

There are three kinds of errors which we would like to correct for in our data:

   i) Errors in the answers given by the households.

  ii) Errors made in processing the data.

 iii) Misspecifications which are caused by the fact that the compiling method for the surveys of consumer expenditures are not tailormade for the present analysis.

The data have been checked thoroughly for errors of the first kind by a special unit in the Central Bureau of Statistics. We also consider errors of type ii) to be of minor importance.[9] We shall therefore concentrate on errors of the third kind.

Individual errors are very likely to occur on items which are registered by accounting during the 14 days' accounting periods only. We have, however, been rather conservative in correcting for this kind of type iii) error. We have deleted from the sample only 2 households out of a total of 8 112 households. The two households had an expenditure on one item which exceeded N.kroner 500 000 according to the 28-commodity classification (on commodity groups 13 Housing and 23 Recreation, respectively).

Another data deficiency from our point of view is caused by the treatment of durables sold by the household during the year. The value of such sales is deducted from the actual expenditures on the corresponding commodity group (predominantly 19 Motorcars, bicycles and 23 Recreation). In some cases this of course leads to negative expenditures on some items and the aggregates thereof.[10] We have chosen to correct for this by setting negative expenditures (at the 28-commodity level of aggregation) equal to zero.[11]

3. MAIN PROPERTIES OF THE DATA AS CHARACTERIZED BY SUMMARY STATISTICS

3.1. Motivation

We dispose of more than 8 000 individual household reports collected at different points of time during a period of five years. How can we give a summary description of this large body of data, which is compact and analytically informative at the same time? Obviously, there is no definite single answer to this problem of data reduction.

The traditional way of presenting data from household budget surveys is to compute various kinds of conditional averages of expenditures. This illustrates the main tendency of variation of expenditures with certain main characteristics of the household. Occasionally, standard errors are also reported, but statistics based on moments of higher order than the second are very rarely discussed by practising econometricians working with household data. This is regrettable as it is by no means evident that distributions of consumption expenditures - marginal as well as conditional - can be adequately described by their first and second order moments only.

In this chapter, we shall give a summary description of the distributions of expenditures and budget shares of the different commodities by examining a somewhat larger selection of summary statistics than those usually considered. Our conclusions have notable implications for the subsequent econometric analysis.

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8) This implies that we do not correct for the fact that non-respondents are not equally distributed among all household groups. Moreover, the additional observations from the special survey of consumer expenditure in large families in 1974 do not call for special treatment.
9) A notable exception is discussed in connection with table 1, in section 2.1.
10) Conceptually, this is a mixture of errors of the second and third type.
11) In all 182 (out of 8 110) households were subject to such corrections: 73 in 1973, 24 in 1974, 27 in 1975, 25 in 1976 and 33 in 1977.

3.2. Formal definition of the summary statistics

3.2.1. Basic notation

In this chapter, we shall adopt the following notation:

n: Total number of commodity groups ($n = 28$ when using the disaggregated specification, and $n = 5$ when using the aggregated one).

N: Total number of household reports ($= 8\ 110$).

T: Total number of years ($= 5$).

K: Number of accounting periods (reporting periods) in each year ($= 26$).

m_{kt}: Number of reports in period k in year t ($k = 1, \ldots, K$; $t = 1, \ldots, T$); confer table 1.

m_t: Total number of reports in year t ($t = 1, \ldots, T$); confer table 1.

Then

$$(3.1) \quad m_t = \sum_{k=1}^{K} m_{kt},$$

$$(3.2) \quad N = \sum_{t=1}^{T} m_t = \sum_{t=1}^{T} \sum_{k=1}^{K} m_{kt}.$$

We assume that the individual reports in period k in year t are numbered consecutively from 1 until m_{kt} ($k = 1, \ldots, K$; $t = 1, \ldots, T$).

In the following we shall let

i be the commodity index : $i = 1, \ldots, n$,

j be the index of the individual report : $j = 1, \ldots, m_{kt}$,

k be the index of the reporting period : $k = 1, \ldots, K$,

t be the index of the year of reporting : $t = 1, \ldots, T$.

Moreover, we shall use X, P and C (with appropriate subscripts) to symbolize expenditure at current prices, a corresponding price index, and expenditure at constant prices, respectively. More specifically, we let

$X_{ij}(k, t)$: Expenditure on commodity i in report j from period k in year t.

$P_i(k, t)$: Price index of commodity i in period k in year t (average 1974 = 1.00).

$\overline{P}_i(t)$: Average price index of commodity i in year t.

and define

$$(3.3) \quad C_{ij}(k, t) = \frac{X_{ij}(k, t)}{P_i(k, t)} \quad : \text{Expenditure on commodity i at constant (1974) prices in report j from period k in year t.}$$

$$(3.4) \quad C^{*}_{ij}(k, t) = \frac{X_{ij}(k, t)}{\overline{P}_i(t)} \quad : \text{Expenditure on commodity i at "normalized" constant (1974) prices in report j from period k in year t.}$$

The procedure followed in calculating the price indices $P_i(k, t)$ and $\overline{P}_i(t)$ is described in section 2.3 above.

We also define

$$(3.5) \quad X_j(k, t) = \sum_{i=1}^{n} X_{ij}(k, t): \text{Total expenditure; report j, period k, year t.}$$

(3.6) $\quad C_j(k, t) = \sum\limits_{i=1}^{n} C_{ij}(k, t)$: Total expenditure at constant (1974) prices, report j, period k, year t.

(3.7) $\quad w_{ij}(k, t) = \dfrac{X_{ij}(k, t)}{X_j(k, t)}$: Budget share of commodity i (at current prices), report j, period k, year t.

3.2.2. Sample means

The first type of statistic we shall discuss, is the sample mean. Three kinds of sample means are of interest:

    A. Period specific sample means, $i.e.$ sample means based on the observations from each different reporting period.

    B. Year specific sample means.

    C. Overall sample means, $i.e.$ sample means based on the complete data set.

We shall consider these statistics in turn.

A. Period specific means.

The sample means of expenditures at current and constant prices and the (unweighted) sample means of budget shares of commodity i are respectively

(3.8) $\quad \bar{X}_i(k, t) = \dfrac{1}{m_{kt}} \sum\limits_{j=1}^{m_{kt}} X_{ij}(k, t),$

(3.9) $\quad \bar{C}_i(k, t) = \dfrac{1}{m_{kt}} \sum\limits_{j=1}^{m_{kt}} C_{ij}(k, t) = \bar{X}_i(k, t)/P_i(k, t),$

(3.10) $\quad \bar{w}_i(k, t) = \dfrac{1}{m_{kt}} \sum\limits_{j=1}^{m_{kt}} w_{ij}(k, t), \quad (i = 1, \ldots, \acute{n}; \ k = 1, \ldots, K; \ t = 1, \ldots, T).$

The corresponding sample means of total expenditure are

(3.11) $\quad \bar{X}(k, t) = \dfrac{1}{m_{kt}} \sum\limits_{j=1}^{m_{kt}} X_j(k, t) = \sum\limits_{i=1}^{n} \bar{X}_i(k, t),$

(3.12) $\quad \bar{C}(k, t) = \dfrac{1}{m_{kt}} \sum\limits_{j=1}^{m_{kt}} C_j(k, t) = \sum\limits_{i=1}^{n} \bar{C}_i(k, t) \quad (k = 1, \ldots, K; \ t = 1, \ldots, T).$

B. Year specific means

Aggregating expenditures and budget shares not only across individuals, but also over periods in each year, we get the following means for year t:

(3.13) $\quad \bar{X}_i(t) = \dfrac{1}{m_t} \sum\limits_{k=1}^{K} \sum\limits_{j=1}^{m_{kt}} X_{ij}(k, t) = \dfrac{1}{m_t} \sum\limits_{k=1}^{K} m_{kt} \bar{X}_i(k, t),$

$$(3.14) \quad \bar{C}_i(t) = \frac{1}{m_t} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_{ij}(k, t) = \frac{1}{m_t} \sum_{k=1}^{K} m_{kt} \bar{C}_i(k, t),$$

$$(3.15) \quad \bar{w}_i(t) = \frac{1}{m_t} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} w_{ij}(k, t) = \frac{1}{m_t} \sum_{k=1}^{K} m_{kt} \bar{w}_i(k, t),$$

$$(3.16) \quad \bar{X}(t) = \frac{1}{m_t} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} X_j(k, t) = \frac{1}{m_t} \sum_{k=1}^{K} m_{kt} \bar{X}(k, t) = \sum_{i=1}^{n} \bar{X}_i(t),$$

$$(3.17) \quad \bar{C}(t) = \frac{1}{m_t} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_j(k, t) = \frac{1}{m_t} \sum_{k=1}^{K} m_{kt} \bar{C}(k, t) = \sum_{i=1}^{n} \bar{C}_i(t), \quad (i = 1, \ldots, n; \ t = 1, \ldots, T).$$

C. Overall means

Aggregating also over years, we get the following overall means:

$$(3.18) \quad \bar{X}_i(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} X_{ij}(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \bar{X}_i(t),$$

$$(3.19) \quad \bar{C}_i(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_{ij}(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \bar{C}_i(t),$$

$$(3.20) \quad \bar{w}_i(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} w_{ij}(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \bar{w}_i(t), \qquad (i = 1, \ldots, n)$$

$$(3.21) \quad \bar{X}(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} X_j(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \bar{X}(t) = \sum_{i=1}^{n} \bar{X}_i(\cdot),$$

$$(3.22) \quad \bar{C}(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_j(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \bar{C}(t) = \sum_{i=1}^{n} \bar{C}_i(\cdot).$$

3.2.3. Alternative definitions of sample means at constant prices

The definitions of average expenditures at constant prices given in eqs. (3.14), (3.17), (3.19) and (3.22) above are based on expenditure values deflated by means of the period specific price indices $P_i(k, t)$, cf. eqs. (3.3) and (3.9). By using eqs. (3.9), (3.13) and (3.14) we find that the implicit price index of commodity i in year t can be written as

$$\frac{\bar{X}_i(t)}{\bar{C}_i(t)} = \frac{\sum_{k=1}^{K} P_i(k, t) m_{kt} \bar{C}_i(k, t)}{\sum_{k=1}^{K} m_{kt} \bar{C}_i(k, t)},$$

which is a weighted average of the period specific price indices with weights equal to the value of consumption at constant prices in the different periods.

An alternative would be to define the averages by means of the "normalized" expenditures at constant prices, as given in eq. (3.4); *i.e.* replace (3.14) and (3.17) by

$$(3.14a) \quad \bar{C}_i^*(t) = \frac{1}{m_t} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_{ij}^*(k, t),$$

$$(3.17a) \quad \bar{C}^*(t) = \sum_{i=1}^{n} \bar{C}_i^*(t).$$

Then, in view of (3.4) and (3.13),

$$\frac{\bar{X}_i(t)}{\bar{C}_i^*(t)} = \bar{P}_i(t).$$

The corresponding overall means are

$$(3.19a) \quad \bar{C}_i^*(\cdot) = \frac{1}{N} \sum_{t=1}^{T} \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} C_{ij}^*(k, t) = \frac{1}{N} \sum_{t=1}^{T} m_t \, \bar{C}_i^*(t),$$

$$(3.22a) \quad \bar{C}^*(\cdot) = \sum_{i=1}^{n} \bar{C}_i^*(\cdot).$$

3.2.4. Comment on the definition of mean budget shares

The conventional formula used in calculating average budget shares is to divide the mean expenditure of the commodity in question by the mean value of total expenditure, *i.e.* the mean budget share of commodity i in year t is defined as

$$(3.23) \quad \bar{\bar{w}}_i(t) = \frac{\bar{X}_i(t)}{\bar{X}(t)} \qquad (i = 1, \ldots, n; \; t = 1, \ldots, T).$$

Utilizing eqs. (3.7), (3.13), and (3.16), this can be written as

$$(3.24) \quad \bar{\bar{w}}_i(t) = \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} w_{ij}(k, t) \left\{ X_j(k, t) / \sum_{s=1}^{K} \sum_{r=1}^{m_{st}} X_r(s, t) \right\},$$

i.e., the average budget shares calculated in the conventional way are weighted means of the individual budget shares with weights equal to each individual's share in total consumption expenditure in the year considered.[1] Our averages $\bar{w}_i(t)$, defined in (3.15), are unweighted averages. From (3.15) and (3.24) we find

$$\bar{\bar{w}}_i(t) - \bar{w}_i(t) = \sum_{k=1}^{K} \sum_{j=1}^{m_{kt}} \left[\frac{X_j(k, t)}{\sum_s \sum_r X_r(s, t)} - \frac{1}{m_t} \right] w_{ij}(k, t),$$

i.e. the conventional formula gives the budget shares of individuals with high income a larger weight than low income individuals. Thus, we should expect $\bar{\bar{w}}_i(t)$ to be greater than, approximately equal to, or less than $\bar{w}_i(t)$ according as the income (Engel) elasticity of commodity i is greater than, equal to, or less than one.

1) The accounting period specific means and overall means are similarly defined.

3.2.5. Standard deviations, coefficients of variation, skewness, and kurtosis

Let in general $Z_1, \ldots, Z_L$ be L observations on a variable Z. The *mean value* is

$$\bar{Z} = \frac{1}{L} \sum_{i=1}^{L} Z_i,$$

and the central moment of order Q is

$$M_{ZQ} = \frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^Q \qquad (Q = 2, 3, \ldots,).$$

The *standard deviation* of Z can then be written as

$$(3.25) \quad S_Z = \sqrt{M_{Z2}} = \left\{ \frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^2 \right\}^{\frac{1}{2}}.$$

Let

$$(3.26) \quad D_{Zi} = \begin{cases} 1 & \text{if } Z_i > 0 \\ 0 & \text{otherwise} \end{cases} \qquad (i = 1, \ldots, L).$$

Interesting properties of the distribution of Z are summarized in the following four statistics:

The *relative number of observations with a positive value:*

$$(3.27) \quad A_Z = \frac{1}{L} \sum_{i=1}^{L} D_{Zi},$$

the *coefficient of variation:*

$$(3.28) \quad V_Z = \frac{S_Z}{|\bar{Z}|} = \frac{\left\{ \frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^2 \right\}^{\frac{1}{2}}}{|\bar{Z}|},$$

the *skewness:*

$$(3.29) \quad H_Z = \frac{M_{Z3}}{S_Z^3} = \frac{\frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^3}{\left\{ \frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^2 \right\}^{3/2}},$$

and the *kurtosis:*

$$(3.30) \quad K_Z = \frac{M_{Z4}}{S_Z^4} - 3 = \frac{\frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^4}{\left\{ \frac{1}{L} \sum_{i=1}^{L} (Z_i - \bar{Z})^2 \right\}^2} - 3.$$

A_Z, V_Z, H_Z, and K_Z are - in contrast with $\bar{Z}$ and S_Z - dimensionless numbers. The coefficient of variation V_Z is a summary measure of the *relative dispersion* of the observations on Z. The skewness H_Z measures the *degree of asymmetry* of the distribution: If the observations are concentrated towards the left, H_Z is positive; if the observations are concentrated towards the right, it takes a negative value. In a symmetrical distribution, the skewness is zero. The kurtosis K_Z indicates the *"longness"* of the *"tails"* of the distribution. If the (theoretical) distribution of Z is normal, its skewness and kurtosis are both equal to zero, *i.e.*, H_Z and K_Z measure the degree of departure from normality.[2) A small value of A_Z, when Z is confined to non-negative values, also indicates that the distribution is non-normal.

We shall confine our attention specifically to the following statistics:

A_{Xi}: Fraction of reports with non-zero expenditure on commodity i.

V_{Ci}: Coefficient of variation of expenditure on commodity i at constant prices.

V_C: Coefficient of variation of total expenditure at constant prices.

V_{C*i}: Coefficient of variation of expenditure on commodity i at constant "normalized" prices.

V_{C*}: Coefficient of variation of total expenditure at constant "normalized" prices.

V_{wi}: Coefficient of variation of budget share of commodity i.

H_{Ci}: Skewness of expenditure on commodity i at constant prices.

H_C: Skewness of total expenditure at constant prices.

H_{C*i}: Skewness of expenditure on commodity i at constant "normalized" prices.

H_{C*}: Skewness of total expenditure at constant "normalized" prices.

H_{wi}: Skewness of budget share of commodity i.

K_{Ci}: Kurtosis of expenditure on commodity i at constant prices.

K_C: Kurtosis of total expenditure at constant prices.

K_{C*i}: Kurtosis of expenditure on commodity i at constant "normalized" prices.

K_{C*}: Kurtosis of total expenditure at constant "normalized" prices.

K_{wi}: Kurtosis of budget share of commodity i.

The subscript notation is the same as that used in section 3.2.2 above : subscript (k, t) indicates that the statistic relates to reporting period k in year t, a statistic with subscript (t) is based on all observations from year t, whereas subscript (·) indicates that the value of the statistic is based on the complete data set. Thus, for instance, H_{w3} (15, 2) is the skewness of the budget share of commodity 3 in period 15 in year 2 (*i.e.* 1974), $V_{C*7}(3)$ is the coefficient of variation of expenditure on commodity 7 in year 3 (*i.e.* 1975) at constant "normalized" prices etc.

3.3. Year specific and overall summary statistics: An empirical overview

3.3.1. Mean values

The average values of expenditures at current and constant prices are given in tables 8 and 9. Total expenditure at current prices shows an increase from about 38 000 kroner in 1973 to nearly 62 000 kroner in 1977. At constant (1974) prices - after dividing the individual expenditures by the year specific price indices, cfr. eqs. (3.17a) and (3.22a) - the corresponding average increases from 41 500 kroner in 1973 to 46 500 kroner in 1977. The overall average of total expenditure is 45 800 kroner at current prices and 43 300 kroner at constant prices.

Table 10 gives the average values of the budget shares. The largest commodity group in the disaggregated specification is 13 Housing, with an overall average budget share of about 10 per cent. At

2) See, for instance Shapiro, Wilk and Chen (1968). Most often the (empirical) kurtosis is defined simply as M_{Z4}/S_Z^4. Then its theoretical counterpart in a normal distribution is, of course, 3.

the opposite end we find commodity group 4 Canned meat and fish, with an average budget share less
than 0.7 per cent. The budget share of the "average group" is 100:28 = 3.5 per cent.

The three largest of the five aggregated groups - viz. I Food, beverages and tobacco,
III Housing, fuel and furniture, and IV Travel and recreation - account for about 5/6 of total
expenditure. The budget share of group I has been decreasing, those of groups III and IV have been
increasing during the period 1973 - 1977.

Table 11 contains overall sample means of budget shares calculated in two different ways.
The first column is based on the conventional formula - *i.e.* dividing the average expenditure on
each commodity by the average value of total expenditure - the second column reports the unweighted
averages of the individual budget shares. In some cases, we find substantial differences. The budget
share of commodity 19 Motorcars, bicycles, for instance, computed in the conventional way exceeds
6.5 per cent; our formula gives a value of 4.5 per cent only. For commodity 14 Fuel and power, the
conclusion is reversed; the conventional formula gives 3.5 per cent, which is far below the value
obtained from our formula, 4.8 per cent. Moreover, we note that for all the 8 groups of food commodi-
ties (nos. 1-8) our formula gives a higher overall average than the conventional formula. Since food
commodities normally have income elasticities below unity, this agrees with our anticipations in sec-
tion 3.2.4. Finally, we note that the two formulae even imply different rankings of the five aggre-
gated commodity groups. Our formula ranks I Food, beverages and tobacco, as the largest group,
IV Travel and recreation being the second. The conventional formula gives the reverse ranking.

3.3.2. Other statistics

Year specific and overall values of the following statistics:
- fraction of non-zero expenditures: A_{Xi},
- coefficients of variation: V_{C*i} and V_{wi},
- skewness: H_{C*i} and H_{wi}, and
- kurtosis: K_{C*i} and K_{wi}

are reported in tables 12 - 17 below.[3]

Total expenditure, of course, has a *fraction of non-zero reporting* of 100.00 per cent. Two of
the five aggregated groups, I Food, beverages and tobacco, and III Housing, fuel and furniture, has a
non-zero fraction close to 100 per cent in all the five years. Lowest score, according to this stati-
stic, is found for group II Clothing and footwear, with a fraction of non-zero respondents of about
90 per cent. (Table 12.)

Not surprisingly, we find that the tendency towards zero reporting of expenditures differs
considerably between the disaggregated commodity groups. Its overall value varies from about 0.7 per
cent (A_{Xi} = 99.28) for commodity 5 Dairy products to 73 per cent (A_{Xi} = 27.04) for commodity 19 Motor-
cars, bicycles.

The overall *coefficient of variation* of total expenditure at constant prices, V_{C*}, is 0.67.
It attains its lowest value, 0.59, in the year 1974. (Table 13.) For all the five aggregated groups
and for 21 of the 28 disaggregated groups, the coefficient of variation of expenditures at constant
prices exceeds the coefficient of variation of budget shares ($V_{C*i} > V_{wi}$), *i.e.* the relative disper-
sion of expenditures is usually greater than that of budget shares. (First columns of tables 13 and
14.) Among the disaggregated commodities, we note that commodity 5 Dairy products has the lowest
overall coefficient of variation of budget shares, 0.72. For only six of the commodities (including
the food commodities 1, 5, 7, and 8) the value of this statistic is less than unity. At the other
extreme, commodites 22 P.T.T. charges, and 27 Miscellaneous goods and services have coefficients of
variation as large as 3.33 and 3.05 respectively, *i.e.* the standard error of the budget share is more
than three times its average value.

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3) For H_{C*i} and K_{C*i} we only report the overall values.

Table 8. Expenditures at current prices. Year specific and overall sample means. Norwegian kroner

Commodity group, i	$\overline{X}_i(\cdot)$	$\overline{X}_i(1973)$	$\overline{X}_i(1974)$	$\overline{X}_i(1975)$	$\overline{X}_i(1976)$	$\overline{X}_i(1977)$
Total	45 796.12	38 094.77	45 711.86	46 845.29	53 370.71	61 820.23
1. Flour and bread	1 046.40	923.11	1 212.29	1 074.74	1 089.46	1 135.25
2. Meat and eggs	2 964.70	2 610.92	3 127.38	2 855.75	3 289.46	3 658.77
3. Fish	639.00	602.52	701.87	604.83	694.26	642.55
4. Canned meat and fish	252.29	211.84	283.89	258.46	278.55	304.34
5. Dairy products	1 465.92	1 299.58	1 653.30	1 492.81	1 637.72	1 518.17
6. Butter and margarine	415.35	379.41	507.77	429.85	385.61	419.06
7. Potatoes and vegetables .	2 083.32	1 759.61	2 232.96	2 172.72	2 395.91	2 486.56
8. Other foods	1 708.23	1 432.25	1 843.86	1 697.02	1 892.26	2 235.64
9. Beverages	1 211.55	1 095.47	1 124.79	1 179.57	1 378.20	1 571.10
10. Tobacco	765.35	750.21	780.60	741.38	834.76	739.00
11. Clothing	3 858.36	3 350.41	4 033.10	3 831.45	4 364.23	4 749.58
12. Footwear	838.29	682.91	950.82	858.49	968.54	1 020.64
13. Housing	4 540.90	3 302.46	4 484.03	5 109.42	5 639.38	6 873.47
14. Fuel and power	1 578.70	1 332.66	1 632.71	1 585.67	1 767.99	2 098.96
15. Furniture	2 118.13	1 667.73	2 196.42	2 264.46	2 492.11	2 918.37
16. Household equipment	1 237.27	1 001.30	1 186.49	1 338.36	1 442.16	1 754.04
17. Misc. household goods ...	1 115.82	917.49	1 306.00	1 101.79	1 181.69	1 442.98
18. Medical care	968.16	872.54	923.94	873.95	1 158.63	1 237.56
19. Motorcars, bicycles	3 008.52	2 584.95	2 363.31	2 807.25	3 318.97	5 252.18
20. Running costs of vehicles	3 916.44	3 197.65	3 896.28	4 009.67	4 698.74	5 346.56
21. Public transport	1 304.99	1 220.46	1 040.57	1 270.50	1 653.43	1 608.67
22. P.T.T. charges	680.68	607.39	658.49	651.27	815.47	835.03
23. Recreation	2 627.19	1 718.80	2 572.24	2 864.85	3 349.61	4 657.53
24. Public entertainment	1 375.85	1 211.44	1 292.82	1 431.41	1 546.77	1 789.81
25. Books and newspapers	952.61	822.00	881.93	995.84	990.62	1 404.79
26. Personal care	899.14	792.59	903.13	888.82	1 036.55	1 102.63
27. Misc. goods and services	838.34	676.38	802.83	913.02	1 193.41	934.97
28. Restaurants, hotels, etc.	1 384.60	1 070.60	1 118.05	1 541.94	1 876.23	2 082.05
I. Food, beverages and tobacco	12 552.12	11 064.97	13 468.71	12 507.13	13 876.19	14 710.43
II. Clothing and footwear ...	4 696.66	4 033.32	4 983.92	4 689.94	5 332.77	5 770.22
III. Housing, fuel and furniture	10 590.83	8 221.64	10 805.64	11 399.70	12 523.31	15 087.82
IV. Travel and recreation ...	13 866.31	11 362.70	12 705.64	14 030.79	16 373.60	20 894.57
V. Other goods and services	4 090.23	3 412.11	3 747.94	4 217.74	5 264.82	5 357.20

Table 9. Expenditures at constant (1974) prices. Year specific and overall sample means.
Norwegian kroner

Commodity group, i	$\overline{C}_i^*(\cdot)$	$\overline{C}_i^*(1973)$	$\overline{C}_i^*(1974)$	$\overline{C}_i^*(1975)$	$\overline{C}_i^*(1976)$	$\overline{C}_i^*(1977)$
Total	43 255.79	41 477.10	45 713.18	41 946.76	43 777.44	46 490.92
1. Flour and bread	1 030.59	1 043.91	1 212.41	956.79	928.87	920.04
2. Meat and eggs	2 657.37	2 621.84	3 127.64	2 455.24	2 481.03	2 518.09
3. Fish	665.90	700.04	701.73	596.58	676.95	562.49
4. Canned meat and fish	249.13	239.97	283.95	242.36	243.84	242.46
5. Dairy products	1 312.49	1 250.91	1 653.49	1 236.66	1 222.55	1 208.21
6. Butter and margarine	415.90	413.93	507.91	403.20	370.11	355.01
7. Potatoes and vegetables .	1 916.86	1 896.77	2 233.35	1 839.89	1 770.44	1 776.60
8. Other foods	1 631.31	1 688.27	1 843.97	1 468.53	1 527.44	1 430.31
9. Beverages	1 120.58	1 176.22	1 124.92	1 005.42	1 071.28	1 113.77
10. Tobacco	726.71	775.94	780.66	684.02	679.38	584.57
11. Clothing	3 750.82	3 662.28	4 033.64	3 566.84	3 809.88	3 769.32
12. Footwear	807.73	760.75	950.93	802.88	810.70	756.89
13. Housing	4 332.45	3 610.06	4 482.99	4 716.19	4 859.35	5 497.51
14. Fuel and power	1 514.36	1 543.90	1 632.67	1 395.58	1 410.98	1 495.34
15. Furniture	2 044.57	1 902.70	2 196.38	2 037.90	2 090.06	2 253.48
16. Household equipment	1 181.01	1 098.71	1 186.56	1 201.02	1 208.96	1 395.39
17. Misc. household goods ...	1 048.60	1 050.20	1 306.34	923.93	891.87	987.58
18. Medical care	897.43	928.16	923.98	759.95	908.51	895.84
19. Motorcars, bicycles	2 746.24	2 681.88	2 363.28	2 480.54	2 676.19	3 910.48
20. Running costs of vehicles	3 854.55	3 735.50	3 896.09	3 761.53	4 024.37	4 099.50
21. Public transport	1 223.28	1 349.04	1 040.59	1 138.33	1 276.24	1 101.18
22. P.T.T. charges	692.12	677.18	658.49	635.74	792.24	737.48
23. Recreation	2 451.51	1 816.49	2 572.47	2 618.32	2 860.87	3 747.59
24. Public entertainment	1 317.02	1 237.34	1 292.91	1 350.63	1 395.19	1 491.84
25. Books and newspapers	886.94	901.16	881.95	882.92	771.55	986.94
26. Personal care	850.27	881.57	903.16	766.32	816.64	800.43
27. Misc. goods and services	788.84	766.65	802.84	771.09	935.91	689.50
28. Restaurants, hotels, etc.	1 263.78	1 155.78	1 118.00	1 349.55	1 497.38	1 471.85
I. Food, beverages and tobacco	11 707.04	11 761.32	13 470.00	10 886.38	10 950.22	10 735.34
II. Clothing and footwear ...	4 558.59	4 422.60	4 984.57	4 369.38	4 622.28	4 526.33
III. Housing, fuel and furniture	10 094.52	9 193.82	10 804.89	10 246.13	10 410.66	11 544.78
IV. Travel and recreation ...	13 135.17	12 374.99	12 705.75	12 851.71	13 725.55	15 959.35
V. Other goods and services	3 799.17	3 727.95	3 747.97	3 647.86	4 156.71	3 863.47

Table 10. Budget shares. Year specific and overall sample means. Percentages

Commodity group, i	$\bar{w}_i(\cdot)$	$\bar{w}_i(1973)$	$\bar{w}_i(1974)$	$\bar{w}_i(1975)$	$\bar{w}_i(1976)$	$\bar{w}_i(1977)$
Total	100.00	100.00	100.00	100.00	100.00	100.00
1. Flour and bread	2.88	2.99	3.14	2.89	2.63	2.42
2. Meat and eggs	7.19	7.65	7.26	6.57	6.67	6.87
3. Fish	1.75	1.96	1.78	1.59	1.55	1.38
4. Canned meat and fish	0.64	0.63	0.70	0.66	0.63	0.60
5. Dairy products	4.10	4.29	4.34	4.07	3.99	3.27
6. Butter and margarine	1.18	1.27	1.35	1.19	0.94	0.93
7. Potatoes and vegetables	5.20	5.25	5.36	5.22	5.14	4.86
8. Other foods	4.49	4.47	4.64	4.31	4.45	4.58
9. Beverages	2.50	2.74	2.32	2.26	2.40	2.36
10. Tobacco	1.92	2.15	1.93	1.86	1.76	1.39
11. Clothing	8.06	8.28	8.36	7.88	7.61	7.65
12. Footwear	1.72	1.66	1.90	1.82	1.64	1.63
13. Housing	10.07	8.74	10.20	11.09	11.38	11.69
14. Fuel and power	4.80	4.91	4.60	4.67	4.75	4.94
15. Furniture	4.23	4.16	4.36	4.17	4.24	4.34
16. Household equipment	2.71	2.63	2.48	2.92	2.90	2.86
17. Misc. household goods	2.60	2.55	2.87	2.46	2.57	2.59
18. Medical care	2.08	2.17	2.05	2.01	2.09	1.92
19. Motorcars, bicycles	4.49	4.51	3.75	4.27	4.45	5.85
20. Running costs of vehicles	6.96	6.67	7.53	7.21	7.00	6.75
21. Public transport	2.78	3.07	2.34	2.87	2.75	2.38
22. P.T.T. charges	1.59	1.69	1.51	1.49	1.60	1.45
23. Recreation	4.67	3.99	4.61	5.10	5.31	5.84
24. Public entertainment	3.06	3.21	2.94	3.03	2.98	2.86
25. Books and newspapers	2.22	2.33	2.06	2.22	1.96	2.38
26. Personal care	2.07	2.16	2.03	1.95	2.06	1.93
27. Misc. goods and services	1.33	1.32	1.33	1.27	1.41	1.28
28. Restaurants, hotels, etc.	2.69	2.56	2.24	2.94	3.14	2.98
I. Food, beverages and tobacco	31.86	33.39	32.82	30.62	30.16	28.65
II. Clothing and footwear	9.78	9.94	10.25	9.70	9.25	9.28
III. Housing, fuel and furniture	24.42	22.99	24.52	25.31	25.84	26.43
IV. Travel and recreation	25.77	25.47	24.75	26.19	26.05	27.52
V. Other goods and services	8.16	8.21	7.65	8.18	8.70	8.12

Table 11. Overall sample means of budget shares. Calculated in two different ways. Percentages

Commodity group, i	$\overline{\overline{w}}_i(\cdot)^{a)}$	$\overline{w}_i(\cdot)^{b)}$	Difference
Total	100.00	100.00	-
1. Flour and bread	2.28	2.88	-0.60
2. Meat and eggs	6.47	7.19	-0.72
3. Fish	1.40	1.75	-0.35
4. Canned meat and fish	0.55	0.64	-0.09
5. Dairy products	3.20	4.10	-0.90
6. Butter and margarine	0.91	1.18	-0.27
7. Potatoes and vegetables	4.55	5.20	-0.65
8. Other foods	3.73	4.49	-0.76
9. Beverages	2.65	2.50	+0.15
10. Tobacco	1.67	1.92	-0.25
11. Clothing	8.43	8.06	+0.37
12. Footwear	1.83	1.72	+0.11
13. Housing	9.92	10.07	-0.15
14. Fuel and power	3.45	4.80	-1.35
15. Furniture	4.63	4.23	+0.40
16. Household equipment	2.70	2.71	-0.01
17. Misc. household equipment	2.44	2.60	-0.16
18. Medical care	2.11	2.08	+0.03
19. Motorcars, bicycles	6.57	4.49	+2.08
20. Running costs of vehicles	8.44	6.96	+1.48
21. Public transport	2.85	2.78	+0.07
22. P.T.T. charges	1.49	1.59	-0.10
23. Recreation	5.74	4.67	+1.07
24. Public entertainment	3.00	3.06	-0.06
25. Books and newspapers	2.08	2.22	-0.14
26. Personal care	1.96	2.07	-0.11
27. Misc. goods and services	1.83	1.33	+0.50
28. Restaurants, hotels, etc.	3.02	2.69	+0.33
I. Food, beverages and tobacco	27.41	31.86	-4.45
II. Clothing and footwear	10.26	9.78	+0.48
III. Housing, fuel and furniture	23.14	24.42	-1.28
IV. Travel and recreation	30.28	25.77	+4.51
V. Other goods and services	8.93	8.16	+0.77

a) $\overline{\overline{w}}_i(\cdot)$ is based on the conventional formula (3.23) (confer subsection 3.2.4 above).

b) $\overline{w}_i(\cdot)$ is based on equation (3.20).

Table 12. Fraction of reports with non-zero expenditure. Year specific and overall values.
Percentages

Commodity group, i	$A_{xi}(\cdot)$	$A_{xi}(1973)$	$A_{xi}(1974)$	$A_{xi}(1975)$	$A_{xi}(1976)$	$A_{xi}(1977)$
Total	100.00	100.00	100.00	100.00	100.00	100.00
1. Flour and bread	98.83	98.87	99.05	98.93	98.29	98.89
2. Meat and eggs	97.63	97.95	98.16	96.87	96.93	97.48
3. Fish	84.25	87.91	85.63	79.86	81.24	78.37
4. Canned meat and fish	65.43	63.01	70.30	65.80	66.07	65.19
5. Dairy products	99.28	99.14	99.52	99.64	99.49	98.79
6. Butter and margarine	89.84	90.50	91.96	90.51	86.96	87.12
7. Potatoes and vegetables ..	99.00	98.99	99.32	98.75	99.06	98.79
8. Other foods	98.79	98.51	99.11	99.02	98.81	98.99
9. Beverages	75.35	76.80	76.43	72.43	73.91	73.84
10. Tobacco	62.13	64.92	64.71	59.00	59.42	55.63
11. Clothing	88.36	88.09	90.94	87.38	87.13	88.03
12. Footwear	30.49	29.78	35.29	30.08	28.73	28.37
13. Housing	96.67	95.95	97.89	96.78	97.10	96.68
14. Fuel and power	96.89	97.56	98.57	94.36	95.74	96.38
15. Furniture	62.36	61.58	64.65	63.29	61.89	61.07
16. Household equipment	63.16	61.94	65.80	63.29	64.45	61.67
17. Misc. household goods	94.34	91.75	97.41	95.61	94.71	96.68
18. Medical care	55.19	56.85	59.20	54.07	50.55	50.40
19. Motorcars, bicycles	27.04	25.76	31.74	25.07	25.49	28.47
20. Running costs of vehicles	63.88	61.91	69.21	63.21	63.60	63.78
21. Public transport	65.31	67.06	63.96	66.52	64.45	61.07
22. P.T.T. charges	46.52	50.54	46.32	46.46	40.41	40.54
23. Recreation	71.01	67.51	73.09	72.25	74.00	74.85
24. Public entertainment	64.38	64.26	65.74	63.47	65.22	62.78
25. Books and newspapers	79.33	80.97	81.20	77.53	74.42	78.87
26. Personal care	85.06	85.71	87.33	84.42	84.05	81.39
27. Misc. goods and services .	52.32	52.80	57.83	49.51	50.64	47.69
28. Restaurants, hotels, etc.	65.15	63.58	63.49	68.58	67.77	66.00
I. Food, beverages and tobacco	99.98	99.94	100.00	100.00	100.00	100.00
II. Clothing and footwear	89.83	89.67	92.44	89.17	88.24	89.13
III. Housing, fuel and furniture	99.93	99.85	100.00	99.91	100.00	100.00
IV. Travel and recreation	97.41	97.47	97.89	97.49	96.68	97.28
V. Other goods and services .	95.54	95.95	96.93	95.70	94.37	93.26

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Table 13. Coefficient of variation of expenditures at constant (1974) prices. Year specific and overall values

Commodity group, i	$V_{C*i}(\cdot)$	$V_{C*i}(1973)$	$V_{C*i}(1974)$	$V_{C*i}(1975)$	$V_{C*i}(1976)$	$V_{C*i}(1977)$
Total	0.67	0.68	0.59	0.67	0.72	0.72
1. Flour and bread	0.76	0.78	0.69	0.81	0.74	0.70
2. Meat and eggs	1.28	1.21	1.25	1.40	1.43	1.20
3. Fish	1.29	1.13	1.28	1.32	1.65	1.24
4. Canned meat and fish	1.38	1.41	1.30	1.42	1.36	1.39
5. Dairy products	0.64	0.62	0.60	0.63	0.65	0.63
6. Butter and margarine	0.90	0.92	0.81	0.84	0.97	0.98
7. Potatoes and vegetables	0.86	0.86	0.82	0.90	0.90	0.81
8. Other foods	0.88	0.96	0.75	0.92	0.75	0.75
9. Beverages	1.75	1.76	1.68	1.84	1.70	1.75
10. Tobacco	1.32	1.27	1.19	1.43	1.44	1.50
11. Clothing	1.27	1.30	1.23	1.27	1.26	1.27
12. Footwear	2.27	2.31	2.09	2.37	2.28	2.35
13. Housing	1.55	1.98	1.15	1.50	1.16	1.40
14. Fuel and power	0.60	0.66	0.52	0.58	0.56	0.57
15. Furniture	1.93	1.74	1.89	2.12	1.92	2.17
16. Household equipment	2.23	2.42	2.27	1.76	1.78	2.44
17. Misc. household goods	1.91	1.91	1.98	1.82	1.61	1.88
18. Medical care	3.39	3.59	3.09	2.45	3.68	3.34
19. Motorcars, bicycles	2.73	2.74	2.87	2.72	2.84	2.41
20. Running costs of vehicles	1.99	2.08	1.61	2.04	1.96	2.14
21. Public transport	3.20	3.23	2.09	2.14	3.10	4.85
22. P.T.T. charges	3.67	3.71	3.50	3.33	3.25	4.44
23. Recreation	3.07	2.10	2.61	2.16	3.51	3.64
24. Public entertainment	1.92	2.02	1.75	1.77	1.84	2.01
25. Books and newspapers	1.89	1.59	1.54	2.20	1.85	2.61
26. Personal care	1.18	1.18	1.08	1.27	1.20	1.18
27. Misc. goods and services	5.42	5.45	4.17	4.35	7.14	4.20
28. Restaurants, hotels, etc.	2.28	2.20	2.32	2.27	2.08	2.51
I. Food, beverages and tobacco	0.64	0.65	0.57	0.65	0.65	0.62
II. Clothing and footwear	1.22	1.24	1.18	1.23	1.22	1.23
III. Housing, fuel and furniture	0.96	1.07	0.82	1.00	0.82	0.95
IV. Travel and recreation	1.22	1.18	1.07	1.11	1.29	1.39
V. Other goods and services	1.69	1.70	1.47	1.52	2.05	1.53

Table 14. Coefficients of variation of budget shares. Year specific and overall values

Commodity group, i	$V_{wi}(\cdot)$	$V_{wi}(1973)$	$V_{wi}(1974)$	$V_{wi}(1975)$	$V_{wi}(1976)$	$V_{wi}(1977)$
1. Flour and bread	0.84	0.83	0.74	0.87	0.98	0.83
2. Meat and eggs	1.00	0.94	0.96	1.12	1.09	1.04
3. Fish	1.26	1.18	1.18	1.40	1.38	1.33
4. Canned meat and fish	1.49	1.53	1.32	1.51	1.48	1.48
5. Dairy products	0.72	0.70	0.67	0.73	0.76	0.77
6. Butter and margarine	1.07	1.08	0.98	0.95	1.14	1.18
7. Potatoes and vegetables ..	0.75	0.73	0.73	0.77	0.79	0.78
8. Other foods	0.78	0.77	0.73	0.82	0.81	0.79
9. Beverages	1.52	1.50	1.50	1.59	1.53	1.53
10. Tobacco	1.36	1.20	1.21	1.77	1.41	1.62
11. Clothing	1.05	1.06	0.98	1.05	1.03	1.11
12. Footwear	2.33	2.41	2.06	2.35	2.32	2.50
13. Housing	0.99	1.11	0.90	0.89	0.90	0.95
14. Fuel and power	0.87	0.90	0.79	0.85	0.89	0.87
15. Furniture	1.62	1.56	1.60	1.68	1.62	1.75
16. Household equipment	1.80	1.81	1.72	1.68	1.76	1.97
17. Misc. household goods	1.47	1.48	1.54	1.32	1.50	1.36
18. Medical care	2.57	2.45	2.48	2.23	3.02	2.91
19. Motorcars, bicycles	2.56	2.55	2.70	2.61	2.57	2.30
20. Running costs of vehicles	1.42	1.47	1.28	1.43	1.40	1.49
21. Public transport	1.92	1.87	1.78	1.89	1.97	2.16
22. P.T.T. charges	3.33	3.19	3.41	3.27	3.44	3.66
23. Recreation	1.64	1.74	1.70	1.59	1.49	1.51
24. Public entertainment	1.77	1.80	1.75	1.68	1.75	1.83
25. Books and newspapers	1.62	1.57	1.47	1.64	1.86	1.72
26. Personal care	1.17	1.15	1.08	1.09	1.36	1.22
27. Misc. goods and services .	3.05	3.01	2.78	3.08	3.37	3.10
28. Restaurants, hotels etc.	1.91	1.93	2.04	1.83	1.86	1.82
I. Food, beverages and tobacco	0.47	0.46	0.43	0.48	0.49	0.53
II. Clothing and footwear	0.99	1.00	0.94	0.99	0.98	1.06
III. Housing, fuel and footwear	0.56	0.58	0.53	0.54	0.55	0.56
IV. Travel and recreation	0.68	0.68	0.66	0.67	0.66	0.69
V. Other goods and services .	1.05	1.03	1.02	1.00	1.14	1.10

Table 15. Skewness of budget shares. Year specific and overall values

Commodity group, i	$H_{wi}(\cdot)$	$H_{wi}(1973)$	$H_{wi}(1974)$	$H_{wi}(1975)$	$H_{wi}(1976)$	$H_{wi}(1977)$
1. Flour and bread	3.07	2.84	1.98	2.86	5.37	1.95
2. Meat and eggs	3.20	2.97	3.09	3.79	3.65	3.07
3. Fish	3.59	3.54	3.79	3.91	3.52	3.01
4. Canned meat and fish	3.83	4.13	3.05	4.78	2.96	3.01
5. Dairy products	1.81	1.85	1.48	1.89	1.99	1.92
6. Butter and margarine	3.70	4.18	3.77	1.88	2.87	3.18
7. Potatoes and vegetables	2.32	2.23	2.27	2.10	2.90	2.23
8. Other foods	2.42	2.66	2.03	2.46	2.21	2.45
9. Beverages	3.15	3.07	3.37	3.46	3.11	2.63
10. Tobacco	4.13	1.66	1.90	9.64	2.26	3.21
11. Clothing	1.83	1.75	1.64	1.97	1.64	2.35
12. Footwear	3.70	3.94	2.96	3.67	3.61	4.01
13. Housing	2.37	2.84	2.05	1.99	2.22	2.11
14. Fuel and power	3.24	3.47	3.24	2.68	3.08	2.87
15. Furniture	2.85	2.55	3.10	3.07	2.69	3.11
16. Household equipment	4.55	4.86	4.45	3.28	4.45	4.77
17. Misc. household goods	4.70	4.67	5.01	3.89	4.99	3.48
18. Medical care	5.95	5.64	5.45	4.68	6.74	6.29
19. Motorcars, bicycles	2.93	2.92	3.23	3.01	2.90	2.51
20. Running costs of vehicles ..	2.37	2.41	2.11	2.39	2.34	2.61
21. Public transport	4.92	4.71	3.85	4.54	5.24	6.08
22. P.T.T. charges	5.28	5.08	5.11	4.82	5.25	6.60
23. Recreation	3.39	3.47	3.94	3.03	2.91	3.22
24. Public entertainment	3.38	3.36	3.50	3.09	3.32	3.51
25. Books and newspapers	4.12	3.75	3.15	3.97	5.15	4.64
26. Personal care	4.09	3.17	3.82	2.35	7.39	2.64
27. Misc. goods and services ...	8.48	8.47	9.43	6.99	9.07	7.05
28. Restaurants, hotels, etc. ..	4.12	4.01	4.27	3.95	4.06	4.24
I. Food, beverages and tobacco	0.77	0.68	0.71	0.88	0.91	1.02
II. Clothing and footwear	1.58	1.52	1.50	1.63	1.50	1.91
III. Housing, fuel and furniture	1.14	1.25	1.17	1.05	1.03	1.02
IV. Travel and recreation	0.70	0.70	0.77	0.70	0.62	0.68
V. Other goods and services ...	2.70	2.61	2.88	2.09	2.99	2.62

Table 16. Kurtosis of budget shares. Year specific and overall values

Commodity group, i	$K_{wi}(\cdot)$	$K_{wi}(1973)$	$K_{wi}(1974)$	$K_{wi}(1975)$	$K_{wi}(1976)$	$K_{wi}(1977)$
1. Flour and bread	20.20	14.06	6.46	12.83	58.51	5.02
2. Meat and eggs	15.69	13.78	14.10	22.05	19.75	13.33
3. Fish	23.28	22.57	31.08	24.41	18.57	13.70
4. Canned meat and fish	29.62	34.47	20.41	41.95	12.28	13.72
5. Dairy products	5.32	5.51	3.37	5.46	6.76	5.65
6. Butter and margarine	34.20	42.60	32.65	5.07	12.70	17.13
7. Potatoes and vegetables	10.08	9.44	8.88	7.40	16.29	8.74
8. Other foods	11.88	16.08	7.15	9.73	7.77	13.09
9. Beverages	14.77	13.51	19.90	18.29	14.22	8.47
10. Tobacco	68.05	3.49	5.78	183.68	6.77	17.15
11. Clothing	4.85	4.01	4.00	6.10	3.59	8.76
12. Footwear	19.82	23.10	10.83	18.11	20.76	22.11
13. Housing	8.58	12.28	6.48	6.21	7.80	5.95
14. Fuel and power	18.03	19.80	16.83	13.56	15.88	15.16
15. Furniture	11.58	8.98	14.49	12.86	9.27	13.13
16. Household equipment	36.78	44.42	37.18	15.98	35.85	33.21
17. Misc. household goods	32.81	32.96	33.85	22.23	37.15	14.95
18. Medical care	49.57	45.08	39.94	32.93	58.46	50.37
19. Motorcars, bicycles	8.41	8.43	10.47	9.23	8.08	5.71
20. Running costs of vehicles ..	7.13	7.33	5.90	7.13	6.94	8.56
21. Public transport	39.26	34.49	20.28	30.28	47.00	63.12
22. P.T.T. charges	37.50	35.24	32.02	27.08	33.74	65.13
23. Recreation	17.24	16.53	24.61	12.95	13.08	15.66
24. Public entertainment	15.58	15.00	18.73	12.62	14.42	16.19
25. Books and newspapers	26.52	21.57	13.83	23.31	39.70	31.75
26. Personal care	44.56	20.01	33.65	10.21	114.57	10.03
27. Misc. goods and services ...	104.41	110.44	126.97	62.76	109.74	65.41
28. Restaurants, hotels, etc. ..	24.39	22.67	25.11	22.38	22.85	28.04
I. Food. beverages and tobacco	0.59	0.39	0.48	1.06	0.92	1.05
II. Clothing and footwear	3.34	2.74	3.44	3.90	2.86	5.16
III. Housing, fuel and furniture	1.66	2.28	1.77	1.25	1.26	0.92
IV. Travel and recreation	-0.05	-0.09	0.26	-0.14	-0.22	-0.15
V. Other goods and services ...	11.07	10.62	12.20	6.15	12.78	9.41

Table 17. Overall values and rank numbers of skewness and kurtosis of budget shares and expenditures at constant (1974) prices

Commodity group, i	$H_{wi}(\cdot)$	rank	$H_{C*i}(\cdot)$	rank	$K_{wi}(\cdot)$	rank	$K_{C*i}(\cdot)$	rank
Total	..	..	2.00	..	..	..	9.76	..
1. Flour and bread	3.07	20	2.54	24	20.20	14	18.83	20
2. Meat and eggs	3.20	18	4.98	16	15.69	18	40.99	18
3. Fish	3.59	14	5.68	13	23.28	13	69.99	14
4. Canned meat and fish	3.83	11	2.95	21	29.62	10	15.09	21
5. Dairy products	1.81	28	1.28	28	5.32	27	3.43	28
6. Butter and margarine	3.70	13	1.91	27	34.20	8	6.71	27
7. Potatoes and vegetables	2.32	26	2.74	22	10.08	23	14.51	22
8. Other foods	2.42	23	8.20	9	11.88	21	206.03	8
9. Beverages	3.15	19	4.71	18	14.77	20	50.46	16
10. Tobacco	4.13	7	2.26	26	68.05	2	8.12	26
11. Clothing	1.83	27	2.52	25	4.85	28	9.14	25
12. Footwear	3.70	12	3.73	19	19.82	15	23.02	19
13. Housing	2.37	24	8.78	8	8.58	24	150.45	9
14. Fuel and power	3.24	17	4.94	17	18.03	16	84.20	13
15. Furniture	2.85	22	5.05	15	11.58	22	47.57	17
16. Household equipment	4.55	6	10.68	7	36.78	7	229.36	6
17. Misc. household goods	4.70	5	7.68	10	32.81	9	104.78	10
18. Medical care	5.95	2	11.74	5	49.57	3	229.08	7
19. Motorcars, bicycles	2.93	21	3.36	20	8.41	25	12.60	24
20. Running costs of vehicles	2.37	25	6.87	12	7.13	26	89.44	12
21. Public transport	4.92	4	19.67	3	39.26	5	612.71	3
22. P.T.T. charges	5.28	3	10.90	6	37.50	6	258.80	5
23. Recreation	3.39	15	23.98	1	17.24	17	939.97	1
24. Public entertainment	3.38	16	5.59	14	15.58	19	60.66	15
25. Books and newspapers	4.12	8	12.14	4	26.52	11	350.13	4
26. Personal care	4.09	10	2.69	23	44.56	4	13.31	23
27. Misc. goods and services	8.48	1	23.77	2	104.41	1	809.38	2
28. Restaurants, hotels, etc.	4.12	9	6.96	11	24.39	12	90.61	11
I. Food, beverages and tobacco ..	0.77	..	1.96	..	0.59	..	11.64	..
II. Clothing and footwear	1.58	..	2.38	..	3.34	..	8.38	..
III. Housing, fuel and furniture ..	1.14	..	4.79	..	1.66	..	56.62	..
IV. Travel and recreation	0.70	..	4.65	..	-0.05	..	56.42	..
V. Other goods and services	2.70	..	9.23	..	11.07	..	170.88	..

Tables 15 - 17 containing the *skewness* and the *kurtosis* of the budget shares and the expenditures at constant prices, indicate substantial departures from normality for the majority of commodity groups. As noticed in subsection 3.2.5 above, a normally distributed variable has the property that its skewness and its kurtosis, as defined in eqs. (3.29) and (3.30) - or rather their population counterparts - both equal zero. According to Shapiro, Wilk, and Chen (1968, p. 1364), distributions may be classified into the following five major groups:[4]

   Group 1: Skewness > 0.3, Kurtosis > 0.0: Asymmetric, long-tailed.
   Group 2: Skewness > 0.3, Kurtosis < 0.0: Asymmetric, short-tailed.
   Group 3: Skewness ≤ 0.3, Kurtosis > 1.5: Symmetric, long-tailed.
   Group 4: Skewness ≤ 0.3, Kurtosis < -0.5: Symmetric, short-tailed.
   Group 5: Skewness ≤ 0.3, Kurtosis ∈[-0.5, 1.5]: Near normal.

Adopting this classification, we find that for all the disaggregated commodity groups, both the distribution of expenditures at constant prices and the distribution of budget shares belong to group 1 - *i.e.* they are *asymmetric, long-tailed* distributions. For the aggregated groups, the same conclusions apply, except that the budget share of group IV Travel and recreation has an asymmetric, *short*-tailed distribution.

In general, the distributions of expenditures reveal greater departures from normality than the distributions of budget shares: Both the skewness and the kurtosis of the former are greater than those of the latter for 22 of the 28 disaggregated commodities ($H_{C*i} > H_{wi}$, $K_{C*i} > K_{wi}$). The exceptions are 1 Flour and bread, 4 Canned meat and fish, 5 Dairy products, 6 Butter and margarine, 10 Tobacco, and 26 Personal care. The range of the skewness extends from 1.3 (commodity 5 Dairy products) to 24.0 (commodity 23 Recreation) for the expenditures, and from 1.8 (commodity 5 Dairy products) to 8.5 (commodity 27 Misc. goods and services) for the budget shares. The range of the kurtosis extends from 3.4 (commodity 5 Dairy products) to 939.97 (commodity 23 Recreation) for the expenditures, and from 4.9 (commodity 11 Clothing) to 104.4 (commodity 27 Misc. goods and services) for the budget shares. Thus, we may say, with reference to the class of normal distributions, that commodity 5 Dairy products, gives the "best" performance, and commodity 27 Misc. goods and services, the "worst". For the aggregated groups, the expenditures show, without exception, larger deviations from normality than the budget shares. Closest to normality are the budget shares of I Food, beverages and tobacco, and IV Travel and recreation, with skewness equal to 0.77 and 0.70, and kurtosis equal to 0.59 and -0.05 respectively.

It is not difficult to explain intuitively why we should expect the distribution of budget shares to have a form closer to normality than the distribution of expenditures. It is well known that income, and total consumption expenditure, usually have rather skew distributions, often represented by log-normal or Pareto distributions. The overall skewness and kurtosis of total expenditure at constant prices in our sample are $H_{C*}(\cdot) = 2.00$ and $K_{C*}(\cdot) = 9.76$ respectively, which clearly indicate non-normality. This also tends to make the distribution of the expenditures on the different commodities non-normal. By transforming to budget shares, we may hope to remove this common non-normal component from the distributions. It is, however, obvious that budget shares can never be *exactly* normally distributed, since their range is limited to the interval [0, 1]. Using a detailed commodity classification the upper limit of 1 gets little practical significance. On the other hand, a non-negligible fraction of the observations is then likely to have values equal to zero (compare table 12), a fact that tends to draw the distributions away from normality. In general, we should expect that the presence of zero observations tends to increase both the skewness and the kurtosis of the sampling distributions. We shall return more closely to this question in subsection 3.3.3 below.

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4) Using the definition of kurtosis given in section 3.2.5.

Table 18. Overall rank numbers of
           - mean value
           - non-zero fraction,
           - coefficient of variation,
           - skewness, and
           - kurtosis
        of budget shares

Commodity group, i	Rank $\overline{w}_i(\cdot)$	Rank $A_{Xi}(\cdot)$	Rank $V_{wi}(\cdot)$	Rank $H_{wi}(\cdot)$	Rank $K_{wi}(\cdot)$
1. Flour and bread	13	3	25	20	14
2. Meat and eggs	3	5	22	18	18
3. Fish	23	12	18	14	13
4. Canned meat and fish	28	16	14	11	10
5. Dairy products	11	1	28	28	27
6. Butter and margarine	27	9	20	13	8
7. Potatoes and vegetables	5	2	27	26	23
8. Other foods	9	4	26	23	21
9. Beverages	18	14	13	19	20
10. Tobacco	22	23	17	7	2
11. Clothing	2	10	21	27	28
12. Footwear	24	27	5	12	15
13. Housing	1	7	23	24	24
14. Fuel and power	6	6	24	17	16
15. Furniture	10	22	12	22	22
16. Household equipment	15	21	8	6	7
17. Misc. household goods	17	8	15	5	9
18. Medical care	20	24	3	2	3
19. Motorcars, bicycles	8	28	4	21	25
20. Running costs of vehicles	4	20	16	25	26
21. Public transport	14	17	6	4	5
22. P.T.T. charges	25	26	1	3	6
23. Recreation	7	15	10	15	17
24. Public entertainment	12	19	9	16	19
25. Books and newspapers	19	13	11	8	11
26. Personal care	21	11	19	10	4
27. Misc. goods and services	26	25	2	1	1
28. Restaurants, hotels, etc.	16	18	7	9	12

3.3.3. Rank correlation coefficients and tests

Table 18 contains the ranking numbers of the overall values of the average, the non-zero fraction, the coefficient of variation, the skewness, and the kurtosis of the budget shares of the disaggregated commodities based on tables 10, 12, 14, 15 and 16 above.[5] The coefficient of correlation between these ranking numbers, the *rank correlation coefficients*, are given in table 19.

Table 19. Rank correlation coefficients between overall statistics for budget shares based on the disaggregated commodity classification

	Average value $\overline{W}_i$	Non-zero fraction $A_{\chi i}$	Coef. of variation V_{wi}	Skewness H_{wi}	Kurtosis K_{wi}
$\overline{w}_i$	1				
$A_{\chi i}$	0.4116[*]	1			
V_{wi}	-0.4521[*]	-0.8976[Δ]	1		
H_{wi}	-0.7225[Δ]	-0.5205[Δ]	0.6858[Δ]	1	
K_{wi}	-0.7635[Δ]	-0.3585	0.4647[*]	0.9381[Δ]	1

Δ) Significantly different from zero according to a two-tailed Student test with an approximate level of *1 per cent*.
*) Significantly different from zero according to a two-tailed Student test with an approximate level of *5 per cent* (but insignificant at the 1 per cent level).

In general, the rank correlation coefficient between two series A and B can be written in terms of the *rank differences* as follows:

$$(3.31) \quad r = 1 - \frac{6}{n(n^2-1)} \sum_{i=1}^{n} (z_i - i)^2,$$

where n is the number of observations in each series and z_i is the rank number of the observation in series B for which the corresponding rank number in series A is i (i = 1, 2, ..., n). The validity of this formula - which has been used to construct table 19 - is easy to verify by substituting

$$\overline{z} = \overline{i} = \frac{n+1}{2}$$

$$\sum z_i^2 = \sum i^2 = \frac{1}{6} n(n+1)(2n+1)$$

into the conventional formula

$$r = \frac{\frac{1}{n}\sum(z_i-\overline{z})(i-\overline{i})}{\{\frac{1}{n}\sum(z_i-\overline{z})^2 \frac{1}{n}\sum(i-\overline{i})^2\}^{\frac{1}{2}}} .$$

5) All the statistics are ranked in descending order; *i.e.* the rank number 1 is assigned to the highest value, the number 28 is assigned to the lowest.

The statistic

$$(3.32) \quad t = \sqrt{\frac{r^2(n-2)}{1-r^2}}$$

then has an approximate Student distribution with n-2 = 26 degrees of freedom when the two series are independently distributed.[6] We reject the hypothesis of independence when

$$|t| \geq a,$$

i.e. when

$$|r| \geq \frac{a}{\sqrt{n-2+a^2}} = a',$$

where a is the critical Student value at an appropriate level of significance, and a' is defined by the last equality. At the 1 per cent level we find

$$a = 2.78, \qquad a' = 0.4785;$$

using a 5 per cent level, we have

$$a = 2.06, \qquad a' = 0.3739.$$

The skewness and the kurtosis are strongly correlated, with a rank correlation coefficient of 0.94. Both the skewness and the kurtosis show a significantly negative correlation with the average budget share, at the 1 per cent level, *i.e.* an aggregation of commodities tends to reduce the overall departure from normality of the distribution of the budget shares. Not unexpectedly, we also find that the non-zero fraction of the expenditures is positively correlated with the average budget share; the rank correlation coefficient is 0.41, which is significant at the 5 per cent level. The non-zero fraction is negatively correlated with both the coefficient of variation and the skewness, the rank correlation coefficients being -0.90 and -0.52 respectively. On the other hand, it does not show a significant correlation with the kurtosis; *i.e.* an increasing tendency to zero reporting of expenditures does not tend to make the tails of the distribution of budget shares "longer".

3.3.4. A final remark

Briefly stated, the two main conclusions emerging from the empirical investigation above are the following:

i) The *marginal* distributions of budget shares are generally closer to normality than the distributions of the corresponding expenditures.

ii) Aggregation of commodities is favourable from the point of view of normality. A disaggregation increases the degree of zero expenditure reporting, and this strongly tends to draw the distributions of expenditures and budget shares away from normality.

These conclusions have obvious econometric implications, since a substantial part of the standard methods of inference presumes that the distributions of the variables do not depart strongly from normality. Of course, these results do not *necessarily* imply that *conditional* distributions of expenditures and budget shares - in particular *distributions of disturbances* in regression equations explaining these variables - have similar properties. On the other hand, it is rather unlikely that disturbances in a regression equation written in terms of budget shares are significantly non-normal if its left hand variable is not. From this point of view, the above conclusions may be taken as a support to model formulations based on budget shares in the ensuing econometric project.[7]

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6) See *e.g.* Kendall and Stuart (1973), paragraphs 31.19 - 31.23.
7) The distributional properties of disturbances in stochastic equations written in terms of shares are analysed recently in Woodland (1979).

3.4. Period specific summary statistics: Trend and seasonal effects

In order to review trend and seasonal effects during the period 1973 - 1977, we have computed a set of summary statistics based on the observations from each accounting period. These statistics thus form time series over 130 accounting periods and offer relatively detailed information about the development of the different commodities over time.[8] We shall present these time series graphically, supplemented by one table only (table 20) which contains the extreme values of the most important summary statistics.[9]

The bulk of the diagrams are reproduced in separate annexes to this report. At the aggregated commodity level we shall present time series for average consumption expenditures at constant (1974) prices, average budget shares and the coefficient of variation, the skewness and the kurtosis of the budget shares in annex 1 (see subsection 3.4.2 below). At the disaggregated commodity level annex 2 contains a complete record of time series for the 28 budget shares. They are commented on in subsection 3.4.3 together with some selected period specific summary statistics which call for special attention.[10]

3.4.1. The average total consumption expenditure at constant prices

The time series of the average total consumption expenditure at constant (1974) prices ($\overline{C}(k, t)$) is presented in diagram C. This average shows a positive trend *within* each year, attaining its peak in period 26.[11] The range of expenditures differs considerably between years; the year 1975 - containing not only the highest average expenditure (about 69 000 kroner), but also the lowest value (about 27 000 kroner) - is in this respect the most extreme year in our data set.

The seasonal pattern of total expenditure indicated in diagram C should be kept in mind when comparing the development of expenditures and budget shares of the different commodity groups. To the extent that the expenditure on a commodity group shows the same seasonal variation as total expenditure, its budget share will tend to fluctuate less than the other statistics. And this in fact turns out to be the case for the majority of commodities.

3.4.2. Time series at the aggregated commodity level

The diagrams C.I - C.V in annex 1, indicate that *average consumption expenditures* at constant (1974) prices of the five aggregated groups follow very much the same seasonal pattern as total consumption expenditure. Diagrams W.I - W.V visualize the development of the corresponding *average budget shares*. The budget share of commodity group I Food, beverages and tobacco has been clearly declining during the period 1973 - 1977, whereas III Housing, fuel and furniture, and IV Travel and recreation have occupied a gradually increasing share of total expenditure. These diagrams thus reinforce the conclusions obtained from table 10 in subsection 3.3.1 above.

The non-systematical component[12] of the average share seems to be negatively correlated with the sample size, *i.e.* it shows stronger fluctuations in the years 1975 - 1977 than in 1973 and 1974. We find that the period specific average is closest to the corresponding annual average in 1973 for all the five aggregated commodity groups. The non-systematical component of the budget shares seems to be most pronounced in the year 1975, in particular for commodity groups III Housing, fuel and furniture, and IV Travel and recreation.

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8) Of course, the values of these summary statistics are statistically less significant than the values of the corresponding annual statistics, being based on a sample which on the average is only 1/26 of the annual sample size.
9) Observe that the maxima and minima in this table generally refer to *different* accounting periods.
10) All diagrams are numbered mnemonically: Diagram C.i gives the time series of consumption expenditure on commodity i at constant prices, diagram W.i contains its average budget share, diagrams VW.i, SW.i, and KW.i represent respectively the coefficient of variation, the skewness, and the kurtosis of its budget share, etc.
11) This period includes the last week before Christmas, and it is not surprising that the expenditures are clearly influenced by purchases of gifts and other preparations for the feast.
12) By the term "non-systematic" we mean the part of the variation in the statistic which cannot be attributed to seasonal or trend effects.

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Table 20. Overall maxima and minima of period specific summary statistics. 1973 - 1977

Commodity group	Average budget shares (w_i). Percentages		Coefficient of variation of budget shares. (V_{w_i})		Average expenditure at constant (1974) prices. ($\bar{c}_i$). Nkr		Coefficient of variation of average expenditure at constant (1974) prices. ($V_{\bar{c}_i}$)		Relative number of reports with non-zero expenditure (A_{x_i}). Percentages	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Total consumption	..	..	..	..	27 145	69 008	0.44	1.34	..	..
1. Flour and bread	1.54	4.05	0.49	1.54	563	1 423	0.47	1.30	92.3	100.0
2. Meat and eggs	4.32	12.70	0.35*)	1.64	1 456	6 815	0.56	2.17	87.1	100.0
3. Fish	0.79	3.05*)	0.80*)	2.63	303	1 168	0.77	2.79	62.5	100.0
4. Canned meat and fish	0.22*)	1.05	0.89	2.66	105	443	0.93	1.98	37.0	86.0
5. Dairy products	2.23	5.41	0.50	1.09	700*)	1 994	0.46	1.01	91.2	100.0
6. Butter and margarine	0.60	1.69	0.64	2.34	223	656	0.60	1.27	73.9	100.0
7. Potatoes and vegetables	3.21	7.54	0.42	1.28	942	3 386	0.53	1.45	94.1	100.0
8. Other foods	3.24	6.02	0.55	1.46	837	2 751	0.49	1.79	94.1	100.0
9. Beverages	1.30	7.80*)	0.84	2.05	395	2 820	1.09	3.03	46.9	93.0
10. Tobacco	0.87	3.74*)	0.93	3.22	298	2 293*)	0.95	2.22	40.6	74.2
11. Clothing	4.92	11.80	0.66	1.45	1 883	9 082	0.79	1.82	75.0	100.0
12. Footwear	0.05*)	3.11	1.38	3.86	46*)	1 904	1.33	4.59	9.7	53.6
13. Housing	7.00	24.44*)	0.28*)	1.35	2 274	9 799*)	0.73	2.94	88.9	100.0
14. Fuel and power	2.10	7.30	0.52	1.34	847*)	1 812	0.38	1.15	85.3	100.0
15. Furniture	2.18	7.35	0.96	2.38	913	5 712	1.11	3.77	35.5	86.7
16. Household equipment ·	0.98*)	6.69	0.89	2.87	533	3 672	1.09	5.00	33.3*)	84.8
17. Misc. household goods	1.35*)	5.97	0.75	2.35	442	2 533	0.77	4.47	83.3	100.0
18. Medical care	0.49	5.01	1.08*)	5.35	201	1 995	1.46	6.22	23.3	72.5
19. Motorcars, bicycles	1.63*)	11.96	1.47	4.04	759	7 373	1.60	4.71	13.3	48.0
20. Running costs of vehicles	2.01*)	13.39	1.02	2.12	985*)	7 956	1.03	3.25	33.3	88.7
21. Public transport ...	0.81	6.18*)	0.65*)	3.99	279	4 234	0.67*)	5.44	35.3	100.0*)
22. P.T.T. charges	0.04*)	4.21	1.61	5.65	35*)	3 079	1.82*)	5.84	23.8	68.2
23. Recreation	1.38*)	11.73	0.84	2.74	802	10 624	0.89	5.45	51.2	96.7
24. Public entertainment	0.72	7.61	0.96	3.02	275	3 068	1.01	4.73	33.3*)	82.4
25. Books and newspapers	1.00	4.69	0.90*)	2.62	381	2 369	0.94	4.18	63.0	90.4
26. Personal care	1.06	3.07	0.71	2.43	443	1 319	0.80	2.19	59.5	96.8
27. Misc. goods and services	0.15*)	5.17	1.21	4.76	59*)	6 091	1.50	6.88	20.5	80.0
28. Restaurants, hotels, etc.	1.19	5.94	0.95*)	2.75	591	4 305	0.91*)	4.01	42.2	87.5
I. Food, beverages and tobacco	23.40	36.97	0.31	0.63	6 646	18 112	0.39	0.90	..	..
II. Clothing and footwear	6.05	14.54	0.67	1.34	2 268	10 664	0.80	1.78	..	..
III. Housing, fuel and furniture	20.19	32.97*)	0.28*)	0.69	6 751	17 392	0.55	1.82	..	..
IV. Travel and recreation	14.93*)	34.84	0.43	0.86	7 336*)	23 429	0.72	2.80	..	..
V. Other goods and services	4.46	12.04	0.66	1.51	1 889	8 776	0.82	2.98	..	..

*) From accounting period 1 in 1975. See comments in section 2.1.

Diagram C. Total consumption. Average total consumption at constant (1974) prices[1] in each accounting
period. 1973 - 1977. Norwegian kroner
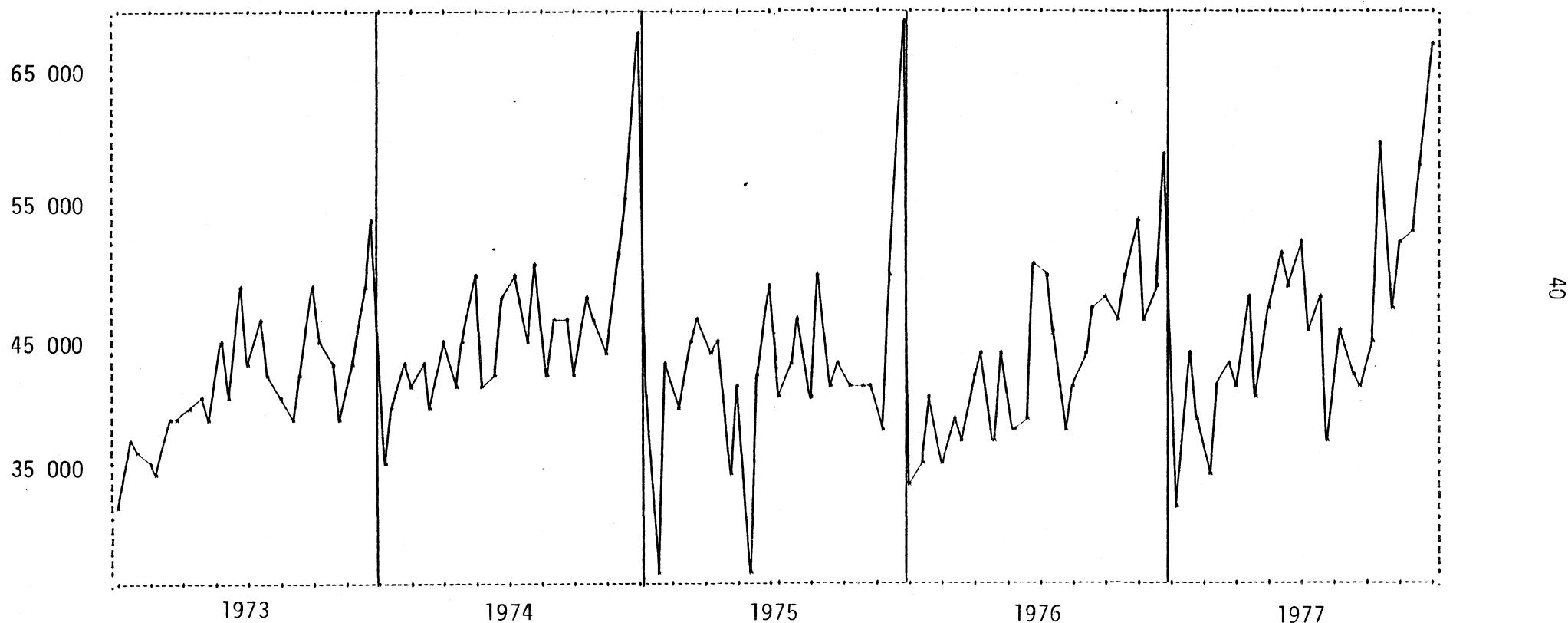
1) This concept is defined by equation (3.12) in subsection 3.2.2.

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As far as *the coefficient of variation, the skewness* and *the kurtosis* of the budget shares are concerned, there are no seasonal effects to be traced from our diagrams. The period-to-period variation in the statistics is less pronounced in 1973 than in the subsequent years for all commodity groups. To a large extent this is obviously due to the differences in the sample size.

A striking conclusion that emerges from our diagrams in annex 1 is that, for any summary statistic, the *absolute* dispersion of the statistic around its overall value (*i.e.* its value based on the complete sample) seems to be larger for commodities with large overall values of this statistic than for those with lower values. This means for instance, that the period-to-period *fluctuations* of the skewness of the budget share is larger the greater is the *level* of the skewness. However, it is not clear that the *relative* dispersion[13] is positively correlated with the level of the overall value as well. This point can be verified by comparing, for instance, the time series for the kurtosis of the budget share of I Food, beverages and tobacco (diagram KW.I in annex 1) with the corresponding series for V Other goods and services (diagram KW.V).

3.4.3. Time series at the disaggregated commodity level

Finally, we shall comment briefly on the diagrams relating to the 28 disaggregated commodity groups.

1.   *Flour and bread*. There is a negative trend in the average budget share over the period 1973 - 1977, but we find no significant seasonal variation except that period 26 exhibits a low average budget share for flour and bread in each year (confer diagram W.1 in annex 2).

2.   *Meat and eggs*. The average budget share for this commodity group is systematically higher in the last four months of the year than in the first eight months of the year (diagram W.2).

3.   *Fish*. The relative price of fish has been decreasing through the period 1973 - 1977 (see table A2.1 of appendix 2). Nevertheless, the average consumption expenditure at constant (1974) prices and the average budget share have decreased during this period (see diagrams C.3 and W.3, respectively). Moreover, the relative number of households which report a non-zero expenditure on fish has been decreasing (diagram AX.3). There is no traces in the data that the reduction of indirect taxes on fish (*e.g.* the compensation for the value added tax introduced in period 17 in 1975) has affected the volume of fish consumption appreciably.

4.   *Canned meat and fish*. Diagram W.4 for the average budget share reveals no seasonal effects.

5.   *Dairy products*. The average budget share has been decreasing during 1973 - 1977 (diagram W.5). There is on the average only a small increase in the purchased volume of dairy products in period 26 (diagram C.5) and the corresponding budget share is therefore low for households reporting in this period. Furthermore, there is a significant effect in diagram C.5 of the overrepresentation in 1974 of large households, mainly families with children, which one would expect to consume more of this commodity group than most other categories of households.

6.   *Butter and margarine*. The average budget share has been decreasing, but show no clear seasonal variation (diagram W.6).

7.   *Potatoes and vegetables*. There is a very strong seasonal effect of the Norwegian harvests of vegetables and potatoes in July, August and September (see diagram W.7). A part of the increase in the budget share, especially in July, is due to the seasonal increase of prices of potatoes and vegetables at this time of the year, confer table A2.1 of appendix 2.

8.   *Other foods*. Diagram W.8 for the average budget share indicates no seasonal effects.

9.   *Beverages*. Diagram W.9 for the average budget share and especially diagram C.9 for the average consumption expenditure at constant (1974) prices, show pronounced seasonal effects in period 26 as well as in the accounting periods in the middle of the summer. It is conceivable that the latter peak reflects the increased consumption of beverages during vacations.

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13) A measure of this relative dispersion might for example be the coefficient of variation of the kurtosis, or the coefficient of variation of the coefficient of variation (*sic!*).

Diagram C.3. Fish. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
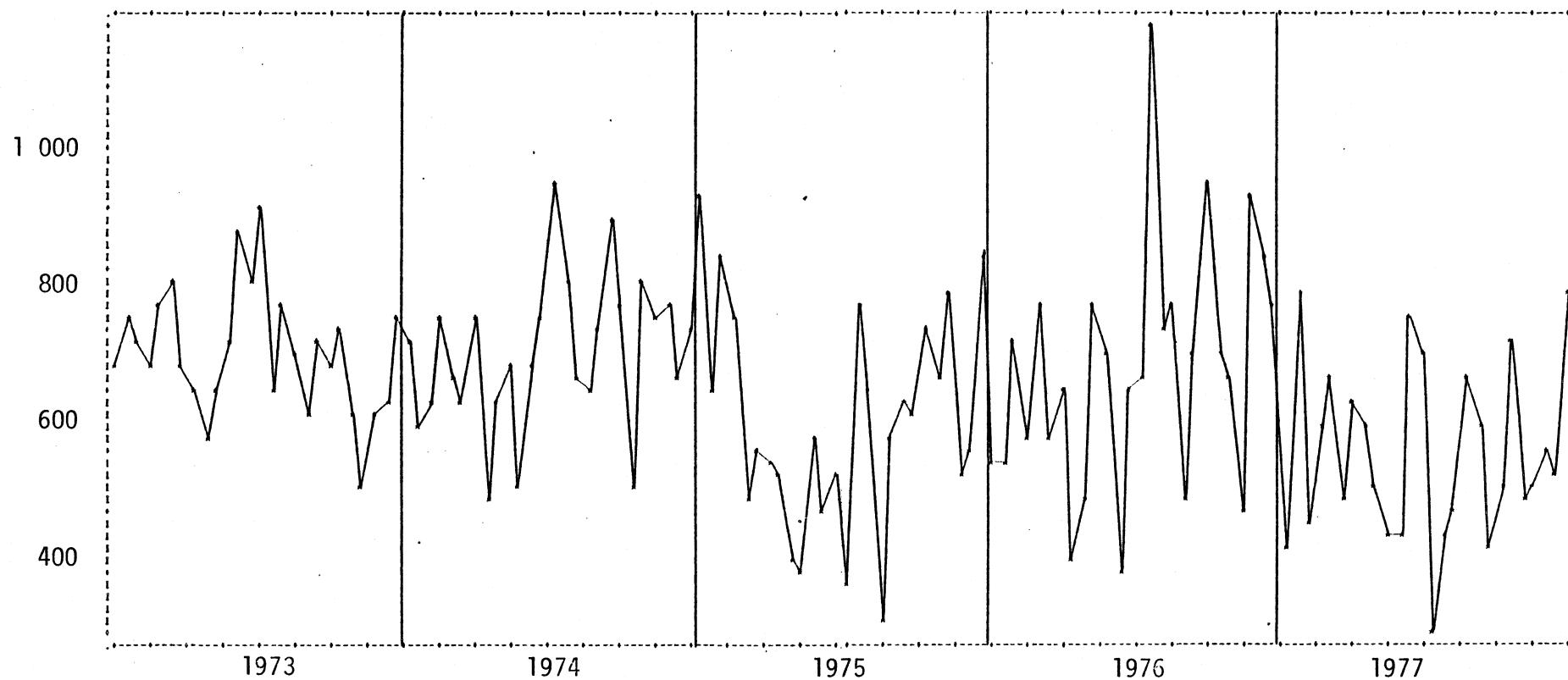
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram AX.3. Fish. The relative number of households in each accounting period (1973 - 1977) which
report a positive expenditure on this item.[1] Percentages
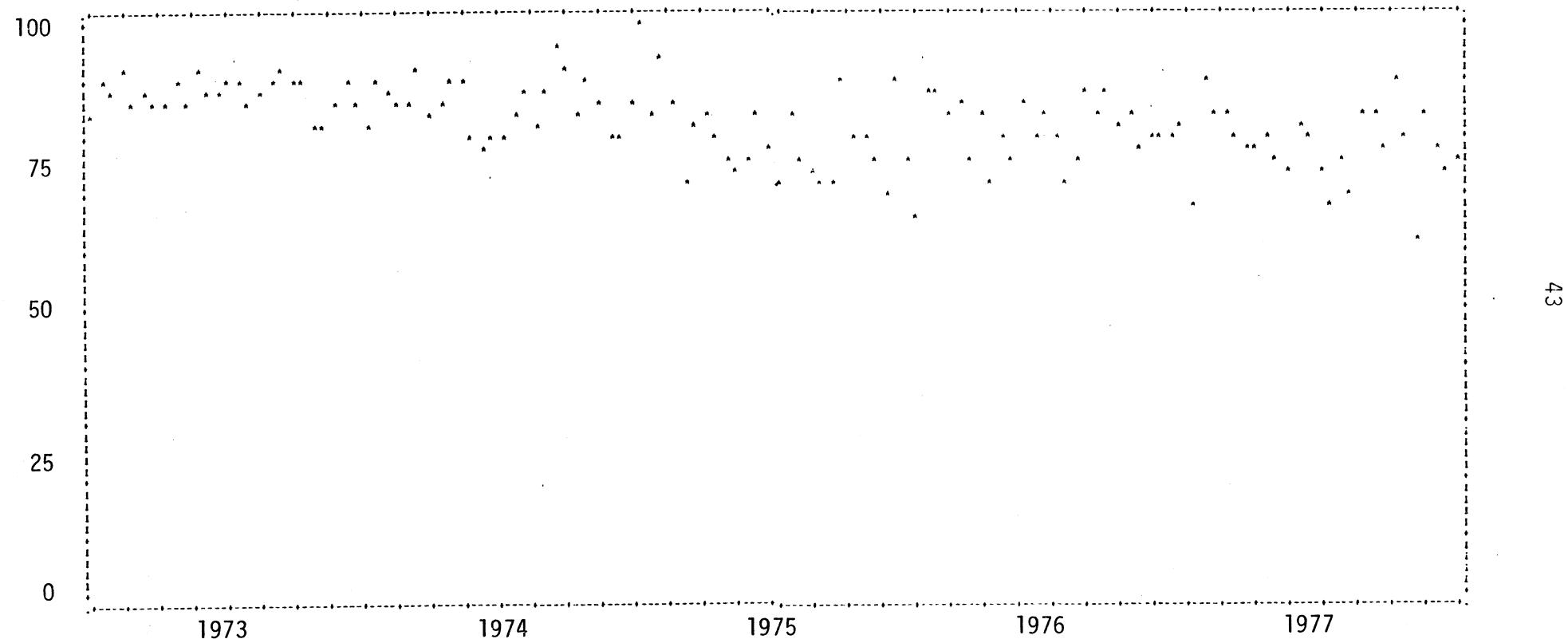
1) This concept is discussed in subsection 3.2.5, see equation (3.27).

Diagram C.5. Dairy products. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
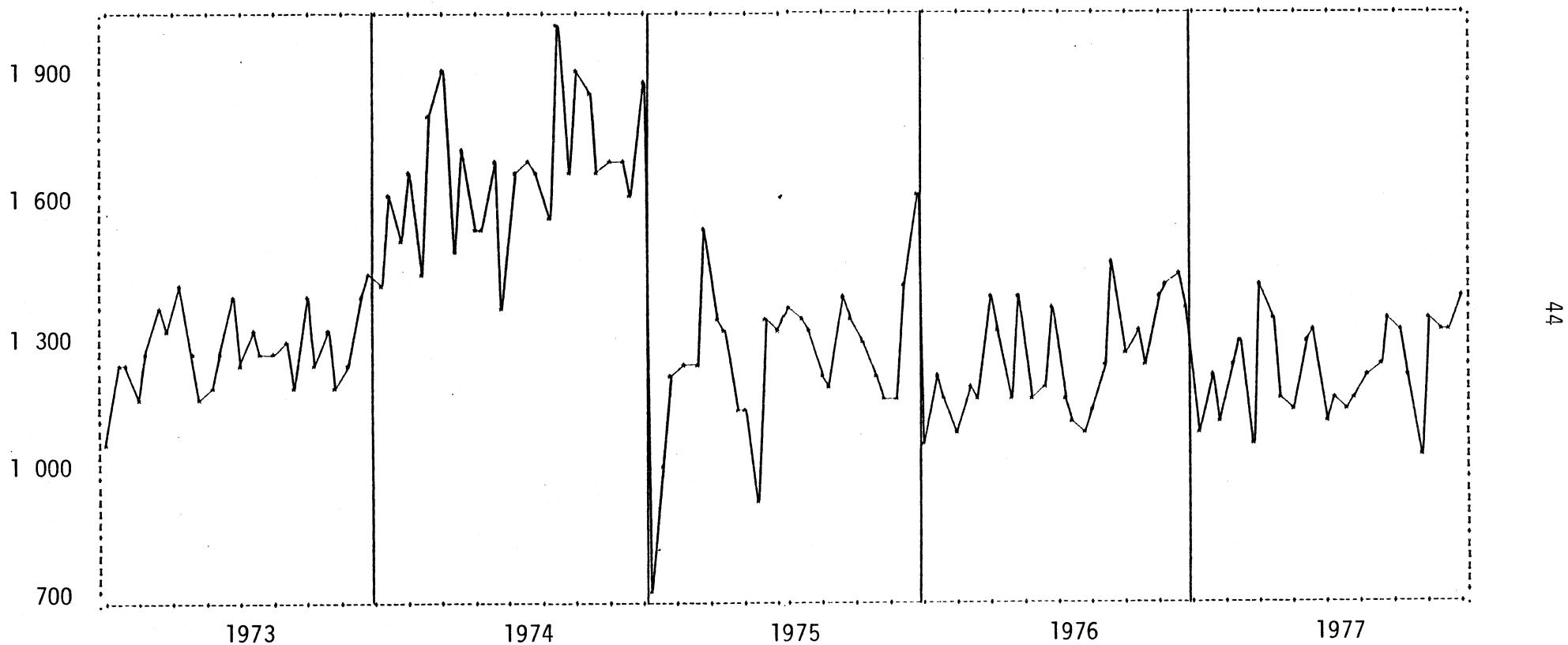
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

10. Tobacco. The average budget share has been decreasing during 1973 - 1977 according to diagram W.10. This may be considered as a result of the public anti-smoking campaign which has been launched by Norwegian Health authorities in the seventies. Moreover, diagram AX.10 shows that the fraction of the households reporting a zero expenditure on tobacco increased significantly during this period.

11. Clothing. This group shows large fluctuations in the budget share (diagram W.11). The only seasonal effect to be noticed is a peak in the budget share in period 26, especially in 1974 when large households are overrepresented.

12. Footwear. Diagrams C.12 and W.12 show a peak purchase of footwear in May every year (periods 10 and 11). This is a commodity group with a relatively low purchase frequency. Nevertheless, it is registered on a 14 days' basis only (see table 3, section 2.2). Not unexpectedly, the fraction of zero reporting is high, confer tables 12 and 20.

13. Housing. Any seasonals in diagram W.13 for this commodity group should be considered as spurious since the expenditure on housing is registered entirely on an annual basis, confer table 13, section 2.2.[14)]

14. Fuel and power. The same qualification, which is made for 13 Housing, applies to diagram W.14.

15. Furniture. Except for a purchase peak in period 26 every year, there is no seasonal effects (diagram W.15).[15)]

16. Household equipment. The budget share shows an increased instability during the period (diagram W.16). From 1975 onwards, the budget shares fluctuates much more from period to period than before.[16)] This is, of course, partly a consequence of the decrease in the sample size.

17. Misc. household goods. Diagram W.17 exhibits no seasonal effects.

18. Medical care. There is no seasonal effects revealed in diagram W.18 for the budget share of medical care. The budget share fluctuates a lot from period to period, especially in 1976. The variation in the consumption expenditure *within* each period, as measured by the coefficient of variation, is also fluctuating over time, see diagram VC.18. Furthermore, the fraction of zero reporting (diagram AX.18) shows an increasing instability over time, attaining its extreme values in 1976.

19. Motorcars, bicycles. Expenditures on this commodity group are registered on an annual basis (as commodities 13 and 14 above). It consists of typically durable goods and it is characterized by the highest fraction of zero reporting of all 28 commodity groups, see diagram AX.19. The only observation we shall make on diagram W.19 is that the variability of the budget share is far greater in 1977 than in any other year.

20. Running costs of vehicles. A priori one would except an increase in the budget share for this commodity group in the summer months, and so we observe in diagram W.20, except in 1977. The oil crisis at the end of 1973 and in the first periods of 1974 do not cause any further decrease in the volume of running costs of vehicles as compared with seasonal decreases at the subsequent turns of the year (diagram C.20).

21. Public transport. Diagram W.21 shows no seasonal effects. There is a high dispersion around the mean value of the budget shares, see table 20.

22. P.T.T. charges. There is no distinct seasonal variation in the budget share of P.T.T. charges (diagram W.22).

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14) The peak in the budget share in period 1, 1975 is probably due to regional differences in housing expenditures, as only households from Oslo are included in the sample for this accounting period. This is due to an error in the data processing, see the remarks at the end of section 2.1.
15) Notably, 63.8 per cent of the expenditure (in 1973) was registered on an annual basis (see table 3).
16) 54.5 per cent of the expenditure (in 1973) was registered on an annual basis.

Diagram C.9. Beverages. Average consumption expenditure at constant (1974) prices[1] in each accounting
period. 1973 - 1977. Norwegian kroner
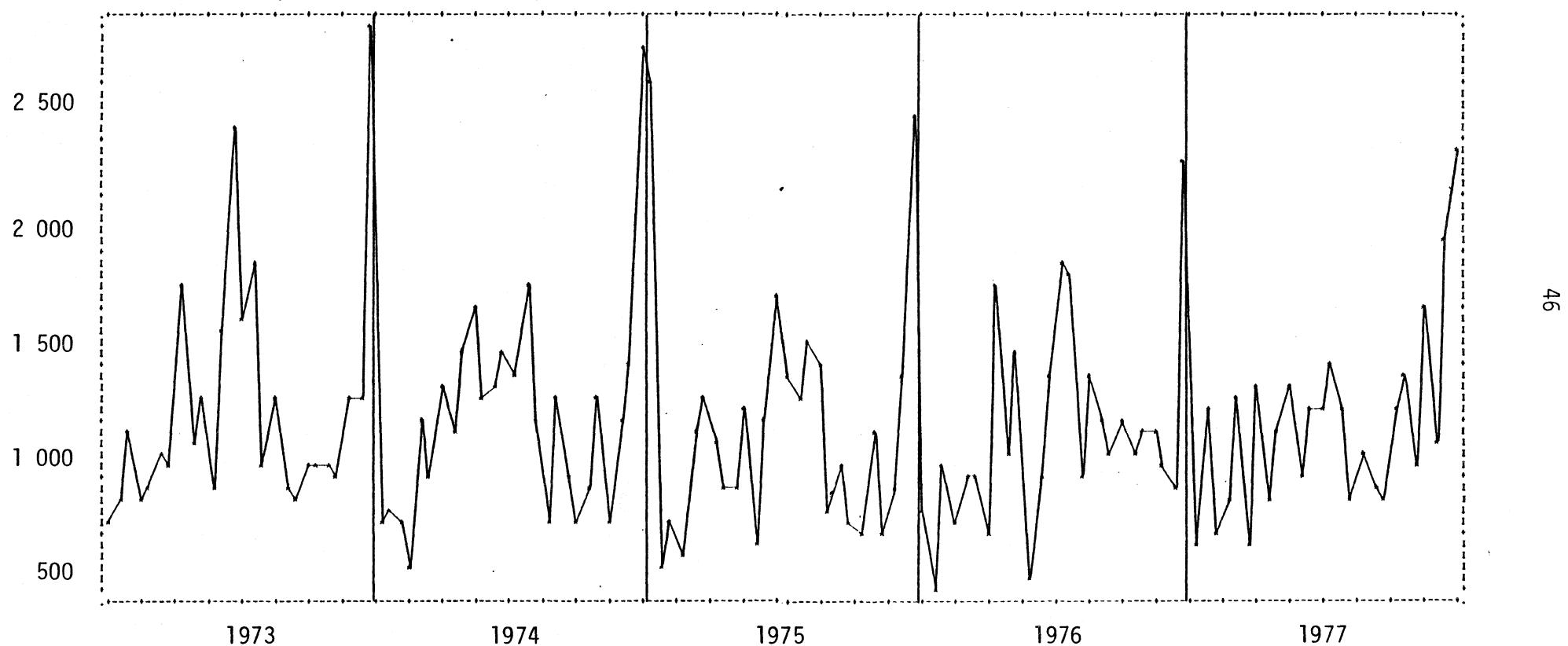
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection
3.2.2.

Diagram AX.10. Tobacco. The relative number of households in each accounting period (1973 - 1977) which
report a positive expenditure on this item.[1] Percentages
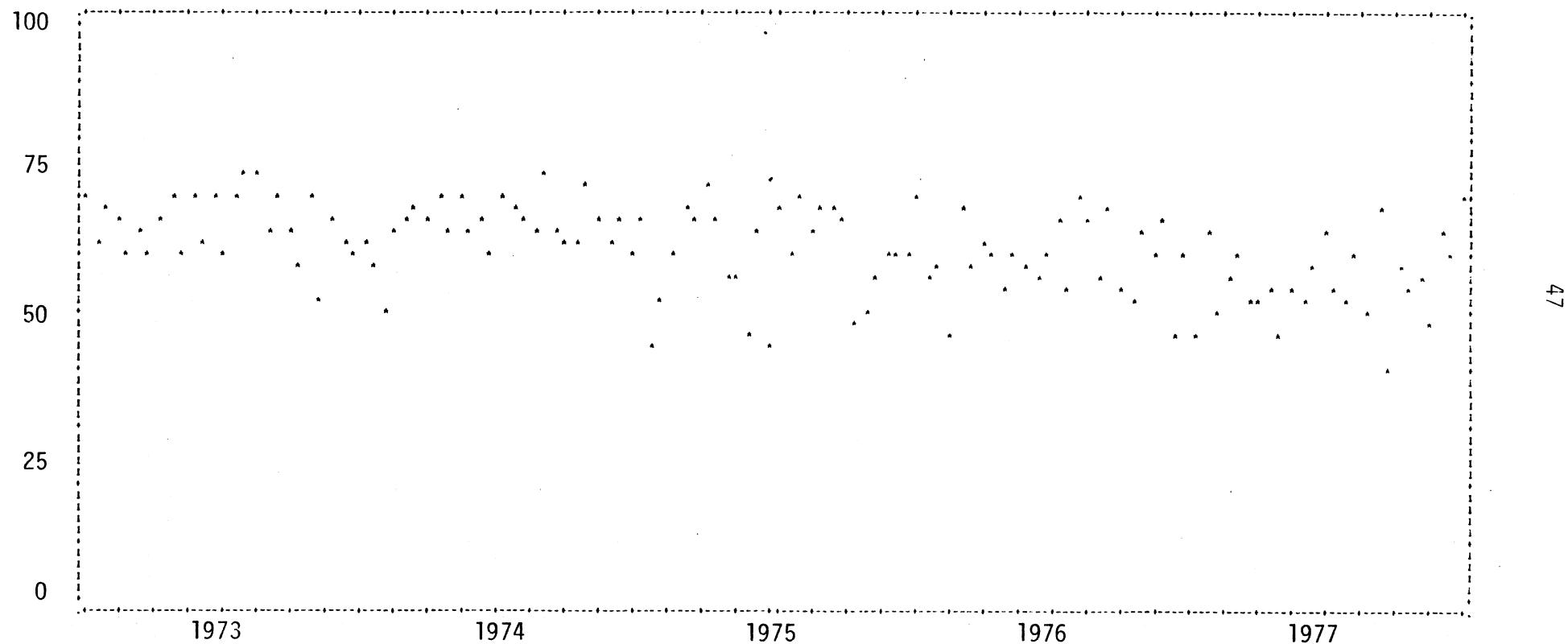
1) This concept is discussed in subsection 3.2.5, see equation (3.27).

Diagram C.12. Footwear. Average consumption expenditure at constant (1974) prices[1] in each accounting
period. 1973 - 1977. Norwegian kroner
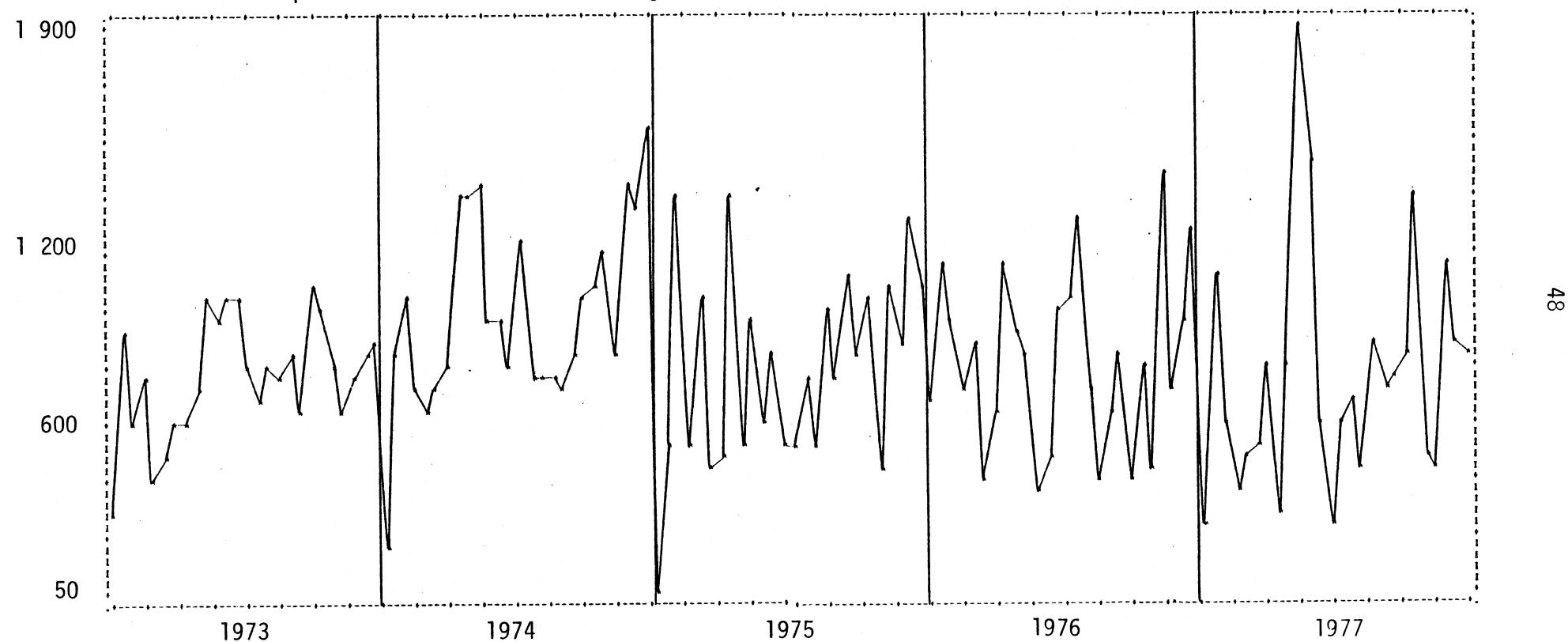
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection
3.2.2.

Diagram AX.18. Medical care. The relative number of households in each accounting period (1973 -1977), which report a positive expenditure on this item.[1] Percentages
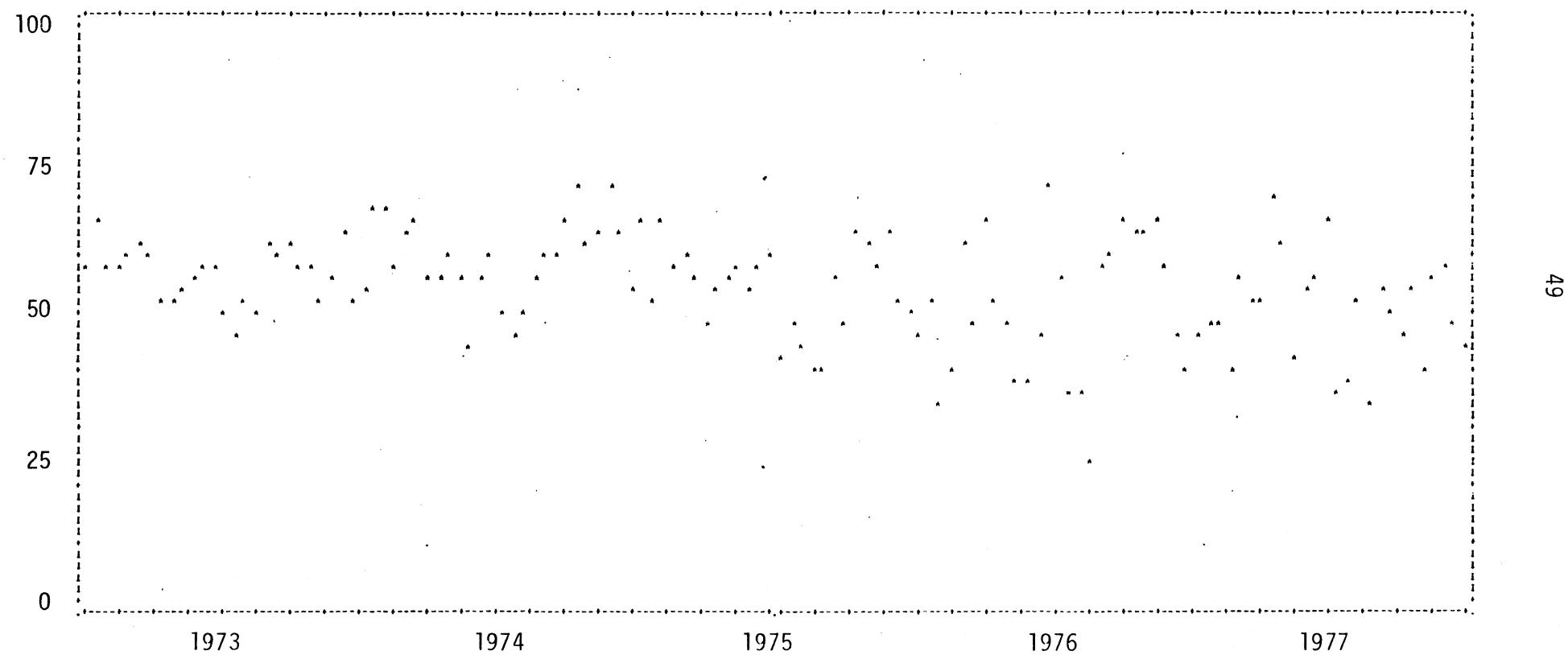
1) This concept is discussed in subsection 3.2.5, see equation (3.27).

Diagram VC.18. Medical care. The coefficient of variation[1] for the consumption expenditures at
constant (1974) prices in each accounting period. 1973 - 1977
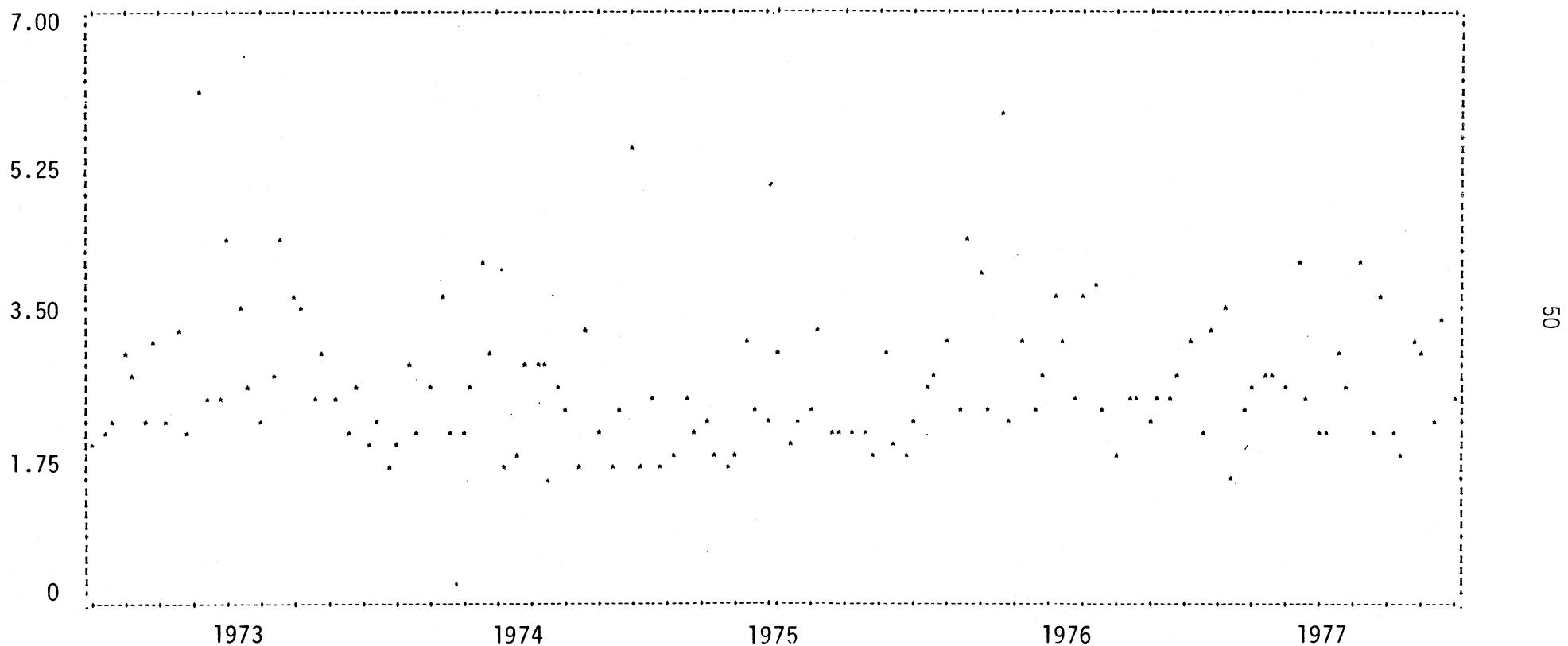
1) The coefficient of variation is defined by equation (3.28) of subsection 3.2.5.

Diagram AX.19. Motorcars, bicycles. The relative number of households in each accounting period (1973 - 1977), which report a positive expenditure on this item.[1) Percentages
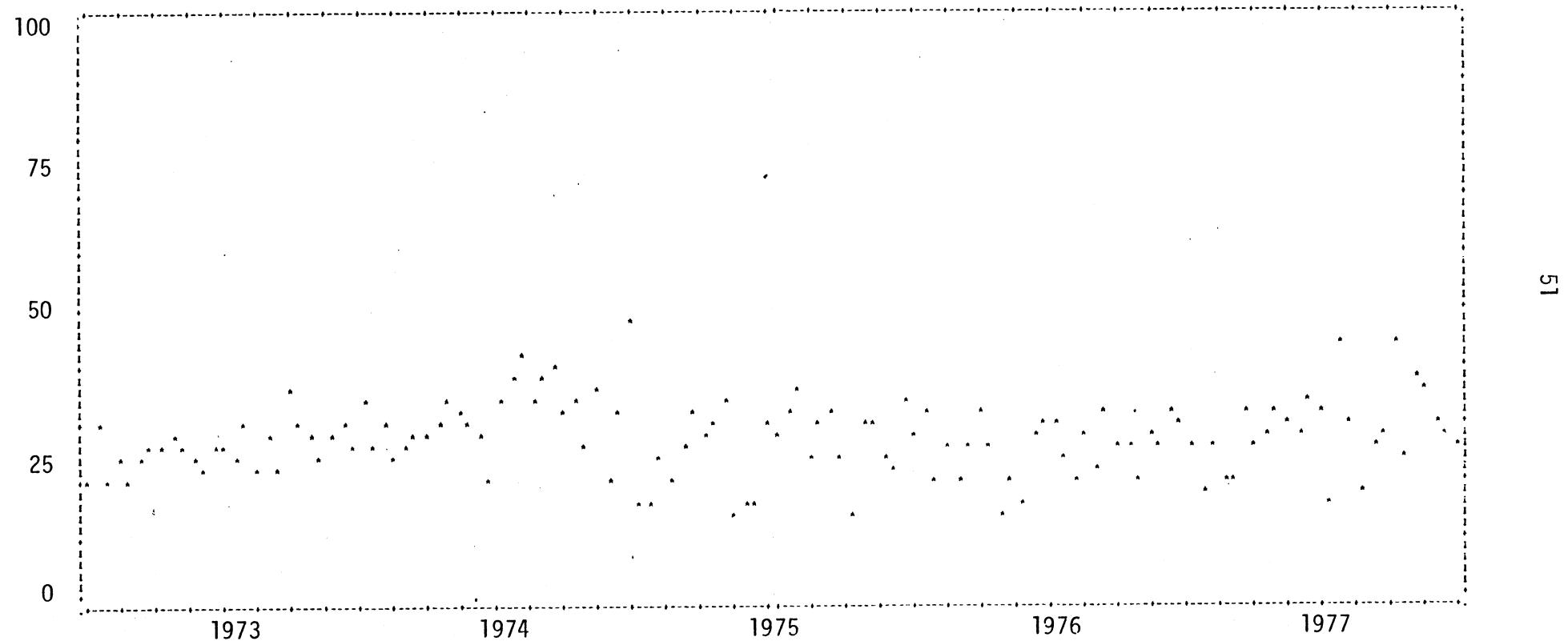
1) This concept is discussed in subsection 3.2.5, see equation (3.27).

Diagram C.20. Running costs of vehicles. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
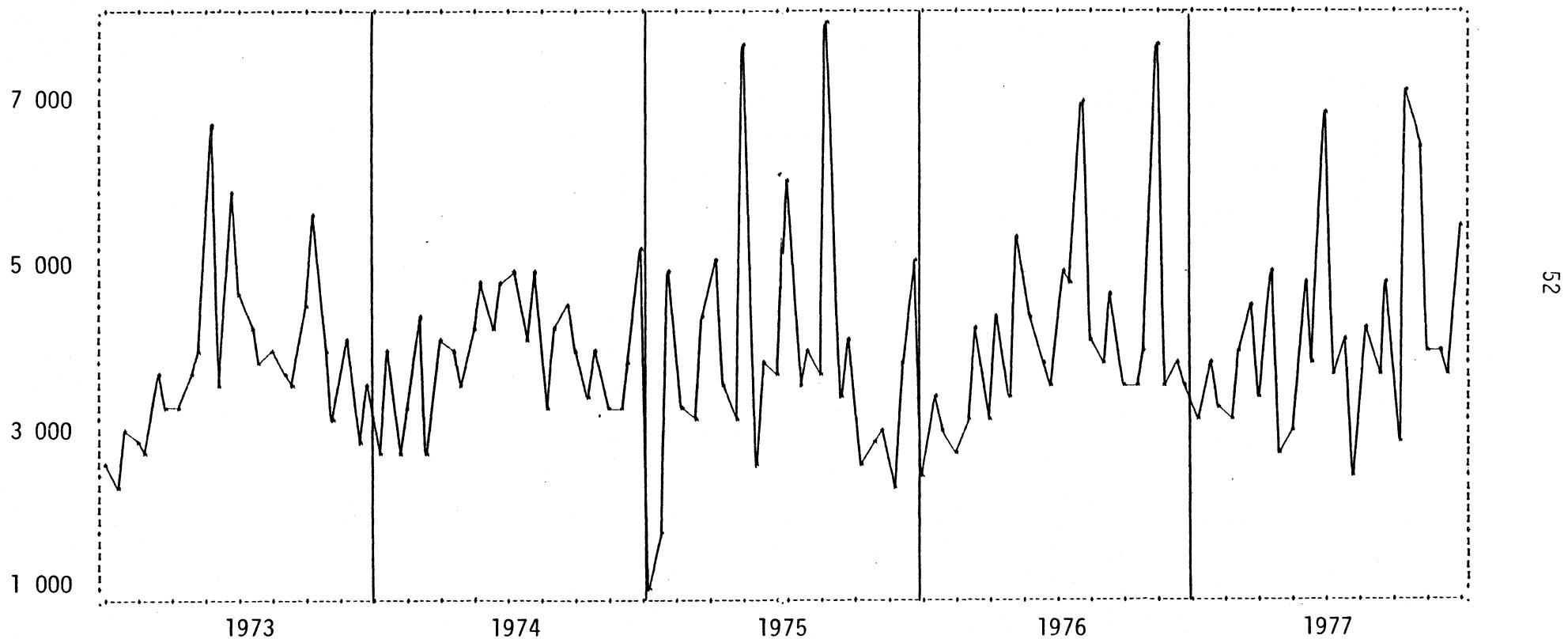
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

23.   *Recreation.* Period 26 and the summer periods (10 to 15) exhibit a higher budget share than the rest of the year in diagram W.23. One can trace the same pattern in the average consumption at constant (1974) prices (diagram C.23).

24.   *Public entertainment.* The curve for the budget share in diagram W.24 reveals two very distinct peaks in every year during 1973 - 1977. One in periods 2 to 6 and a second in periods 16 to 19. This may be explained by the seasonal rhythm of cultural activities and by the schooling expences at the beginning of a new term, which are included in this commodity group.

25.   *Books and newspapers.* There is a peak in the budget share in period 1 each year (except 1975), possibly due to renewals of subscriptions, etc. in this period.

26.   *Personal care.* Diagram W.26 reveals no seasonal effects.

27.   *Misc. goods and services.* Except for the peak budget share in period 26, it is difficult to distinguish any seasonal variation in diagram W.27.

28.   *Restaurants, hotels etc.* There is one peak in the budget share in July every year in diagram W.28. This commodity group includes typical holiday activities which to a large extent are registered only on the basis of the 14 days' accounting period.

Diagram C.23. Recreation. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
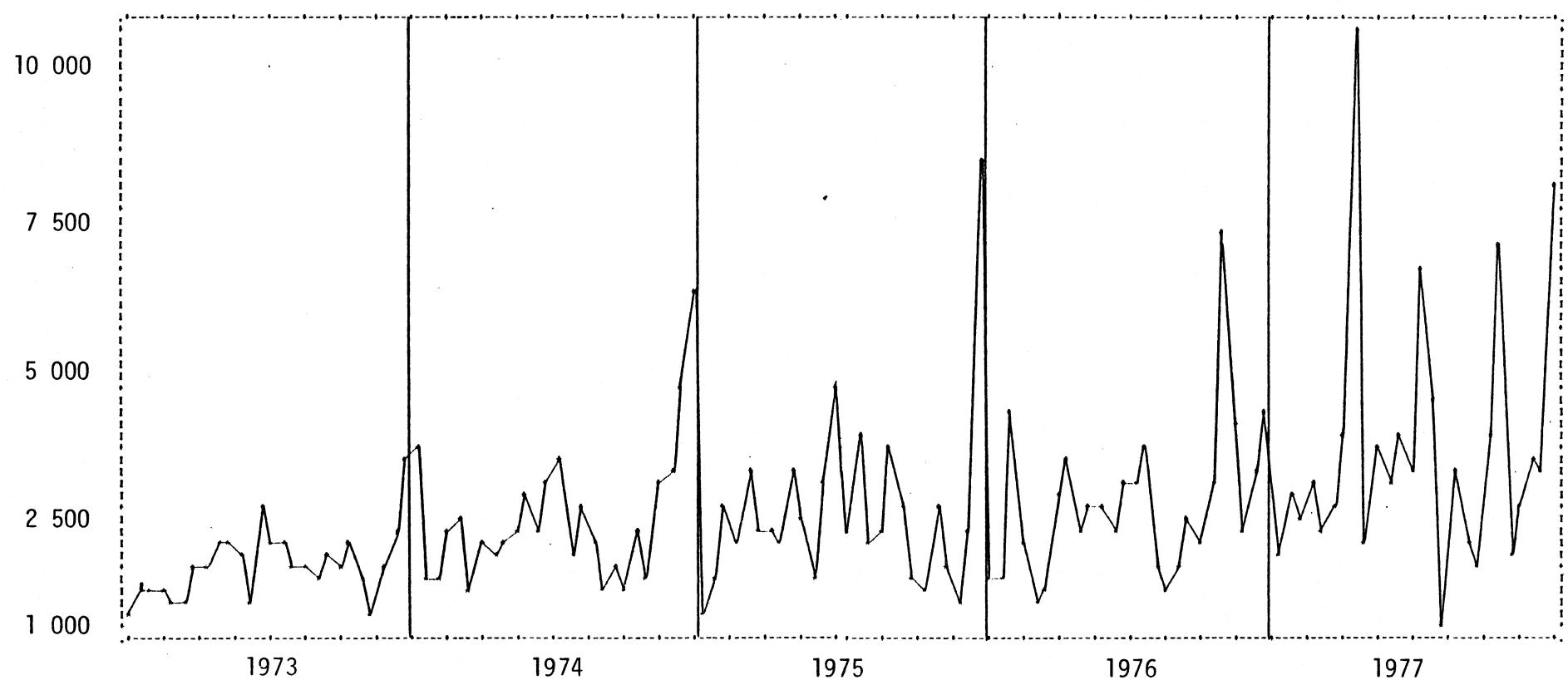

1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

DIAGRAMS FOR PERIOD SPECIFIC SUMMARY STATISTICS.
AGGREGATED COMMODITY LEVEL.   1973 - 1977

Diagram C.I. Food, beverages and tobacco. Average consumption expenditure at constant (1974) prices[1]
in each accounting period. 1973 - 1977. Norwegian kroner
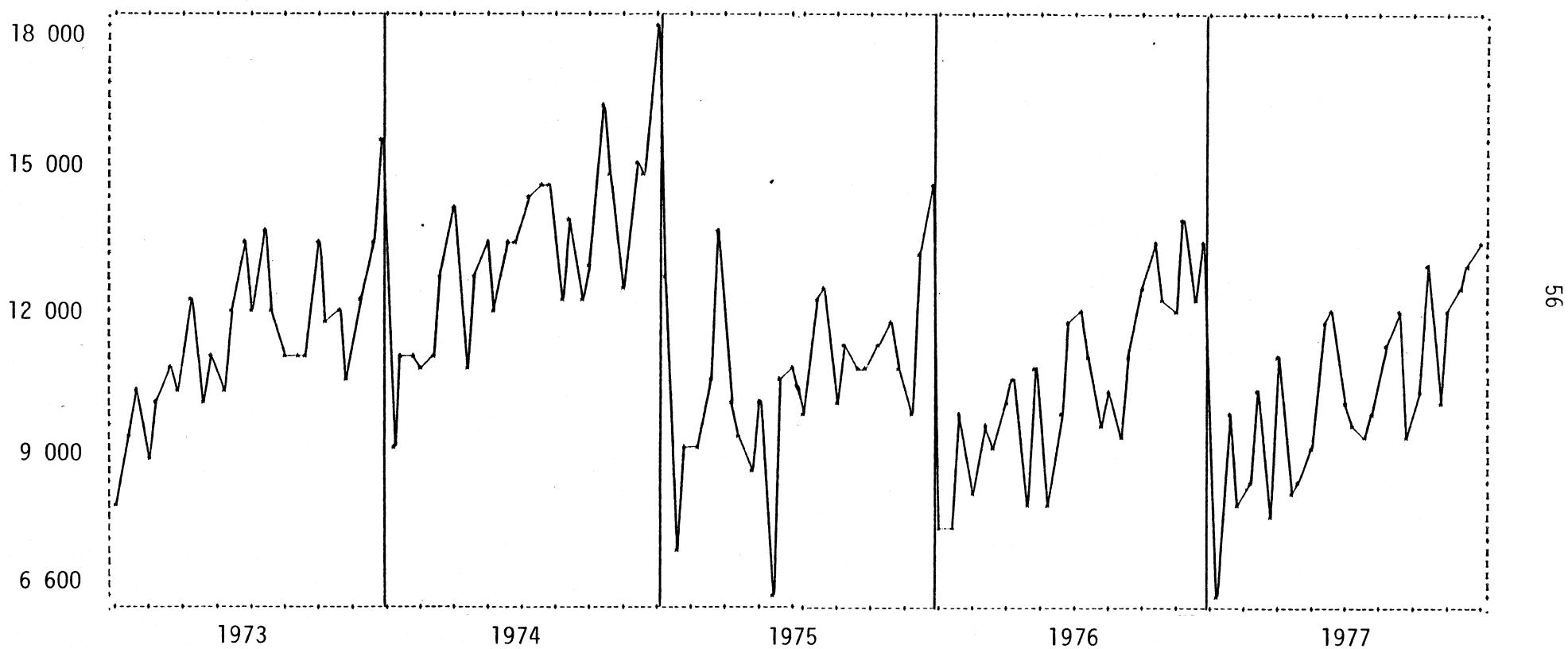
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram C.II. Clothing and footwear. Average consumption expenditure at constant (1974) prices[1] in
each accounting period. 1973 - 1977. Norwegian kroner
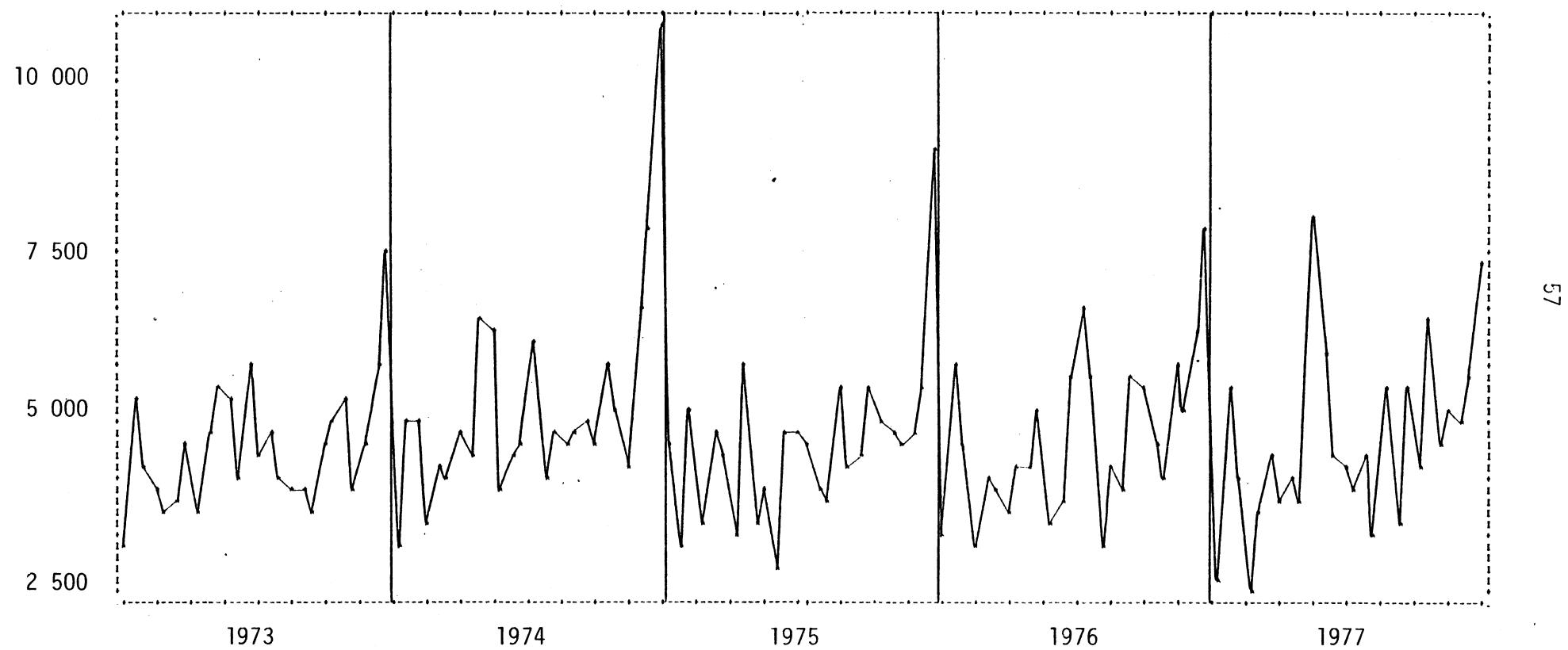
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram C.III. Housing, fuel and furniture. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
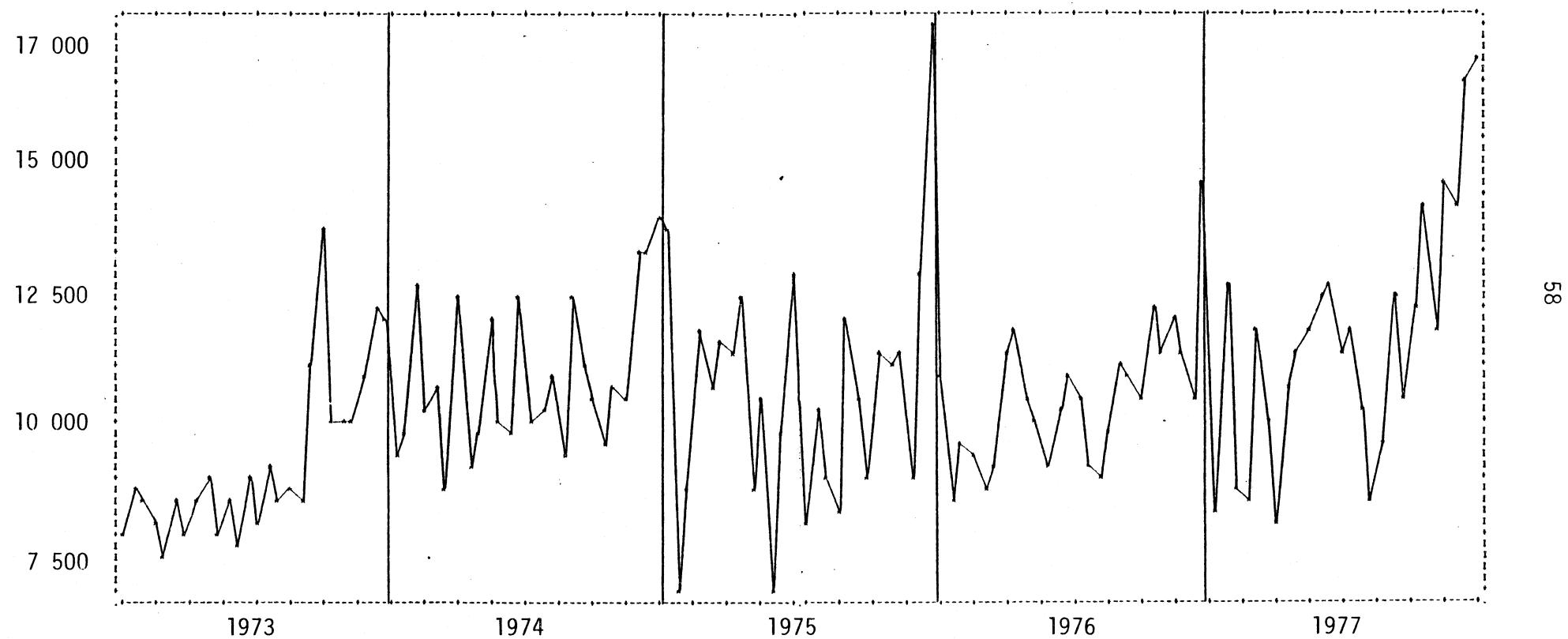

1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram C.IV. Travel and recreation. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner

22 500

20 000

17 500

15 000

12 500

10 000

7 500

1973   1974   1975   1976   1977
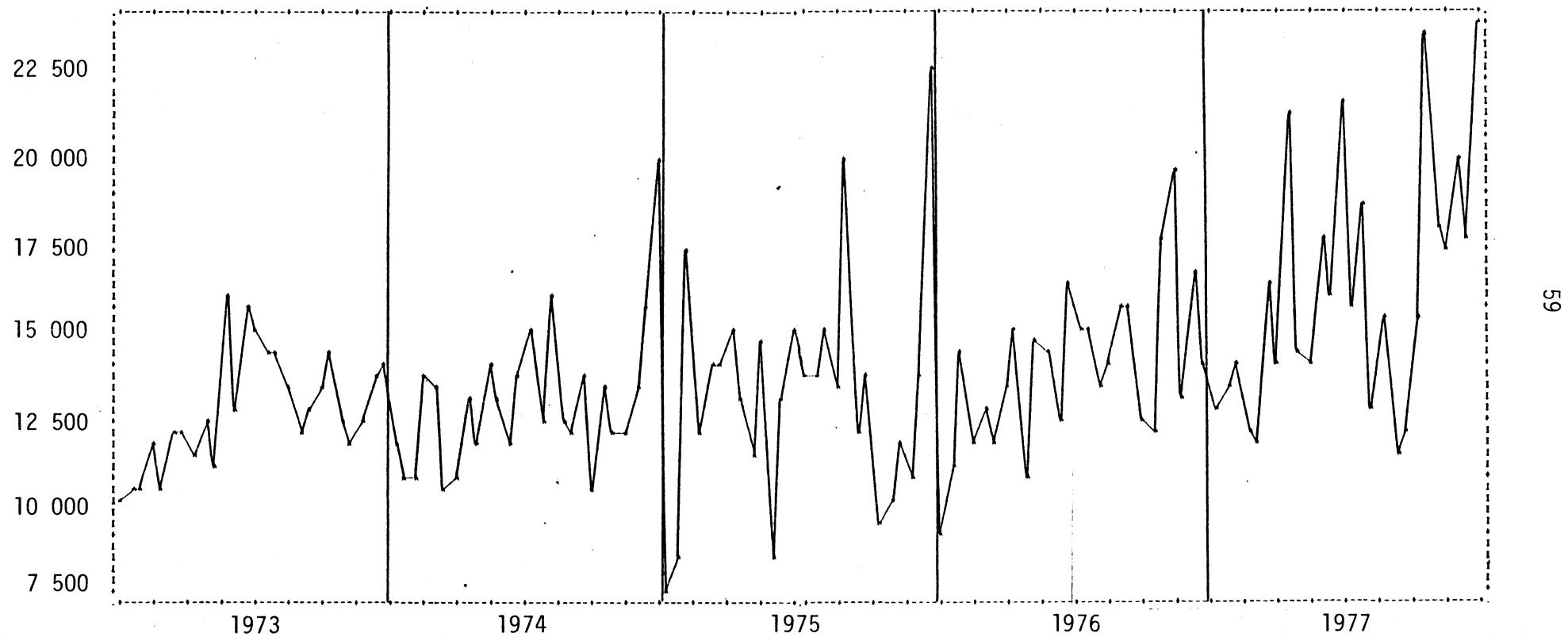
59

1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram C.V. Other goods and services. Average consumption expenditure at constant (1974) prices[1] in each accounting period. 1973 - 1977. Norwegian kroner
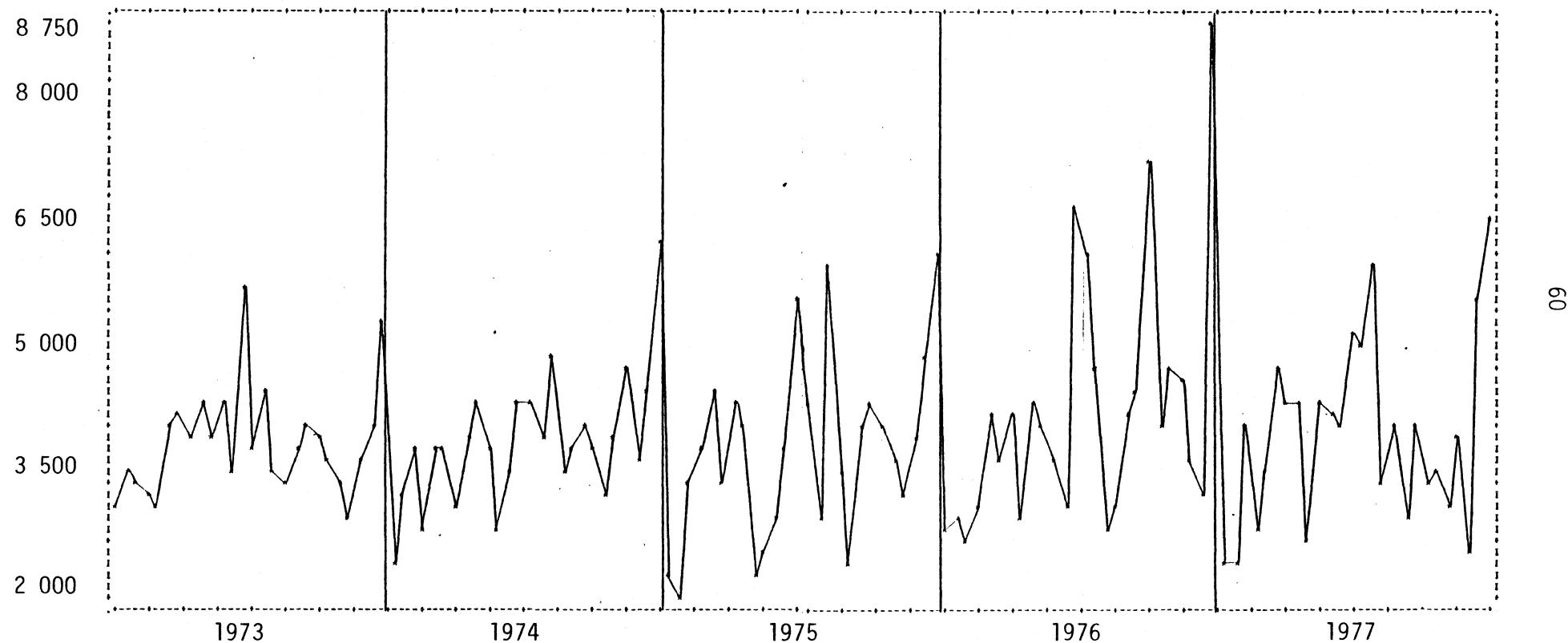
1) The average consumption expenditure at constant prices is defined by equation (3.9) of subsection 3.2.2.

Diagram W.I. Food, beverages and tobacco. Average budget shares at current prices[1] in each accounting
period. 1973 - 1977. Percentages
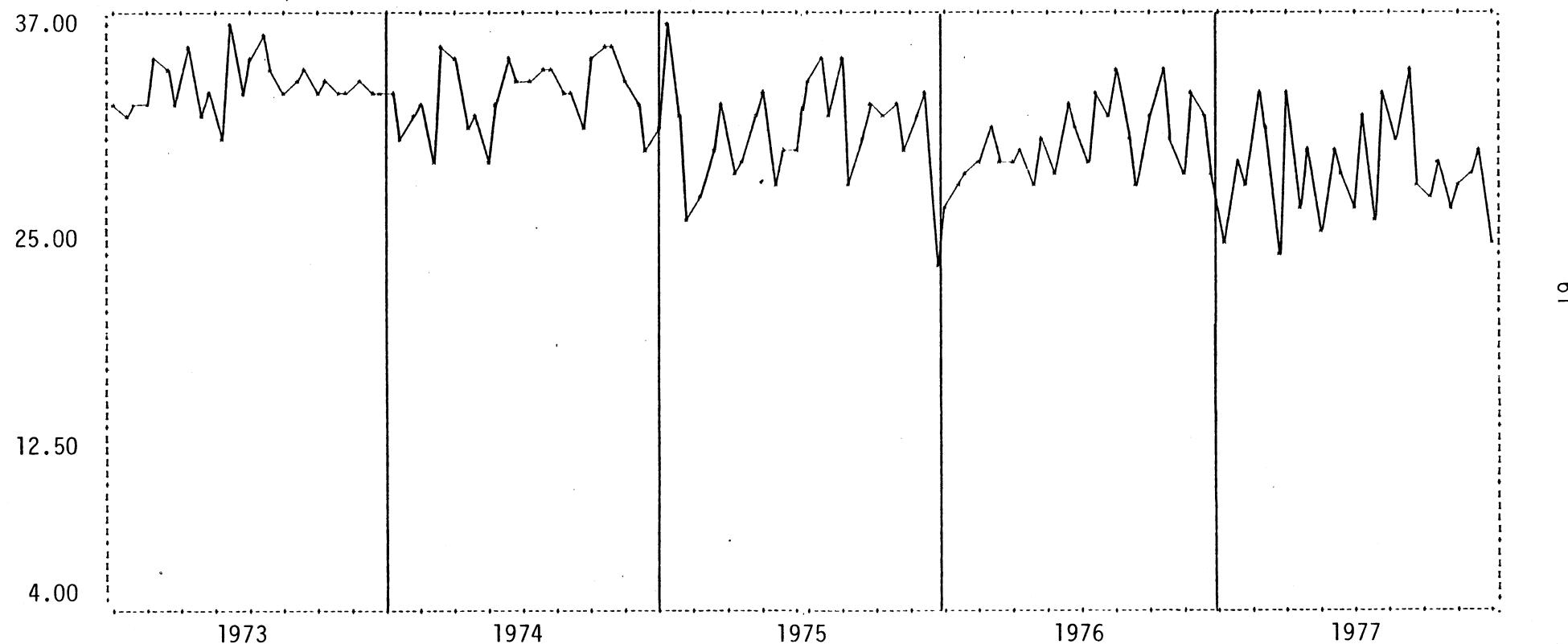
1) The average budget share is defined by equation (3.10) of section 3.2.2.

Diagram W.II. Clothing and footwear. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
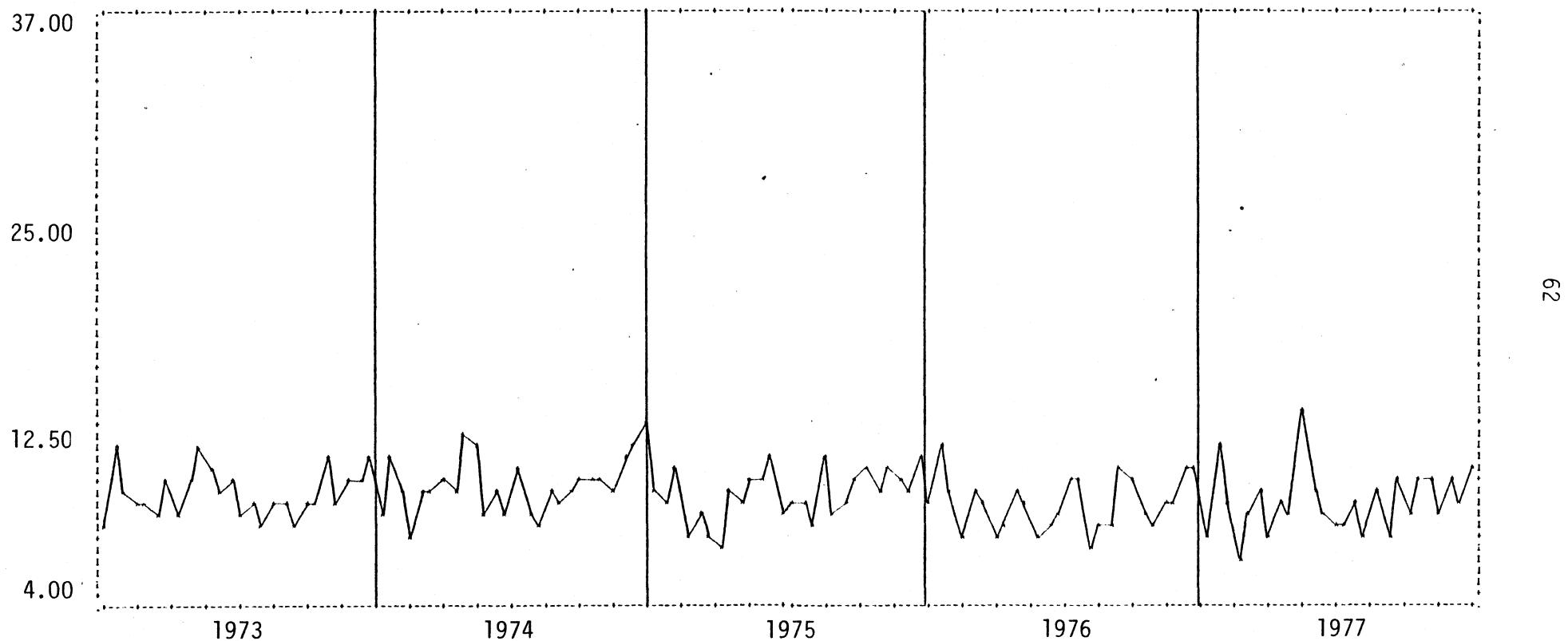
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.III. Housing, fuel and furniture. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
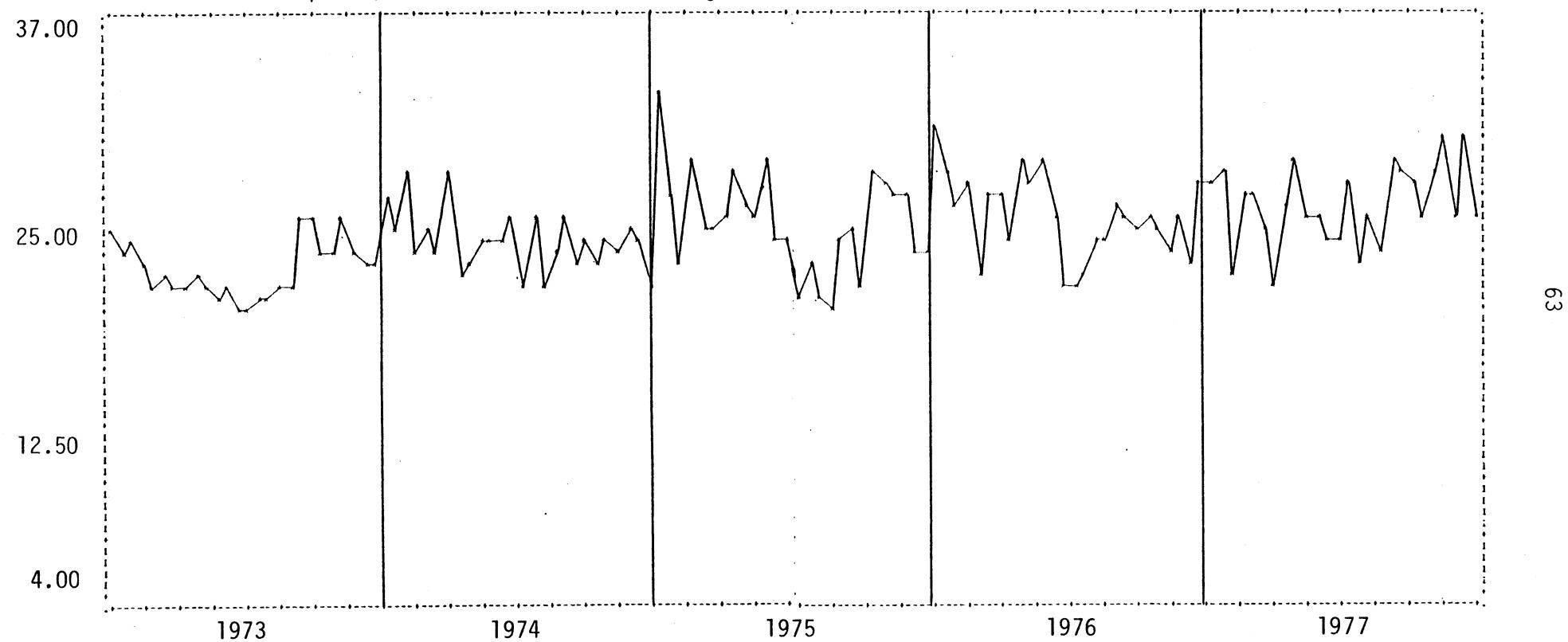
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.IV. Travel and recreation. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
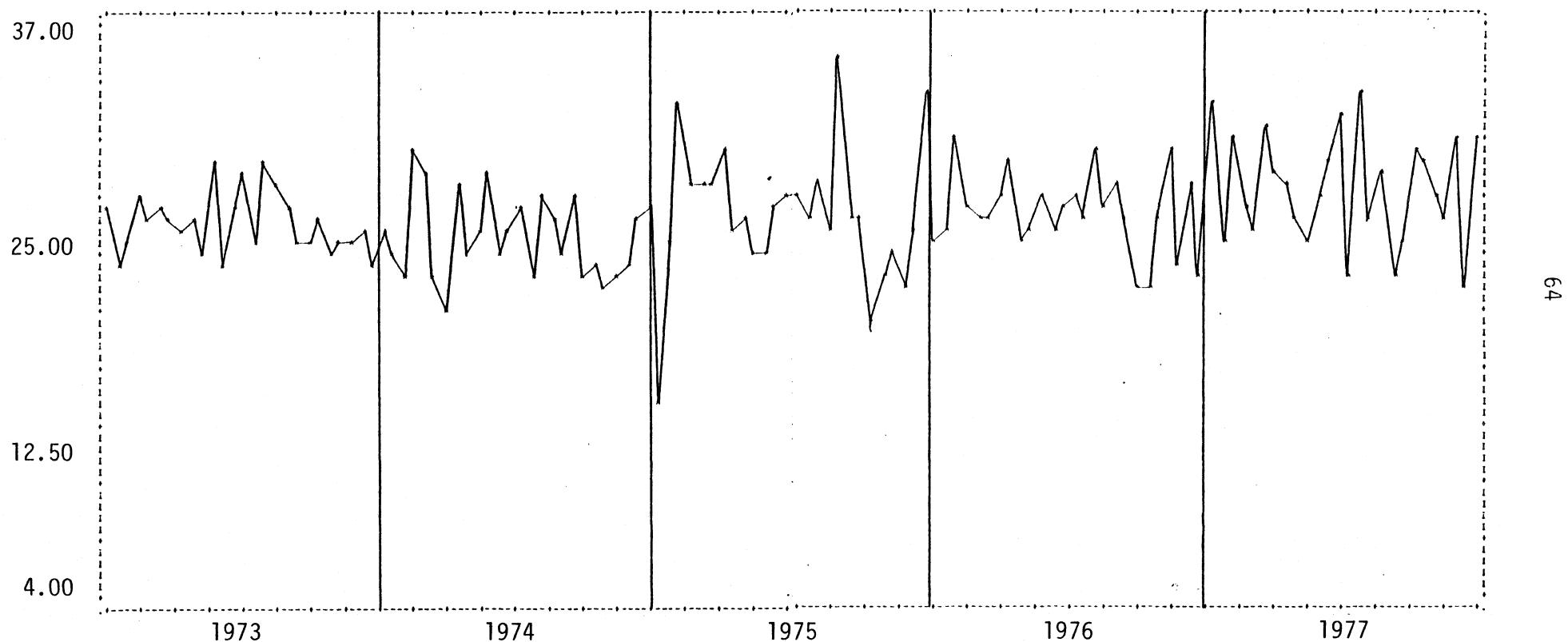
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.V. Other goods and services. Average budget share at current prices[1] in each accounting
period. 1973 - 1977. Percentages
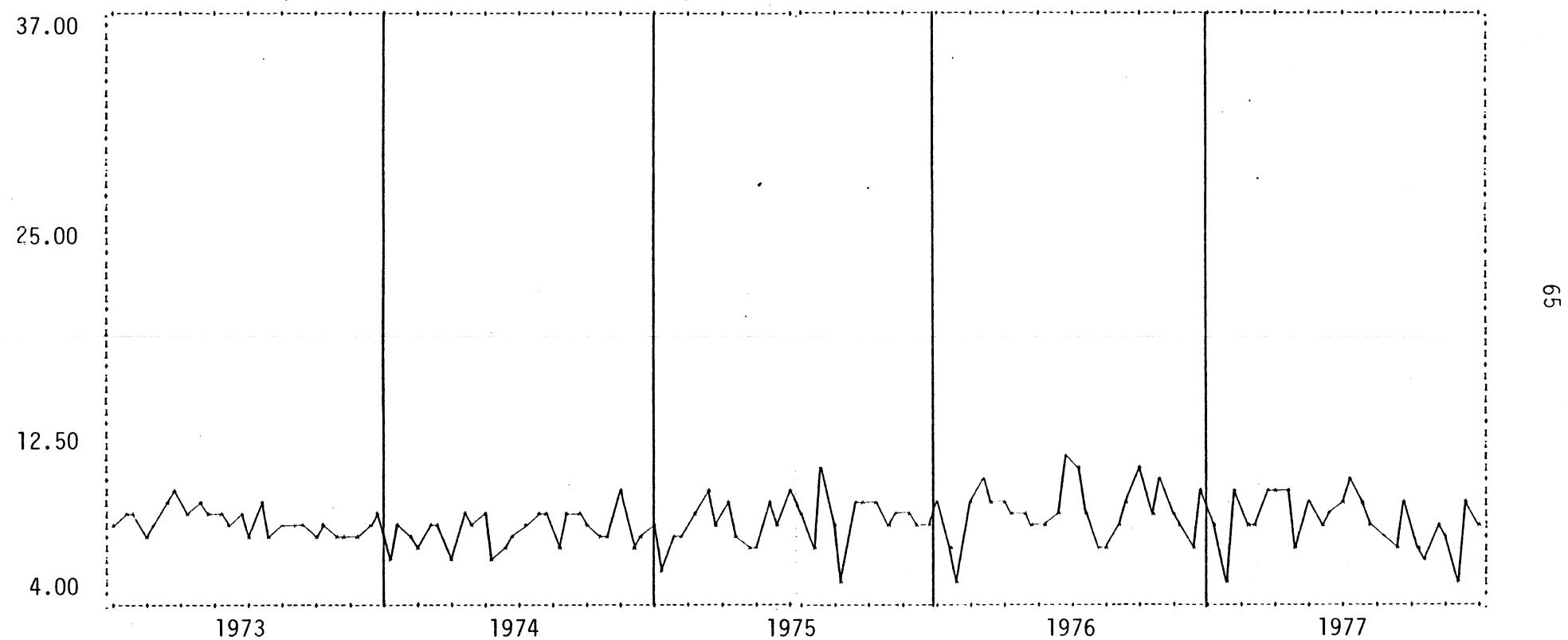
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram VW.I. Food, beverages and tobacco. The coefficient of variation[1] for the budget shares at current prices in each accounting period. 1973 - 1977
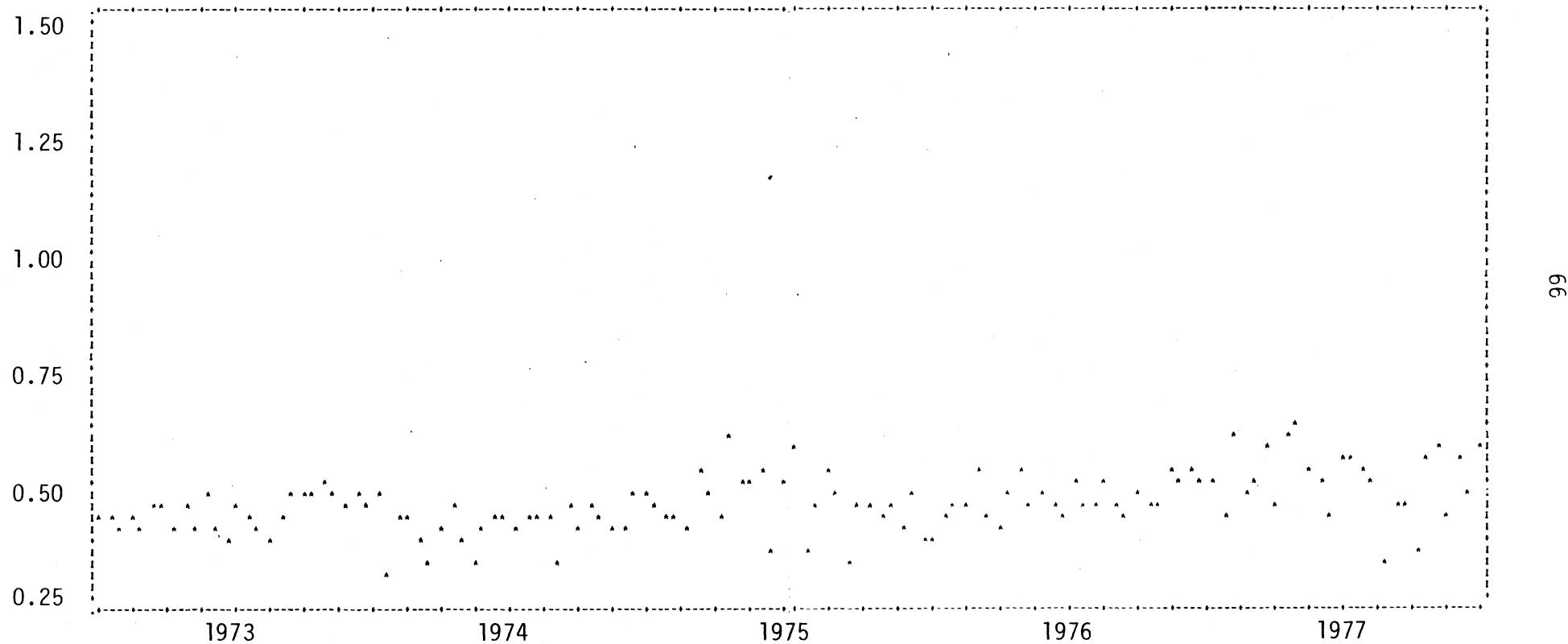
1) The coefficient of variation is defined by equation (3.28) of subsection 3.2.5.

Diagram VW.II. Clothing and footwear. The coefficient of variation[1] for the budget shares at current
prices in each accounting period. 1973 - 1977
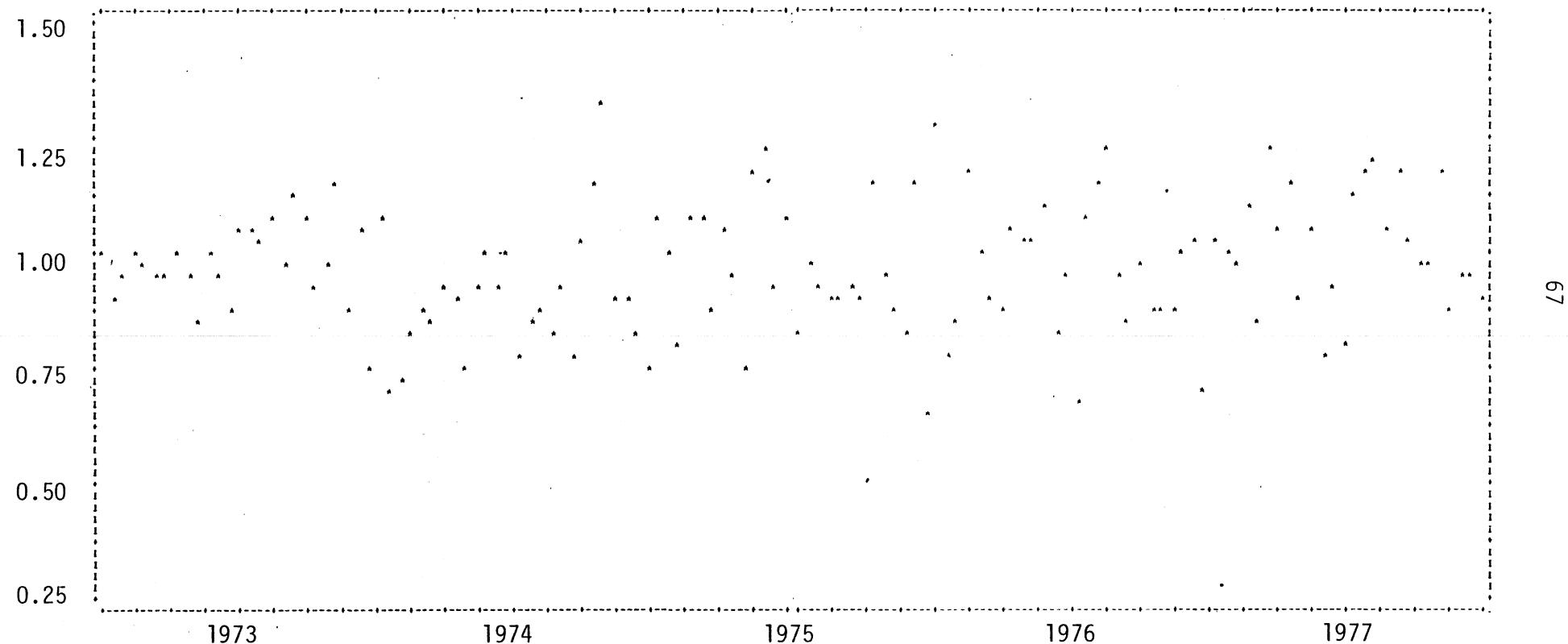
1) The coefficient of variation is defined by equation (3.28) of subsection 3.2.5.

Diagram VW.III. Housing, fuel and furniture. The coefficient of variation[1] for the budget shares at
current prices in each accounting period. 1973 - 1977
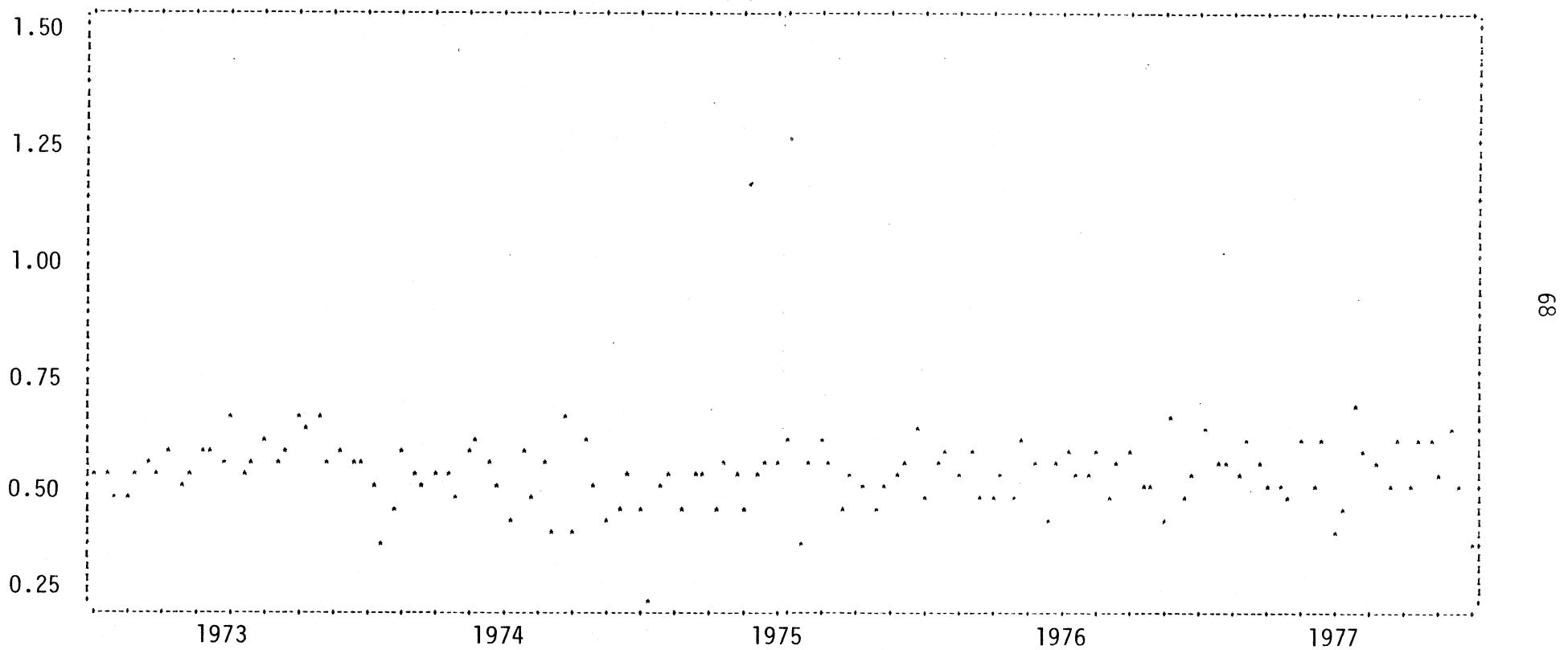
1) The coefficient of variation is defined by equation (3.28) of subsection 3.2.5.

Diagram VW.IV. Travel and recreation. The coefficient of variation[1] for the budget shares at current prices in each accounting period. 1973 - 1977
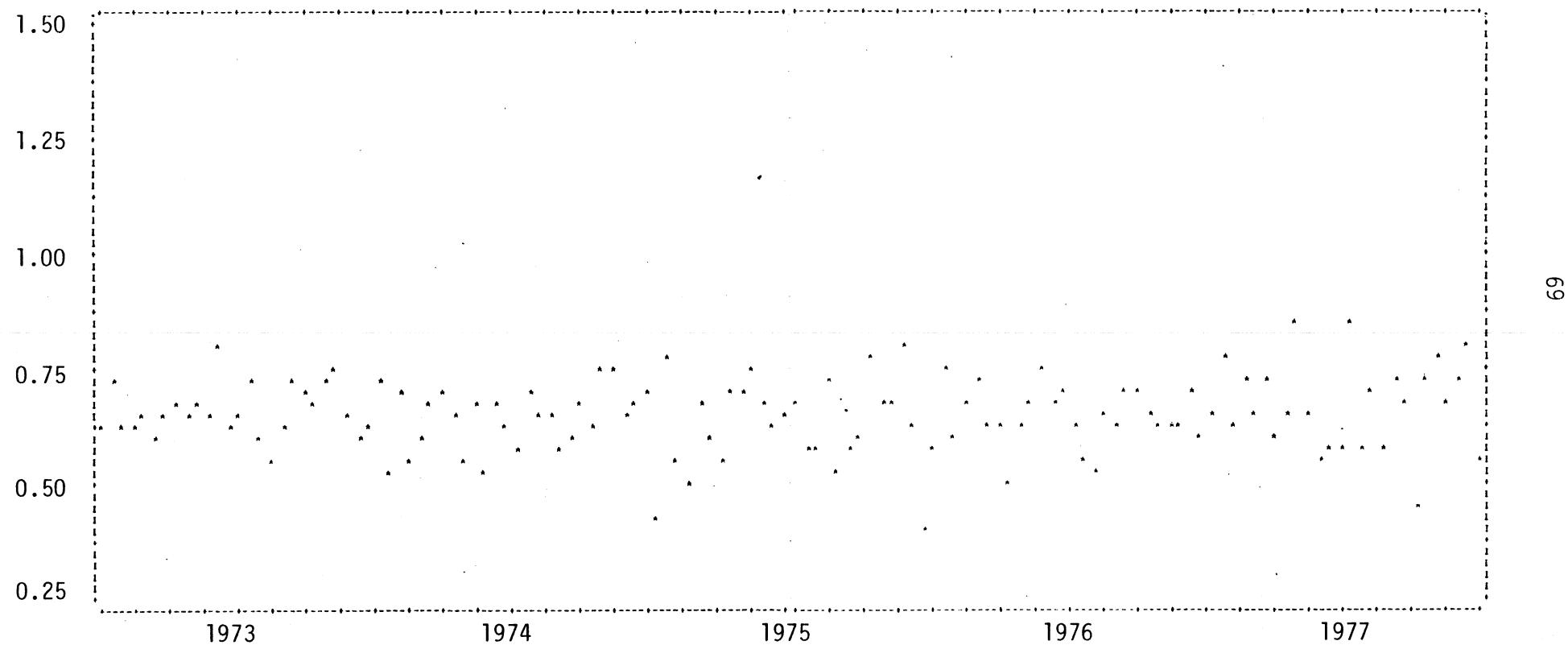
1) The coefficient of variation is defined by equation .(3.28) of subsection 3.2.5.

Diagram VW.V. Other goods and services. The coefficient of variation[1] for the budget shares at current prices in each accounting period. 1973 - 1977
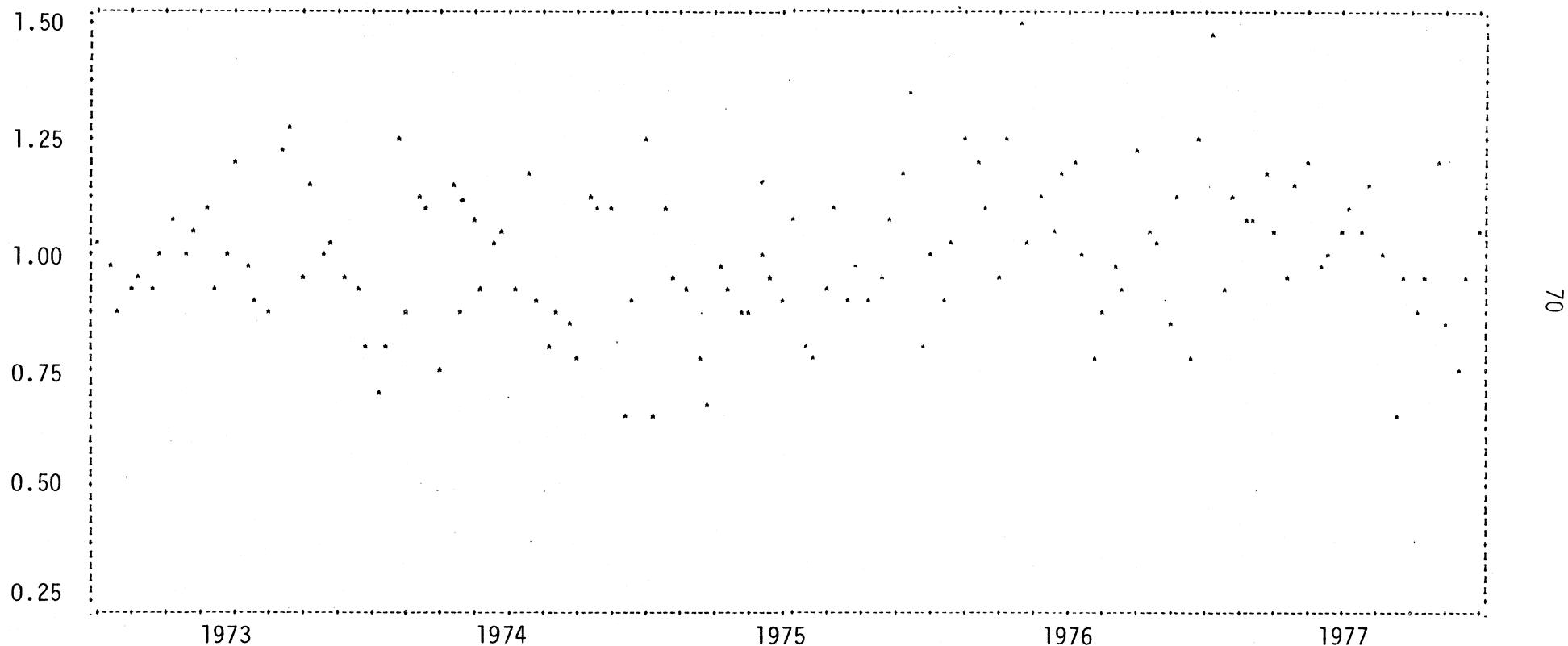
1) The coefficient of variation is defined by equation (3.28) of subsection 3.2.5.

Diagram SW.I. Food, beverages and tobacco. The skewness[1] of the budget shares at current prices in each accounting period. 1973 - 1977
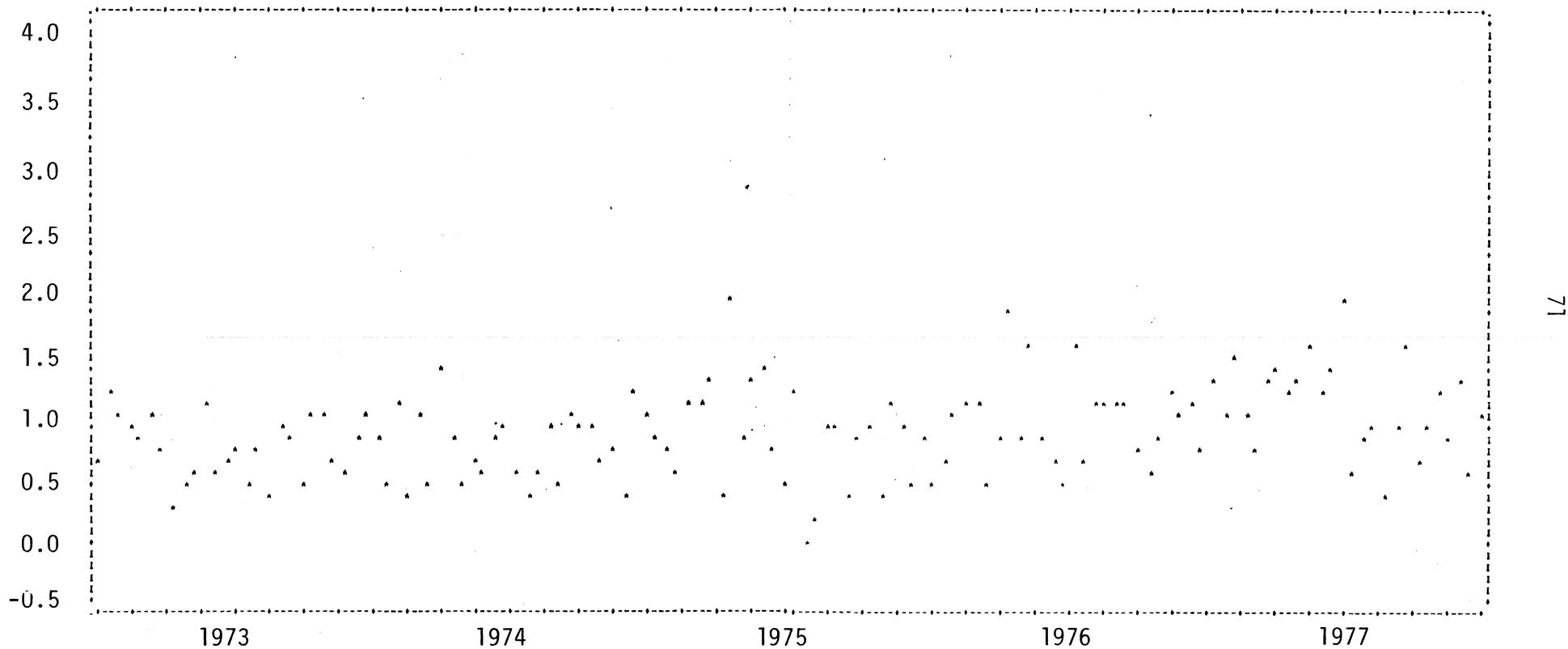
1) The skewness is defined by equation (3.29) of subsection 3.2.5.

Diagram SW.II.   Clothing and footwear.   The skewness[1] of the budget shares at current prices in each
accounting period.   1973 - 1977
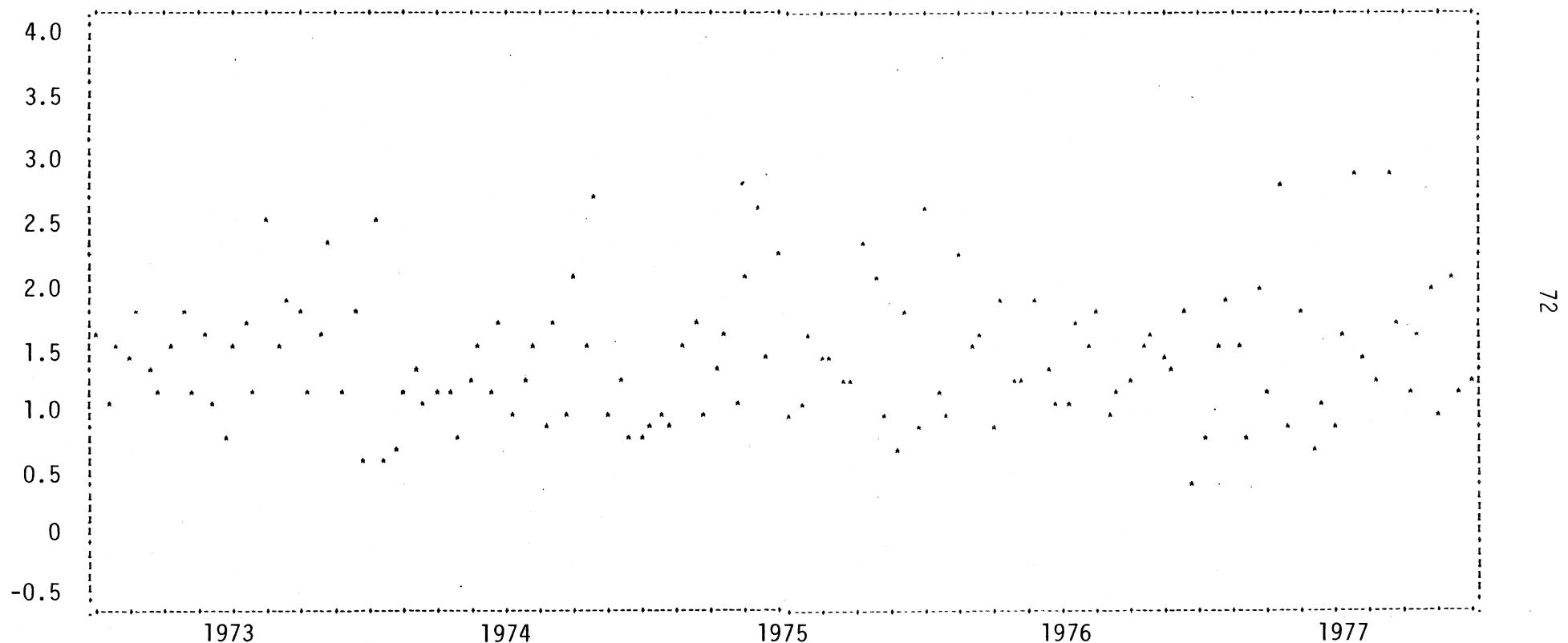
1) The skewness is defined by equation (3.29) of subsection 3.2.5.

Diagram SW.III. Housing, fuel and furniture. The skewness[1] of the budget shares at current prices in each accounting period. 1973 - 1977
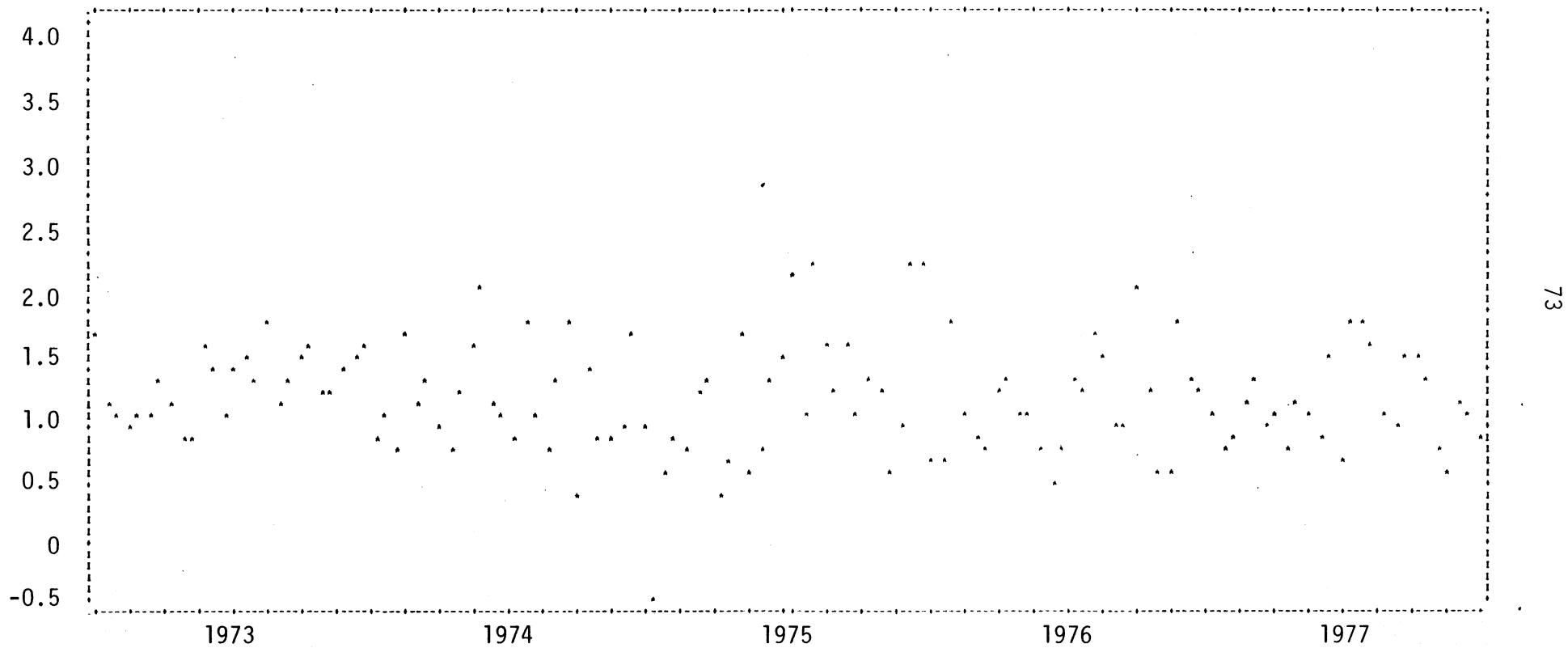
1) The skewness is defined by equation (3.29) of subsection 3.2.5.

Diagram SW.IV. Travel and recreation. The skewness[1] of the budget shares at current prices in each accounting period. 1973 - 1977
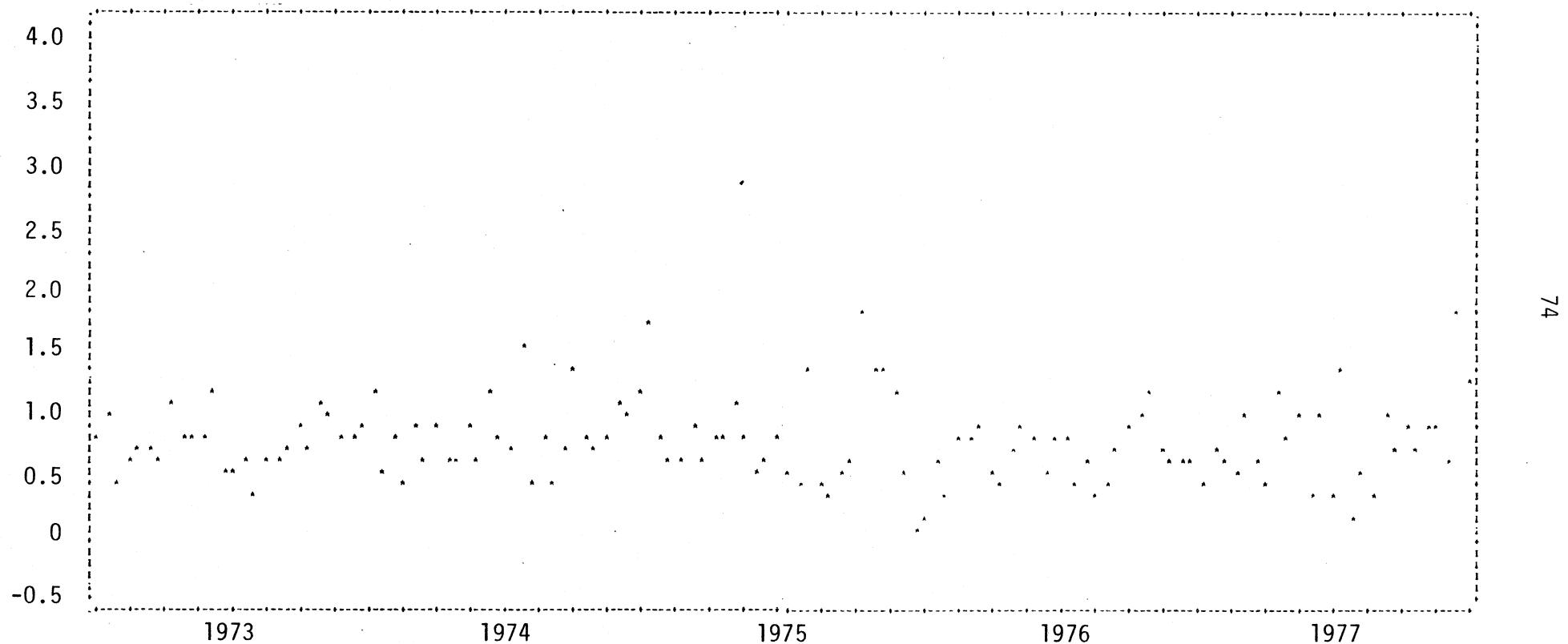
1) The skewness is defined by equation (3.29) of subsection 3.2.5.

Diagram SW.V. Other goods and services. The skewness[1] of the budget shares at current prices in each
accounting period. 1973 - 1977
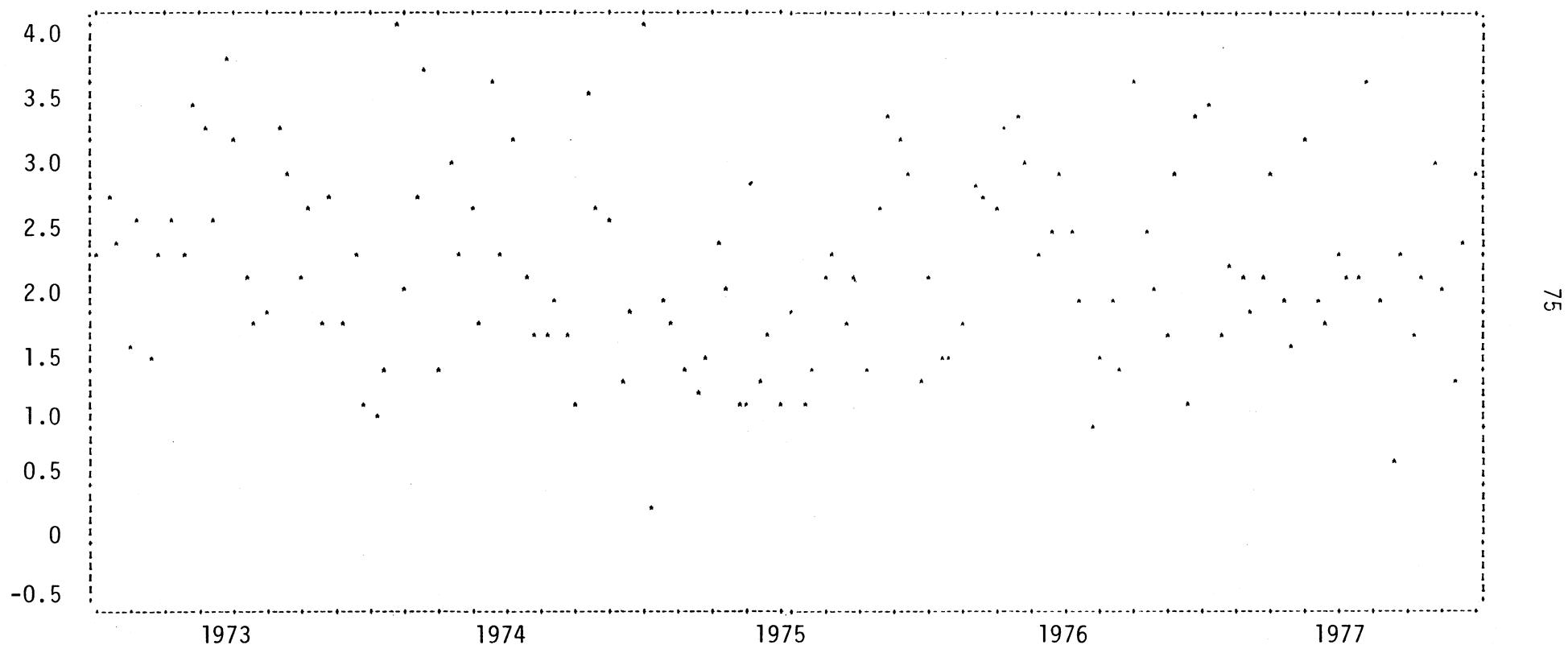
1) The skewness is defined by equation (3.29) of subsection 3.2.5.

Diagram KW.I. Food, beverages and tobacco. The kurtosis[1] of the budget shares at current prices in each
           accounting period. 1973 - 1977
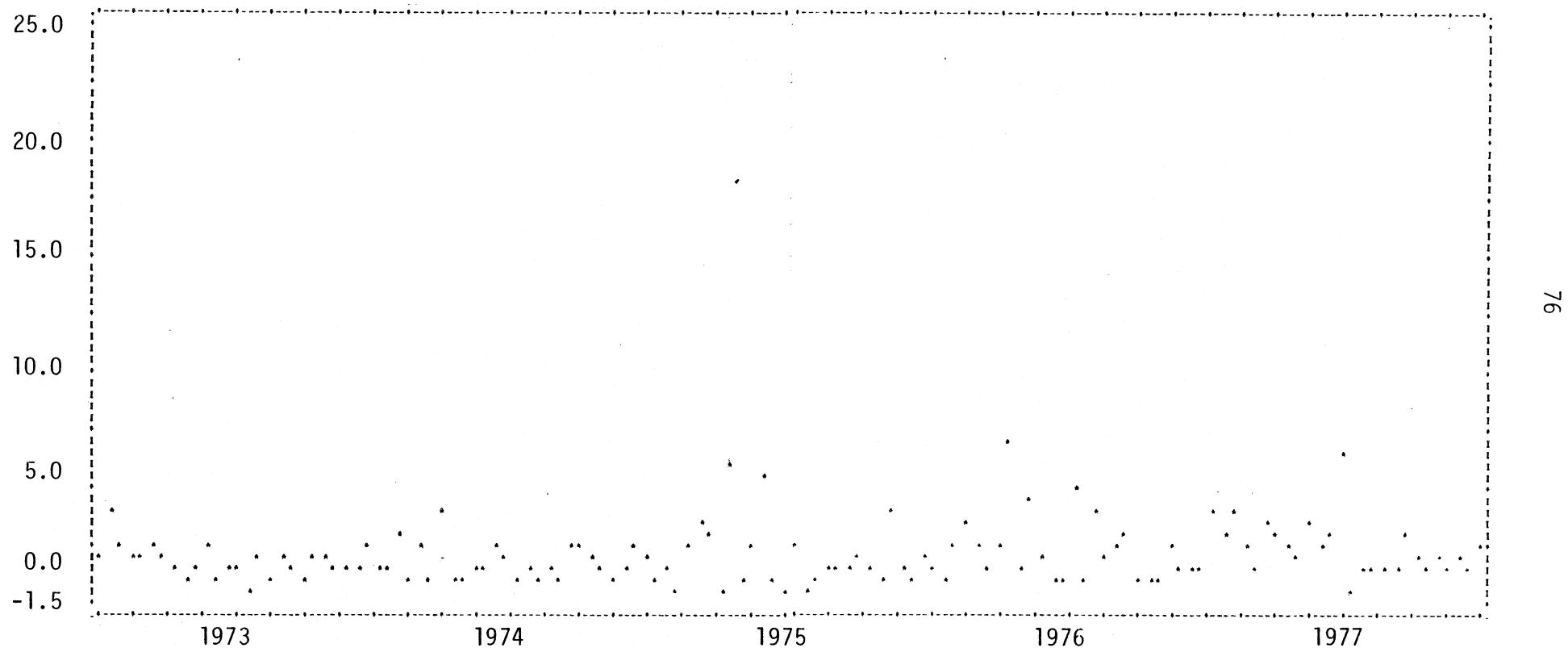
1) The kurtosis is defined by equation (3.30) of subsection 3.2.5.

Diagram KW.II.   Clothing and footwear.   The kurtosis[1] of the budget shares at current prices in each accounting period.   1973 - 1977
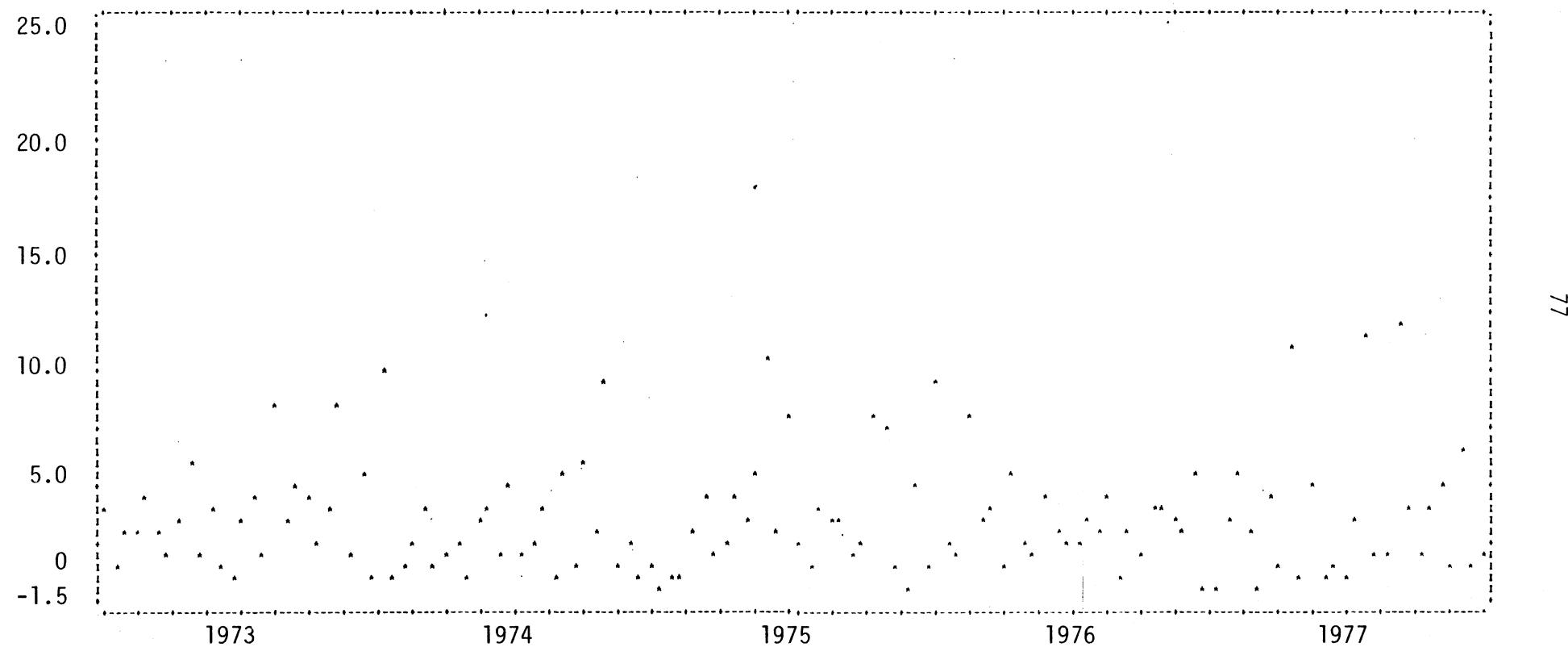

1) The kurtosis is defined by equation (3.30) of subsection 3.2.5.

Diagram KW.III. Housing, fuel and furniture. The kurtosis[1] of the budget shares at current prices in each accounting period. 1973 - 1977
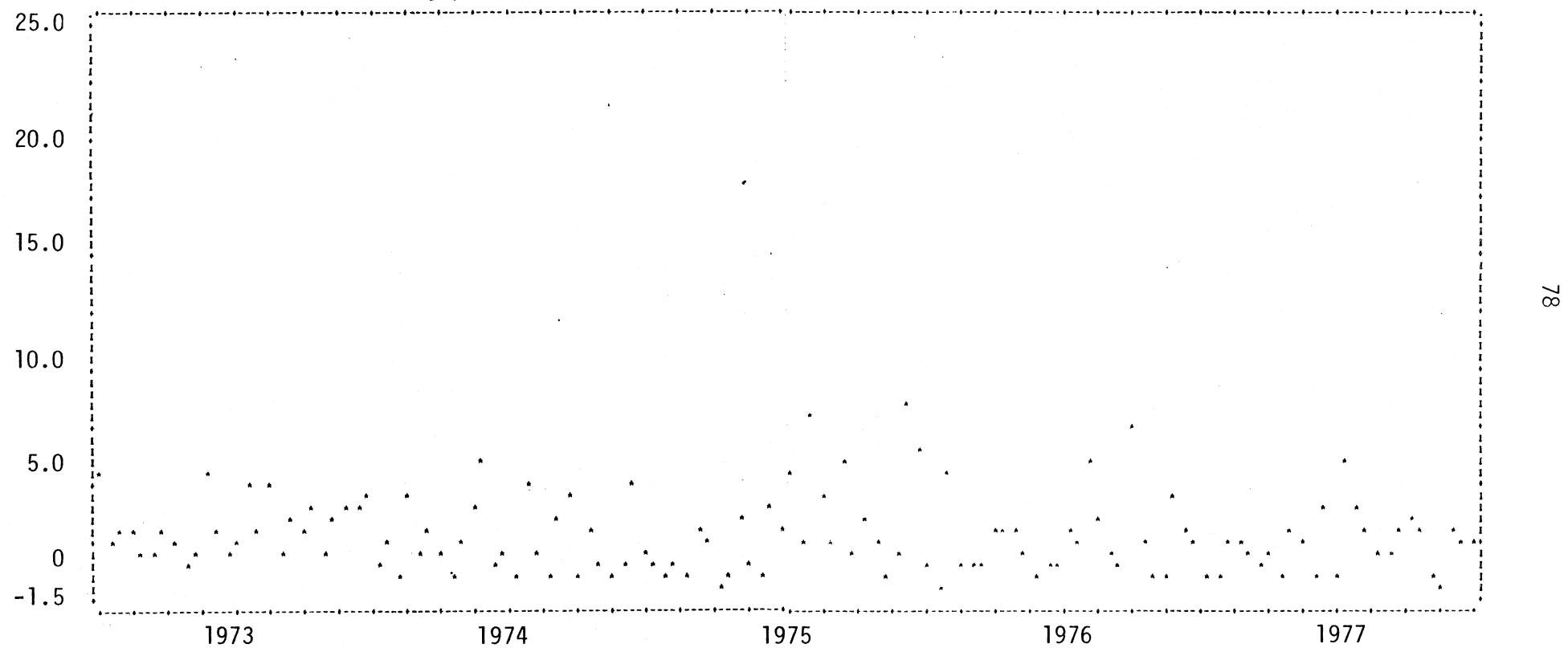
1) The kurtosis is defined by equation (3.30) of subsection 3.2.5.

Diagram KW.IV.   Travel and recreation.   The kurtosis[1] of the budget shares at current prices in each
accounting period.   1973 - 1977
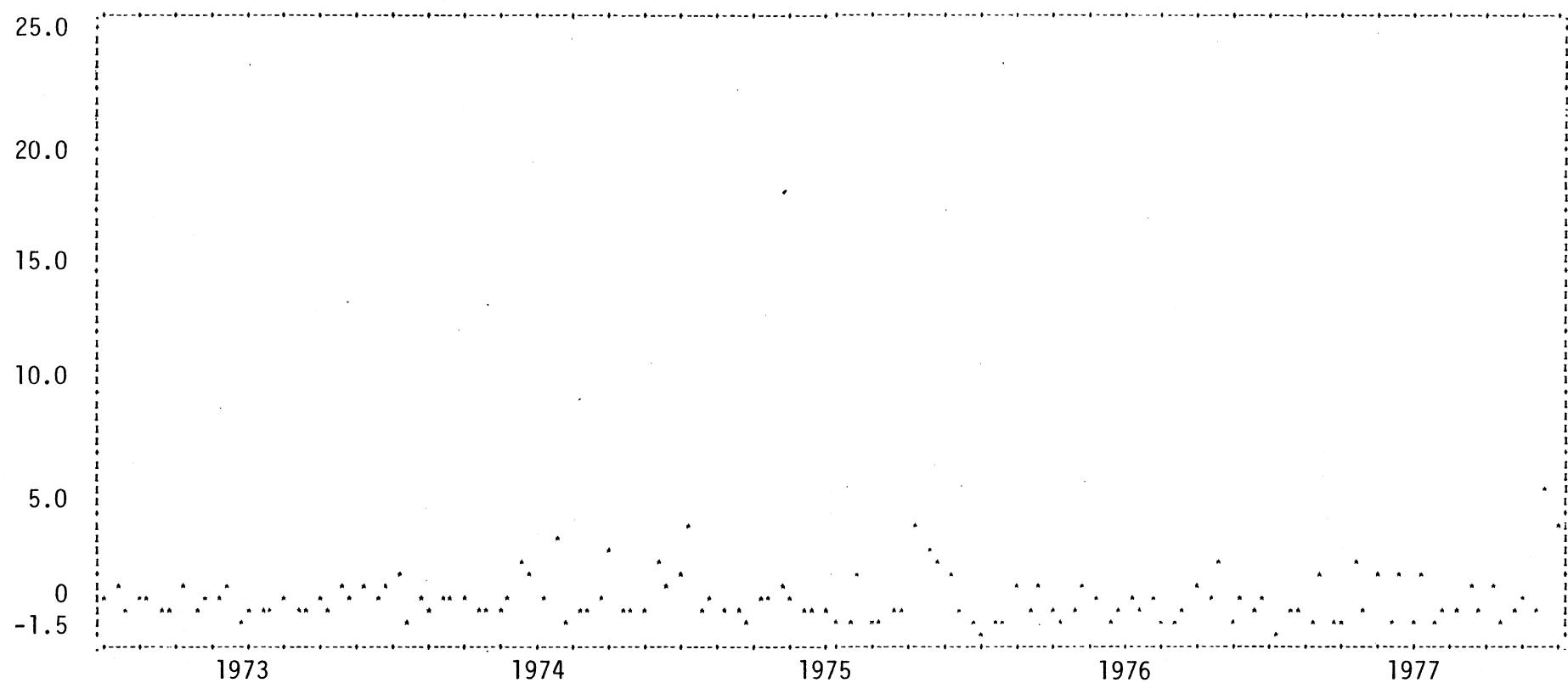
1) The kurtosis is defined by equation (3.30) of subsection 3.2.5.

Diagram KW.V. Other goods and services. The kurtosis[1] of the budget shares at current prices in each
accounting period. 1973 - 1977
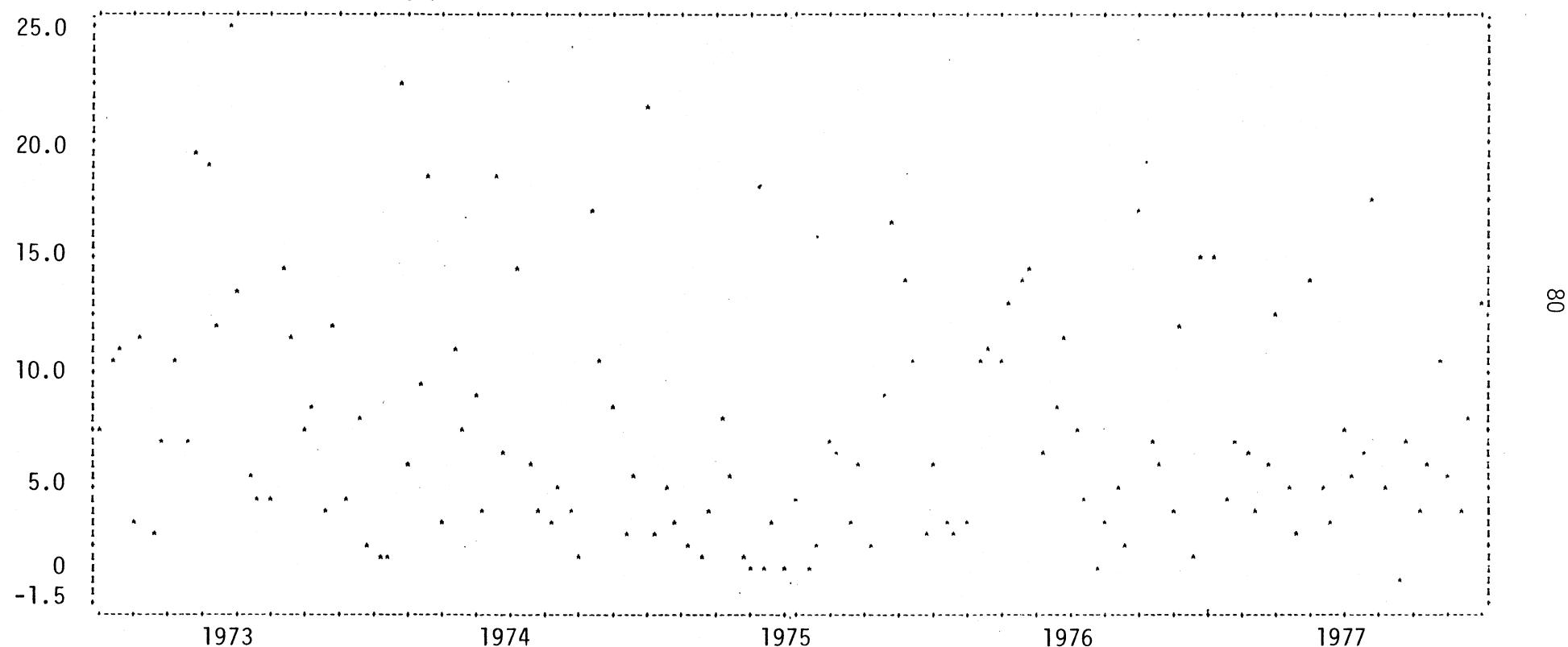
1) The kurtosis is defined by equation (3.30) of subsection 3.2.5.

DIAGRAMS FOR PERIOD SPECIFIC AVERAGE BUDGET SHARES.
DISAGGREGATED COMMODITY LEVEL.
1973 - 1977.

Diagram W.1. Flour and bread. Average budget share at current prices[1] in each accounting period
1973 - 1977. Percentages
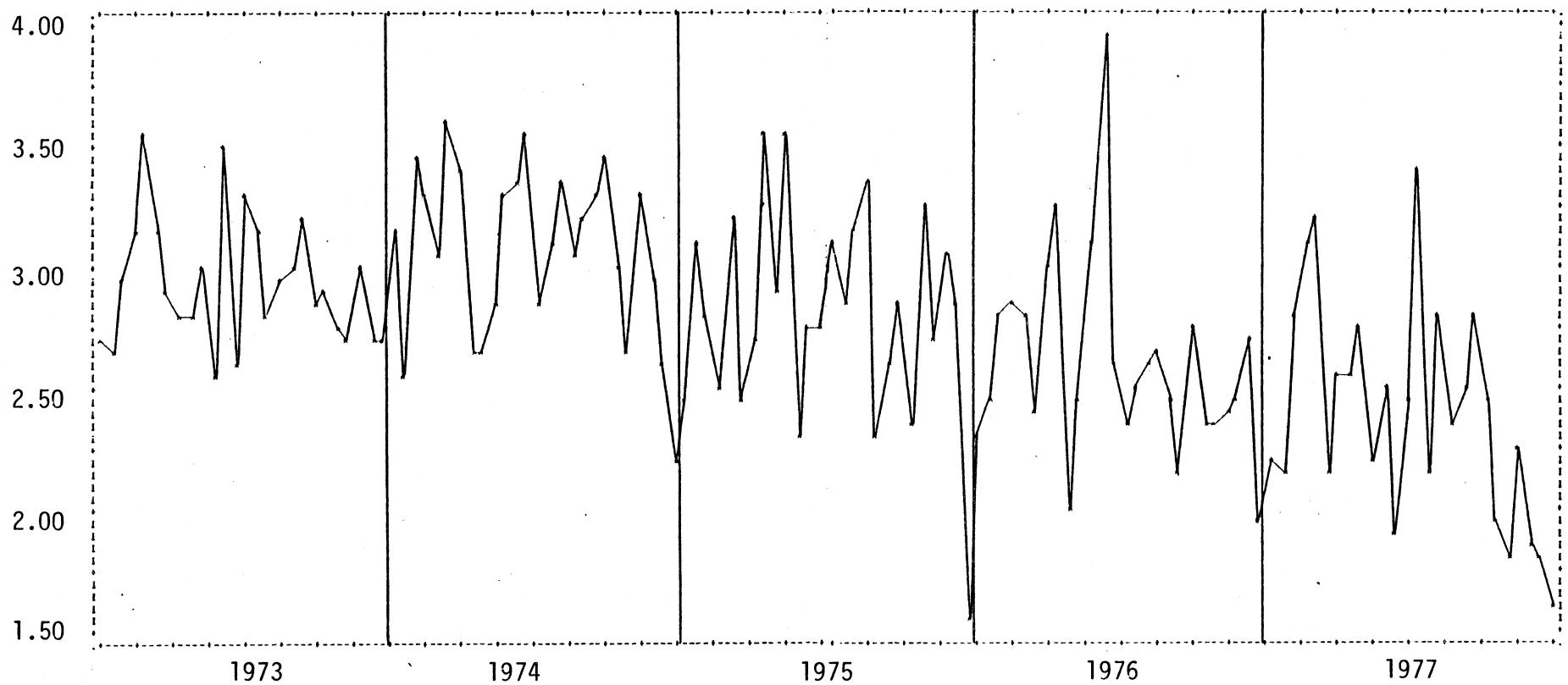
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.2. Meat and eggs. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
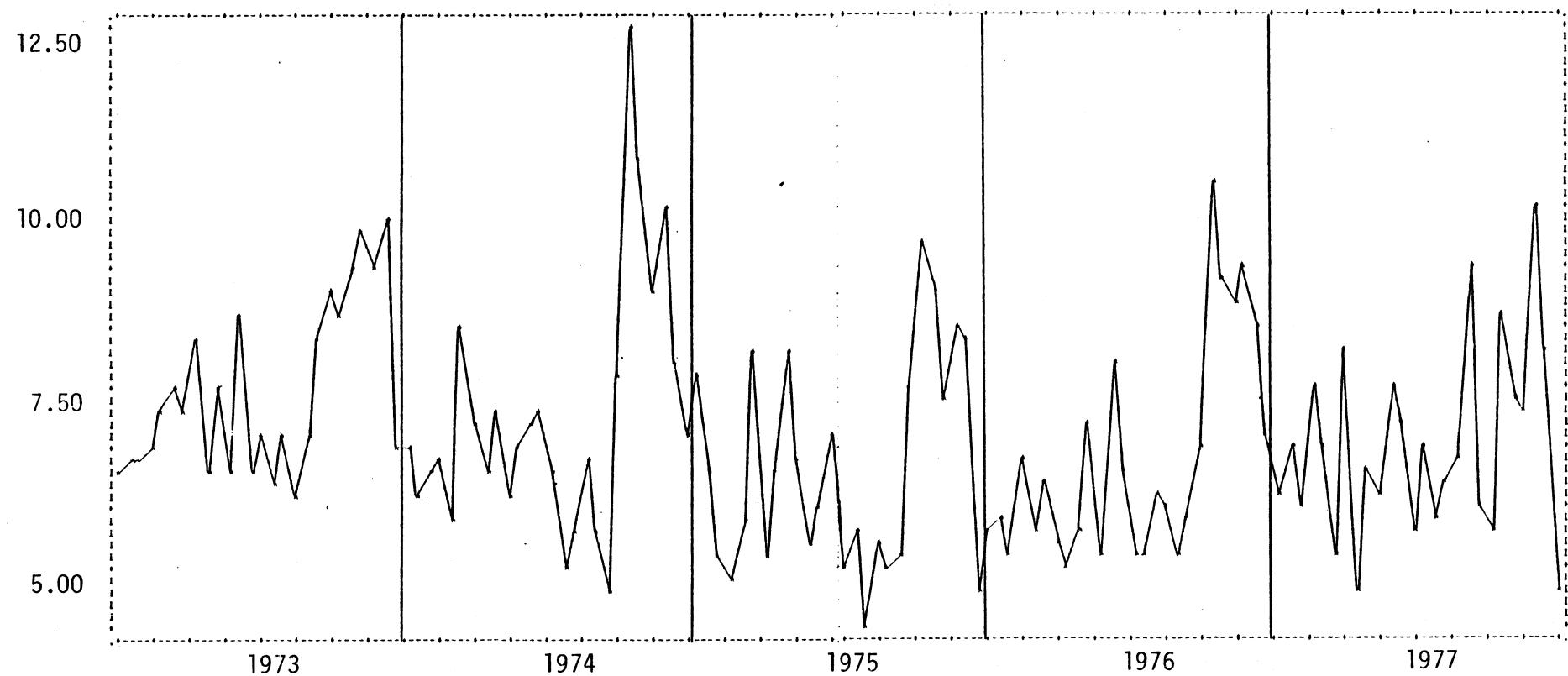
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.3. Fish. Average budget share at current prices[1] in each accounting period. 1973 - 1977.
Percentages
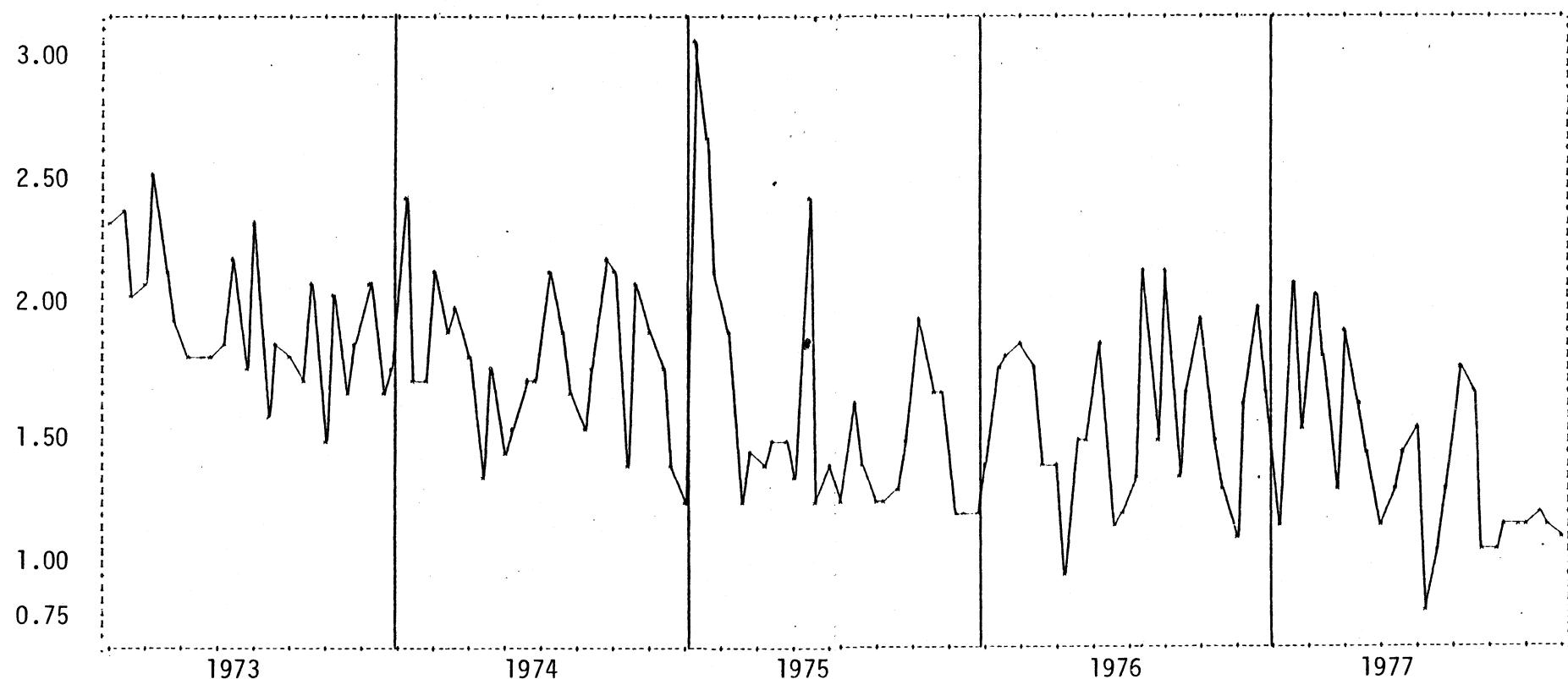
1) The budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.4. Canned meat and fish. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
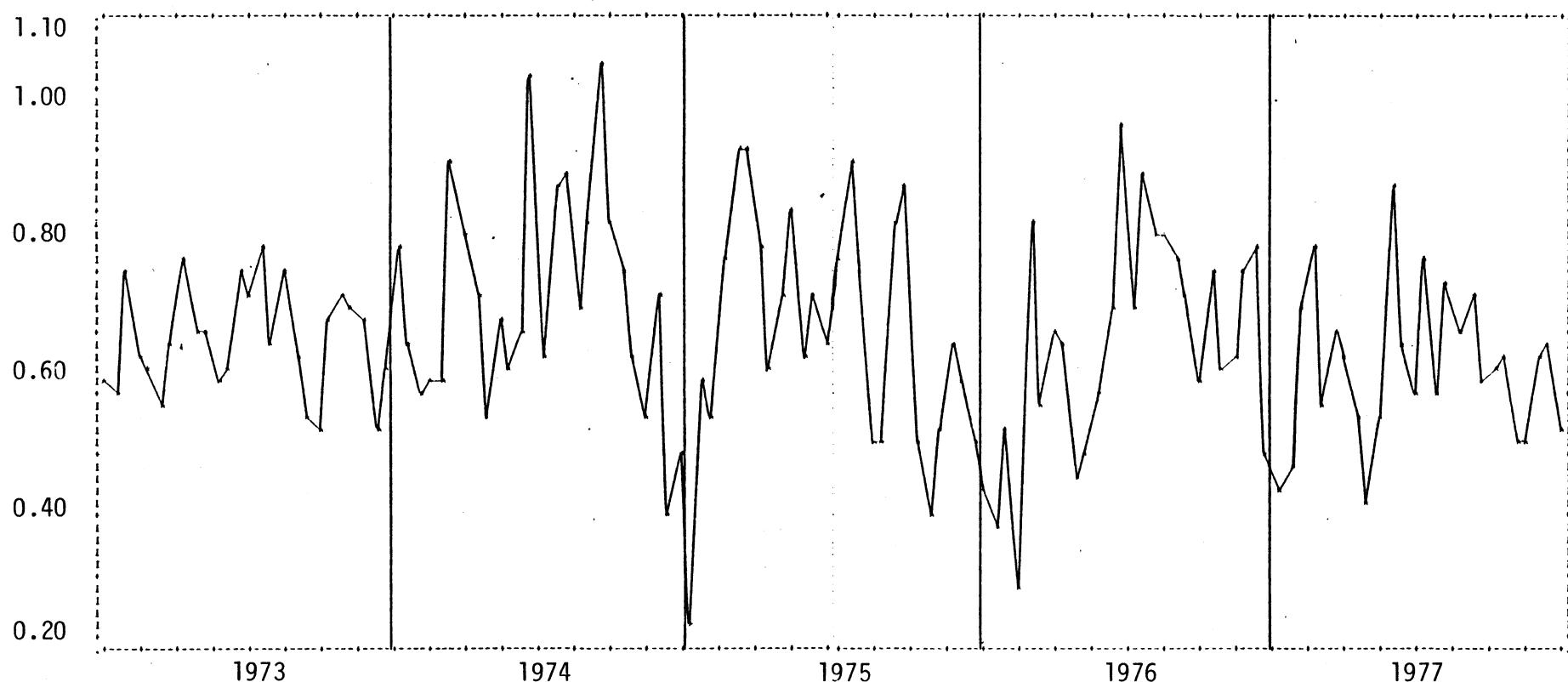
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.5. Dairy products. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
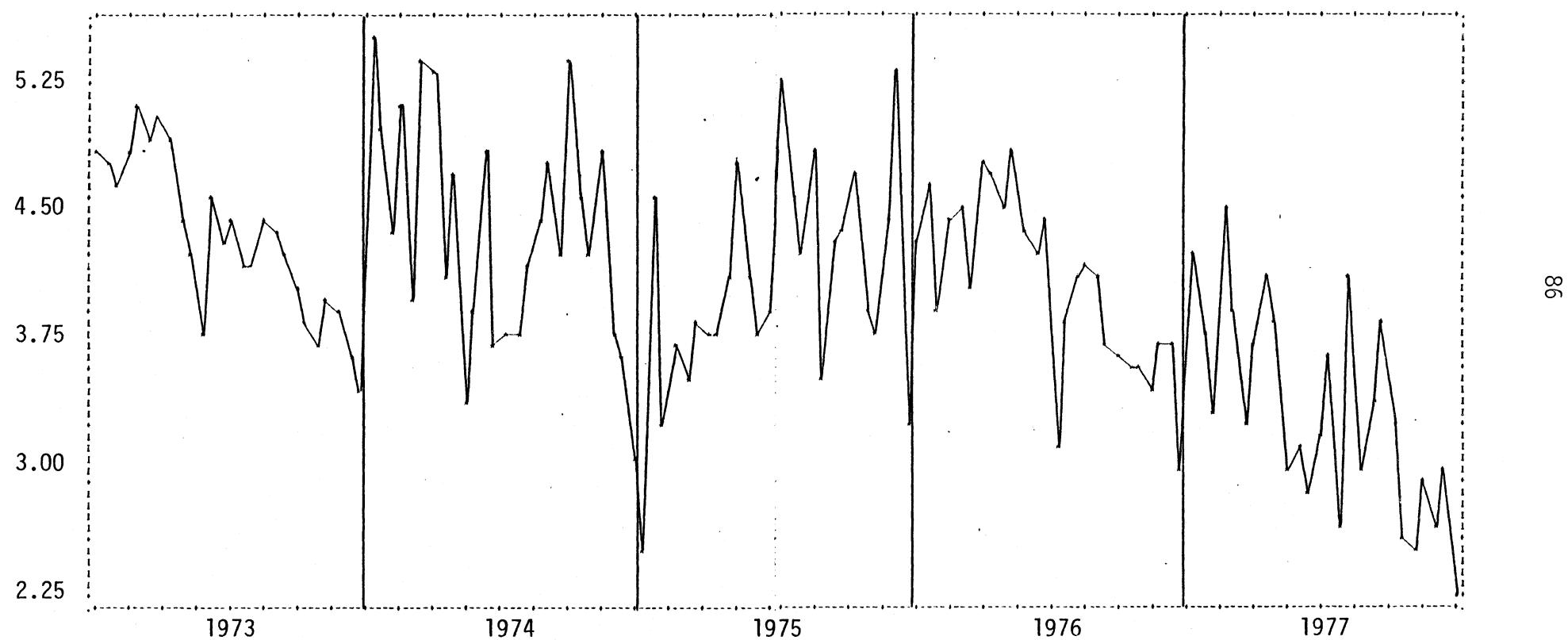
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.6. Butter and margarine. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
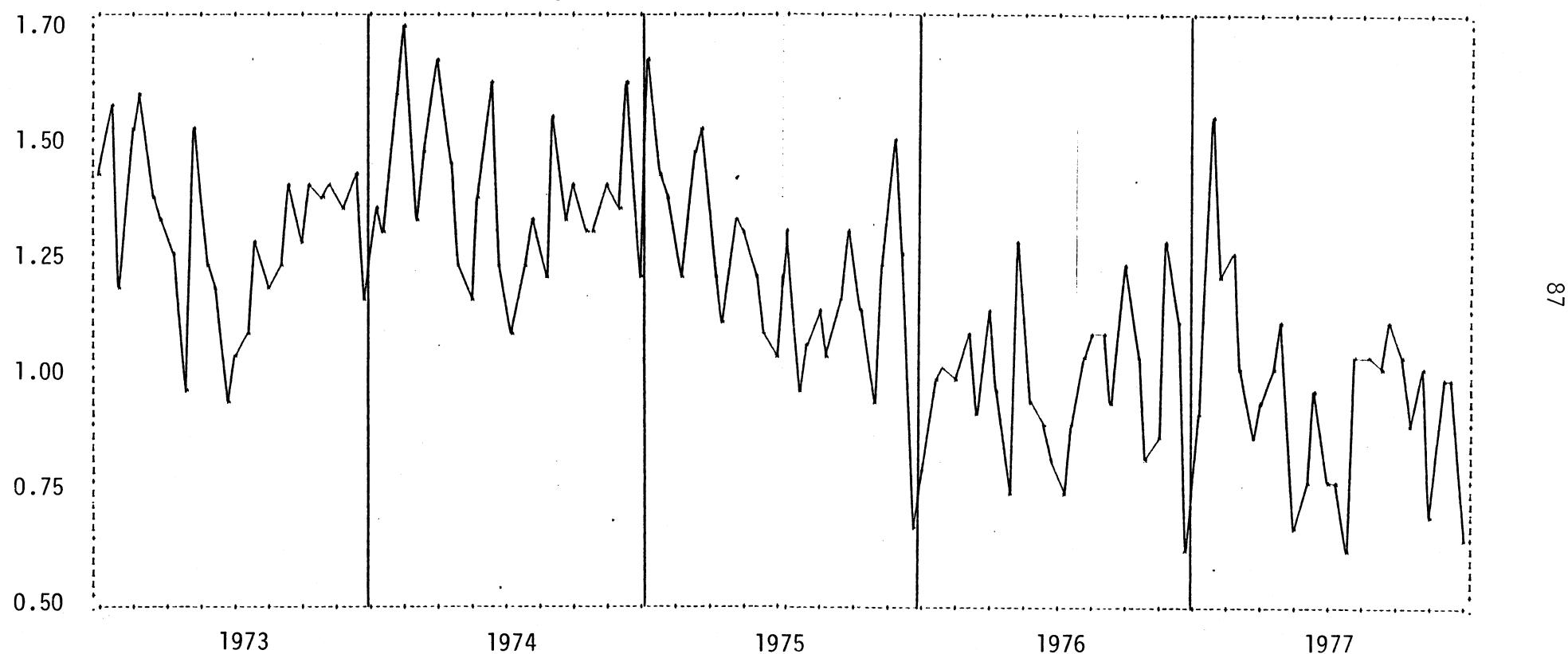
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.7. Potatoes and vegetables. Average budget share at current prices[1] in each accounting
period. 1973 - 1977. Percentages
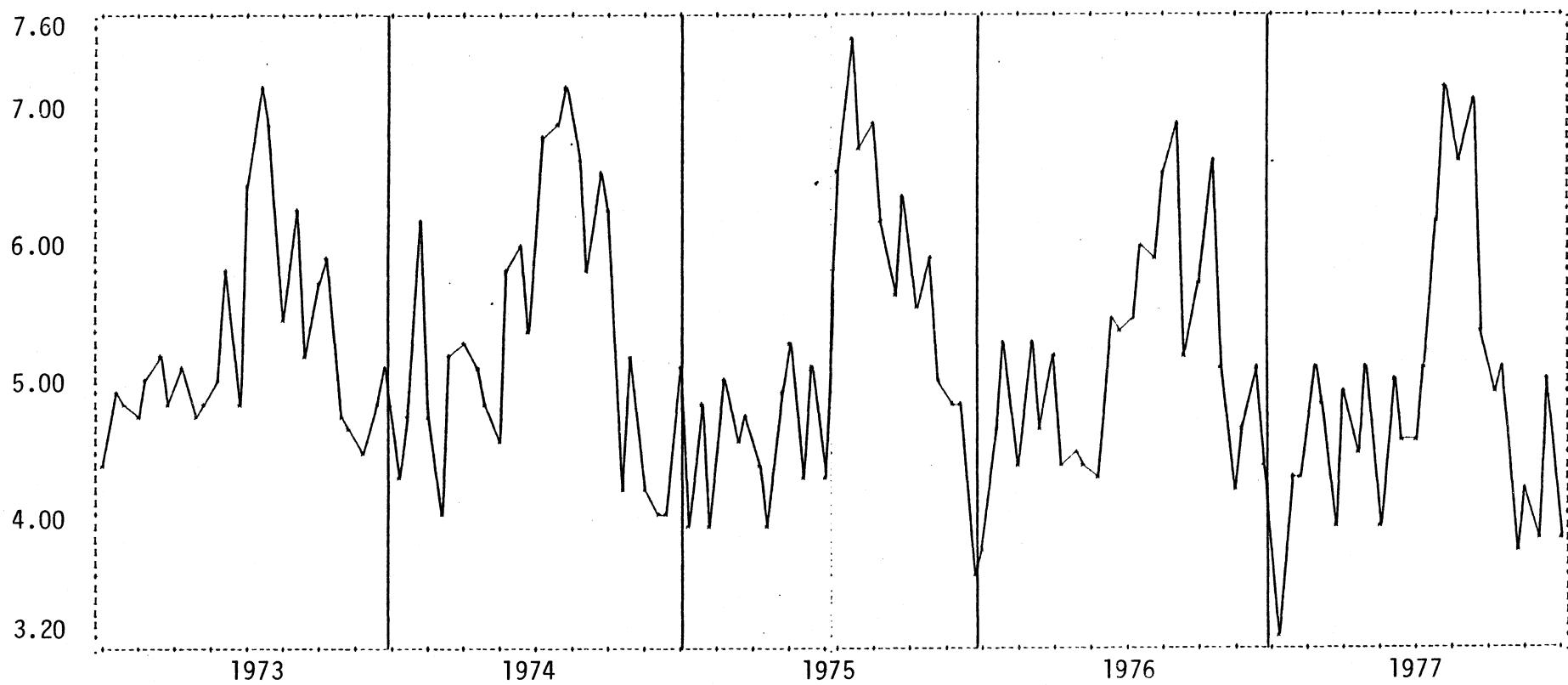
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.8. Other foods. Average budget share at current prices[1] in each accounting period. 1973 –
1977. Percentages
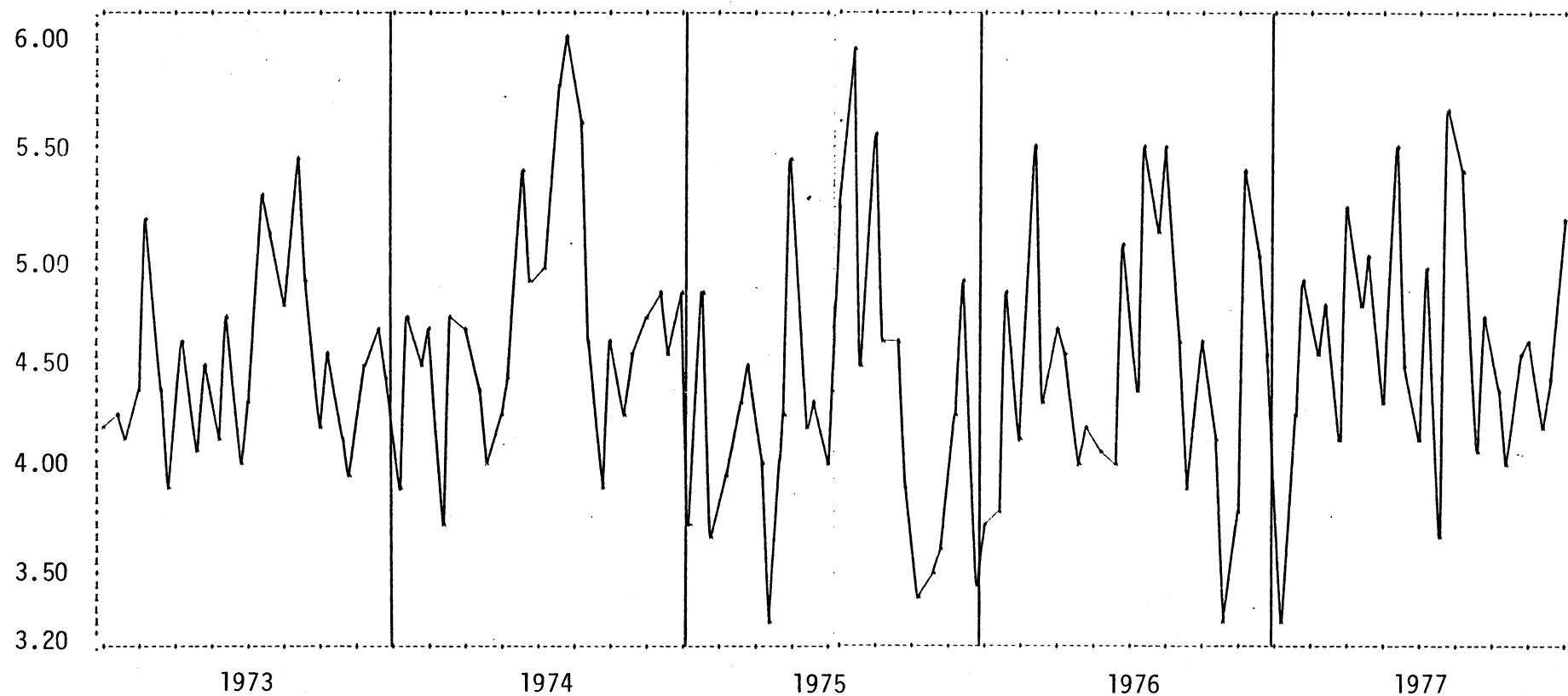
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.9. Beverages. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
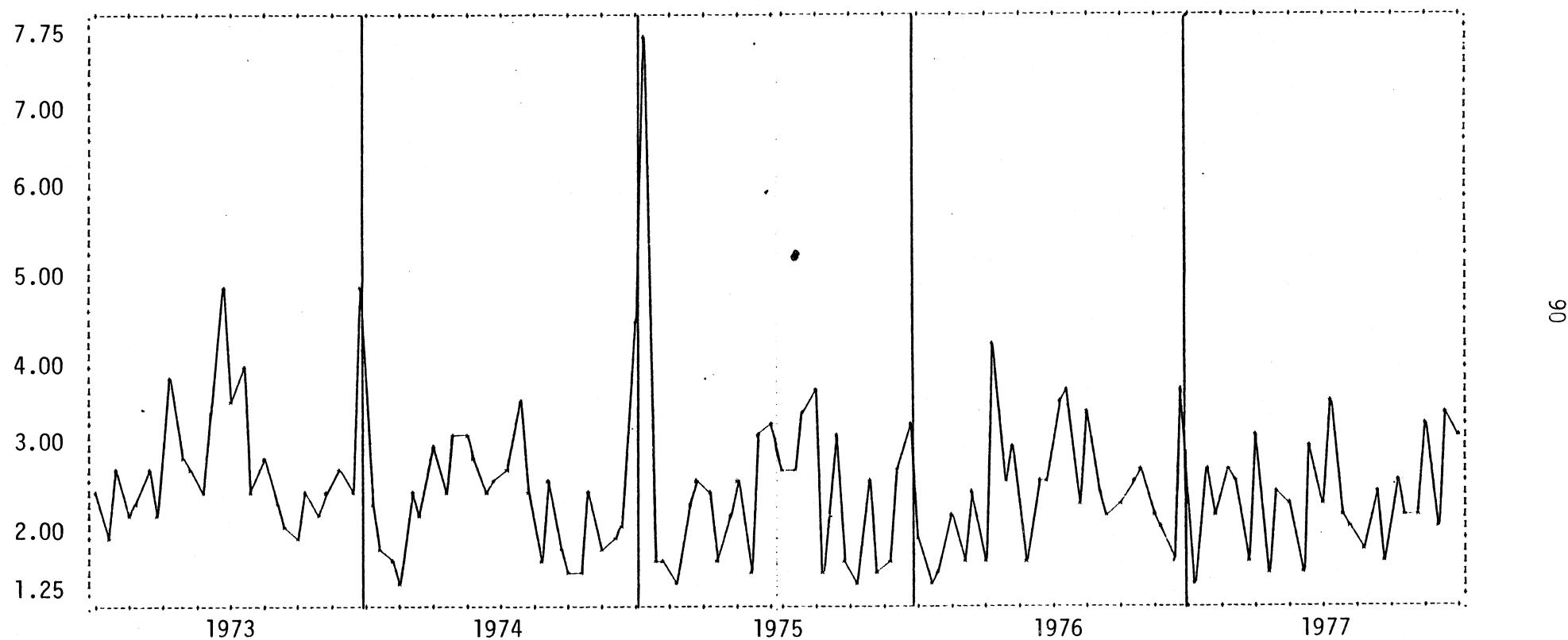
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.10. Tobacco. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
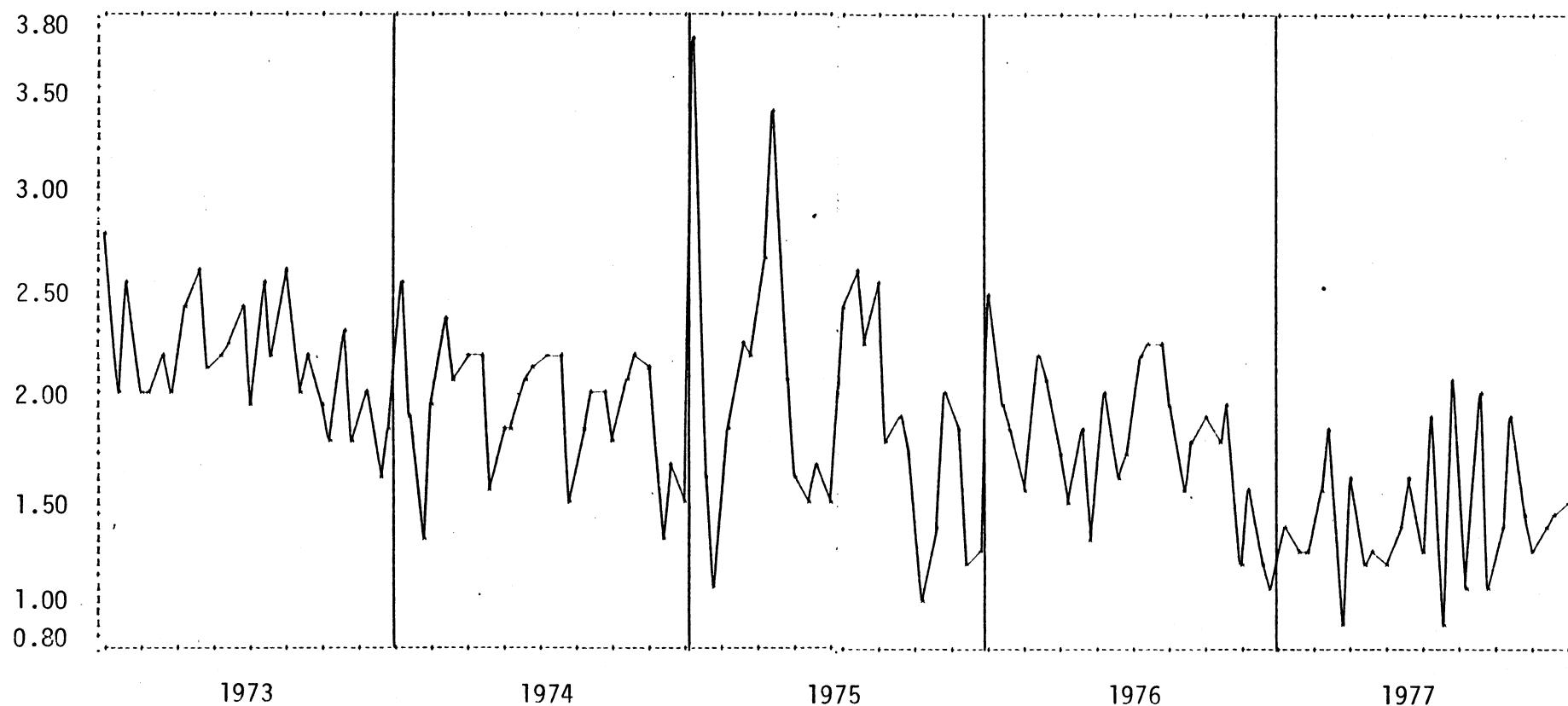
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.11. Clothing. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
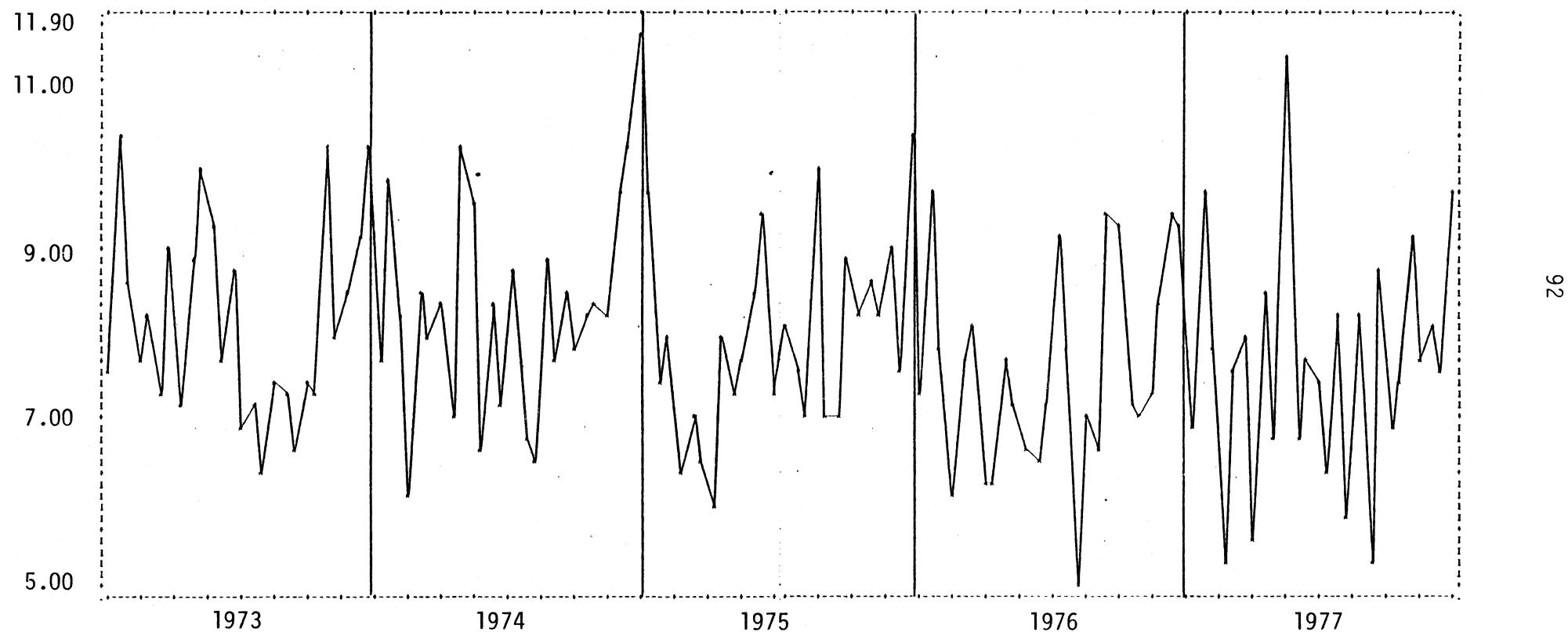
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.12. Footwear. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
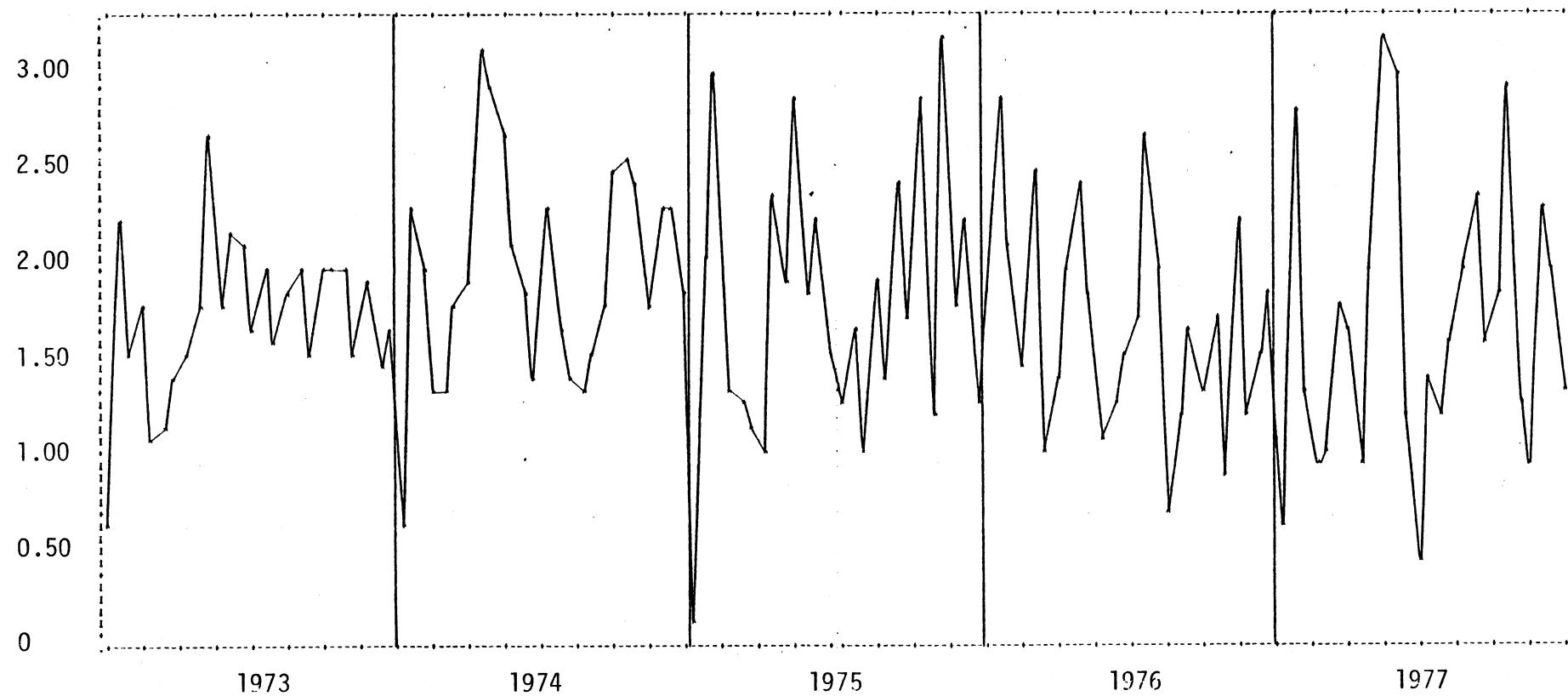
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.13. Housing. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
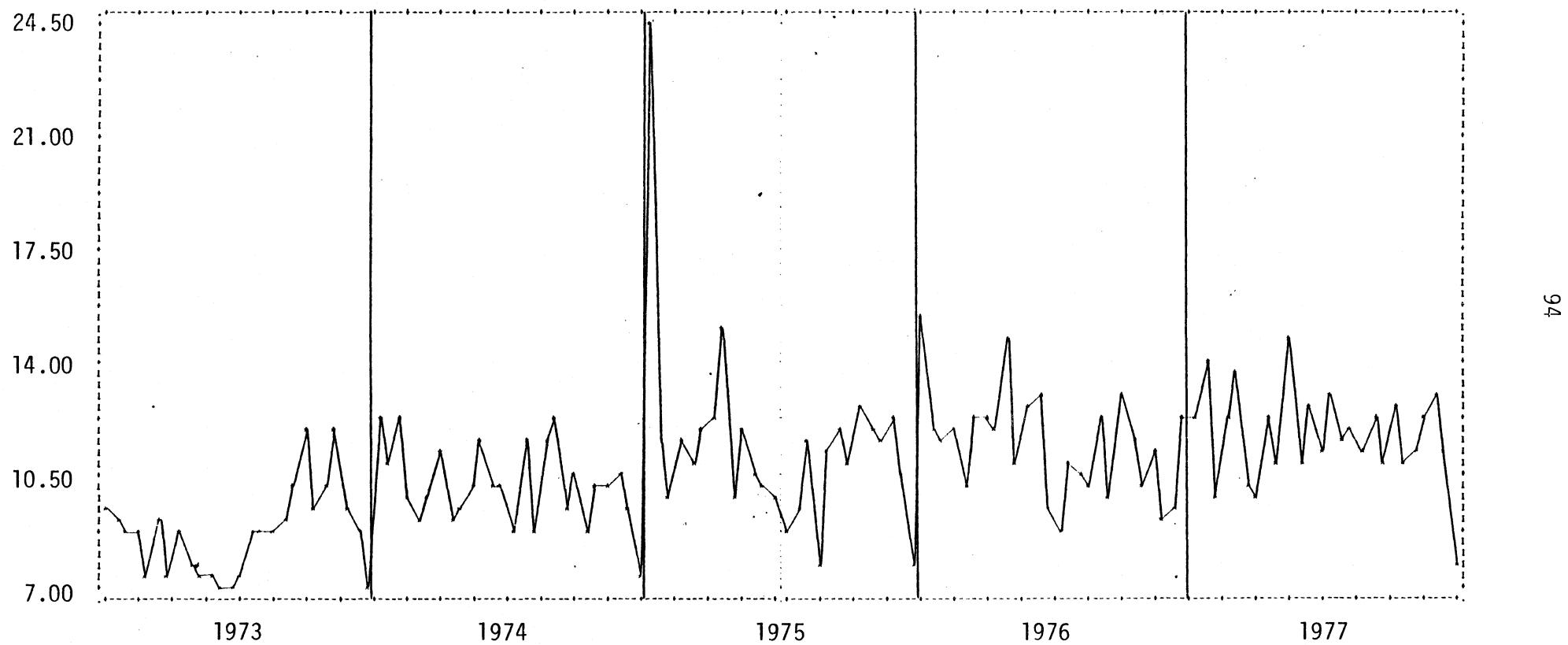
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.14. Fuel and power. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
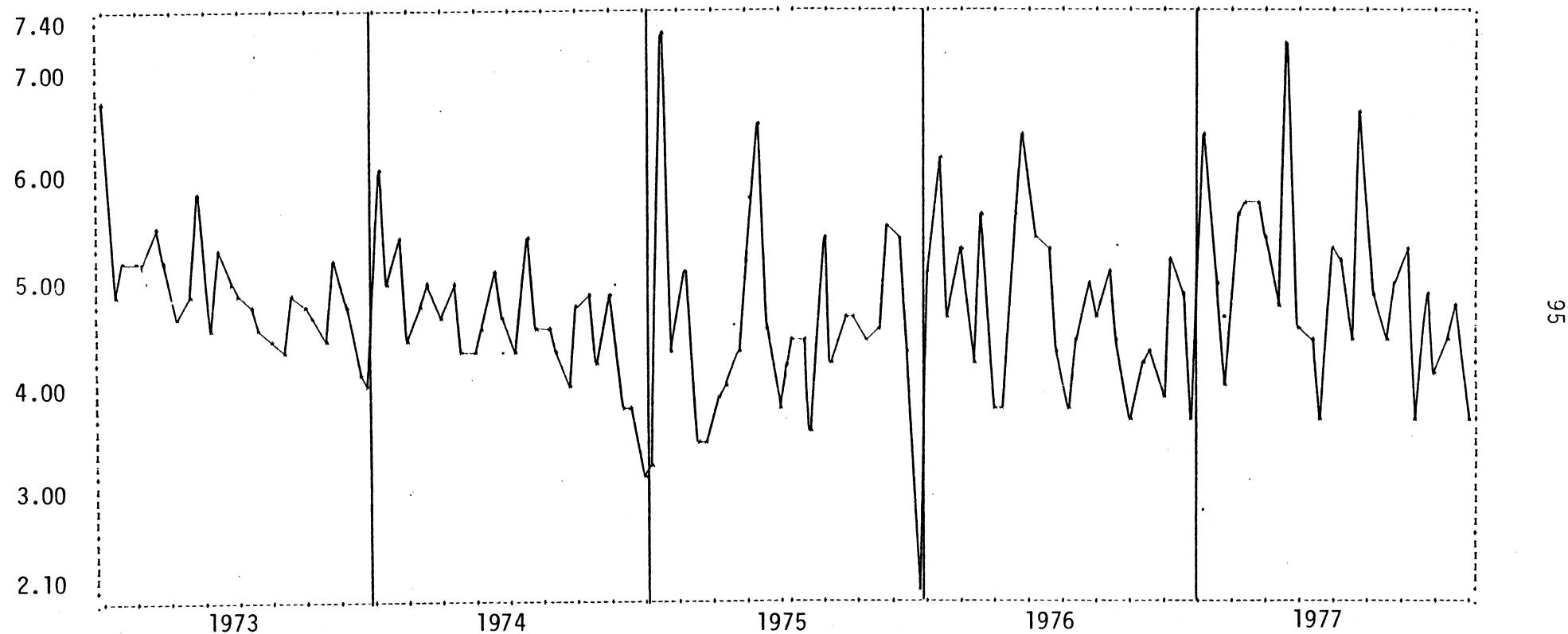
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.15. Furniture. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
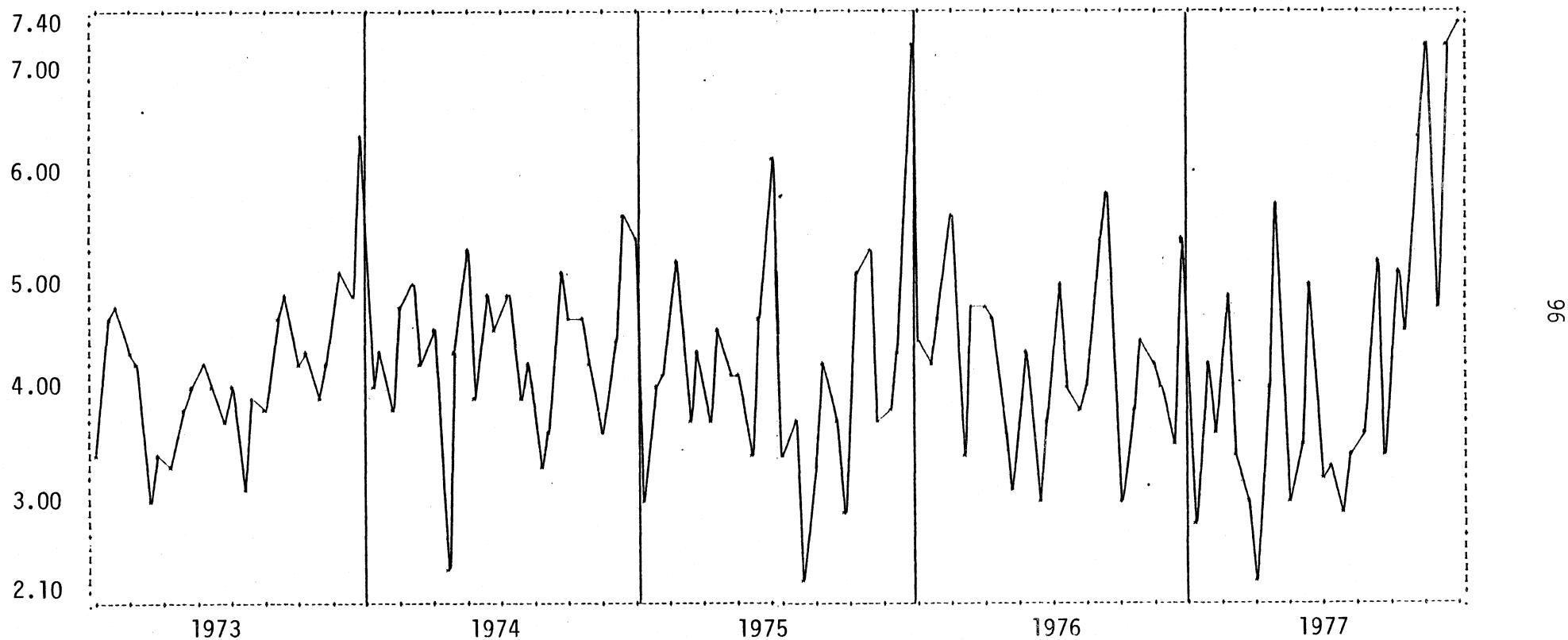
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.16. Household equipment. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
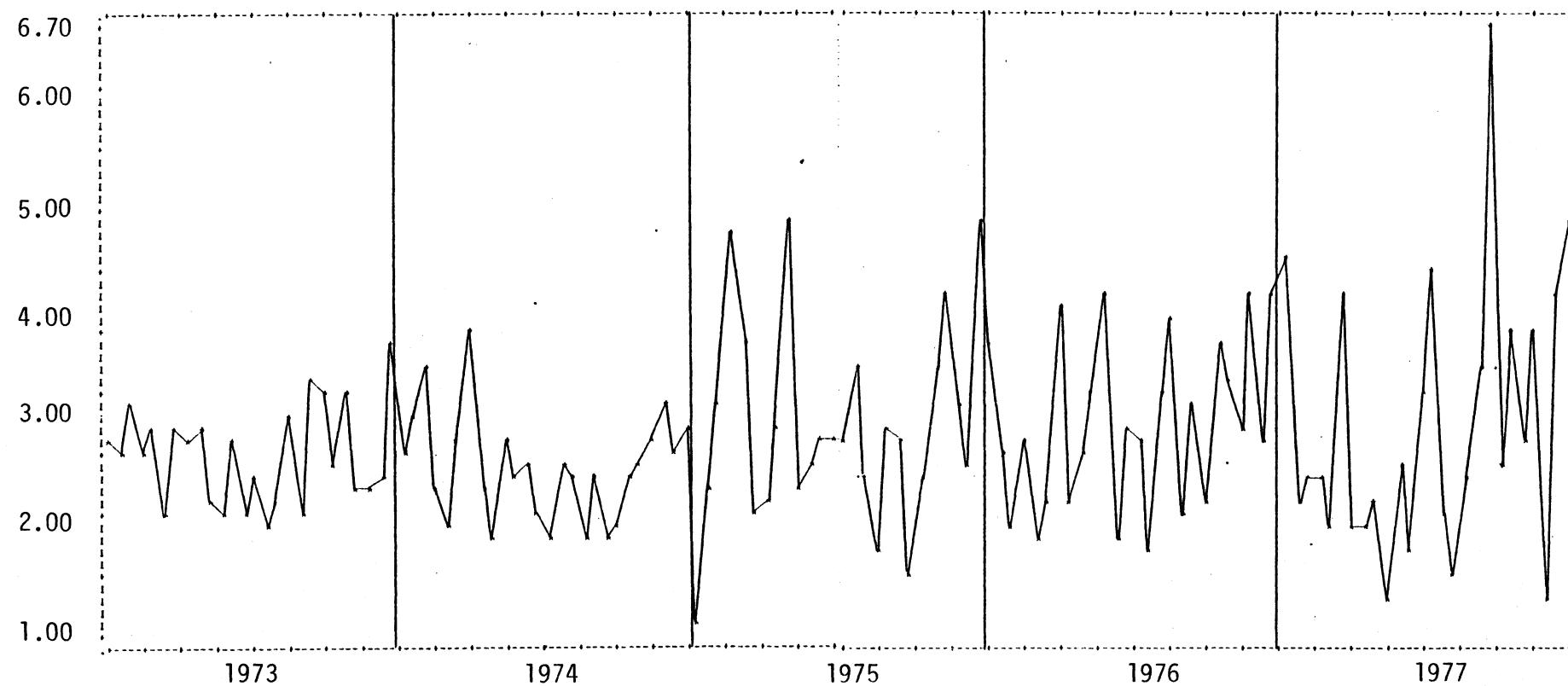
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.17. Misc. household goods. Average budget share at current prices[1] in each accounting
period. 1973 - 1977. Percentages
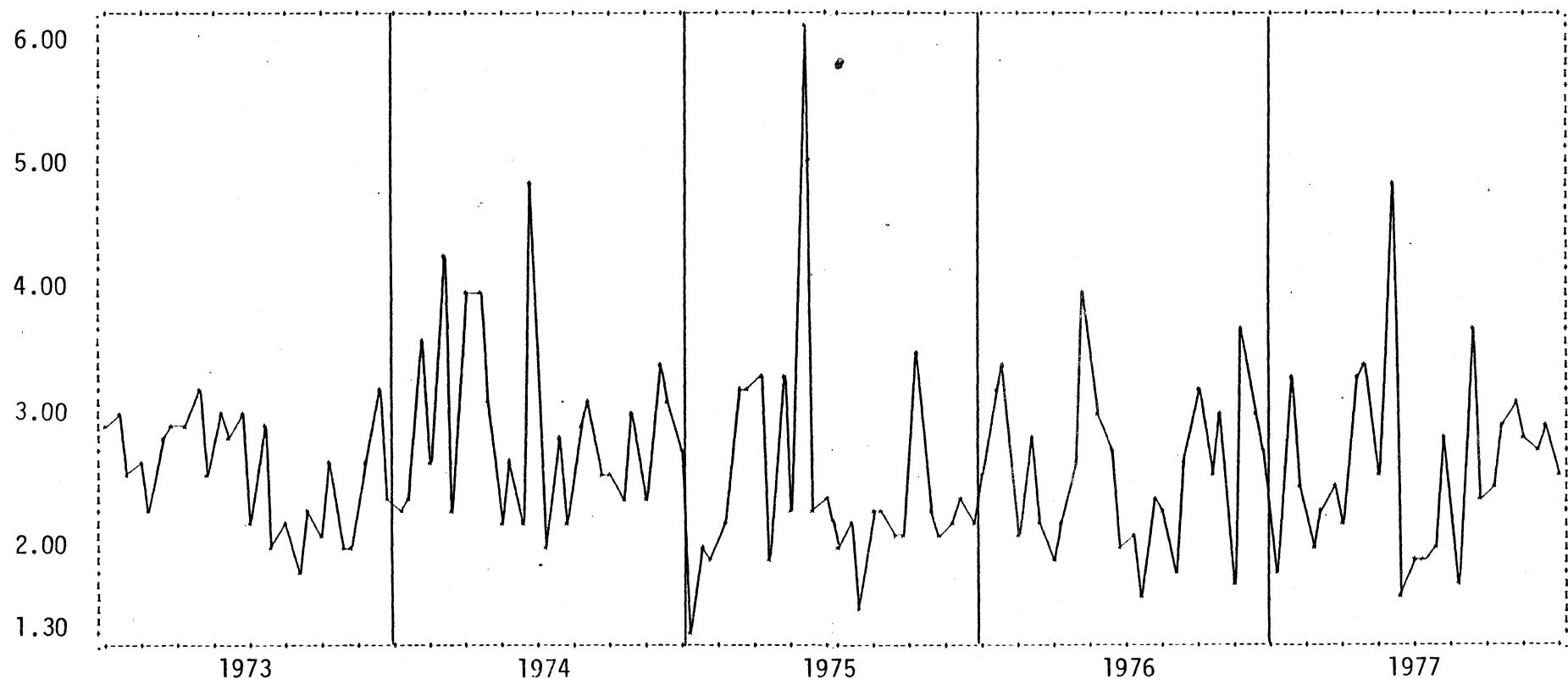
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.18. Medical care. Average budget share at current prices[1] in each accounting period. 1973 - 1977. Percentages
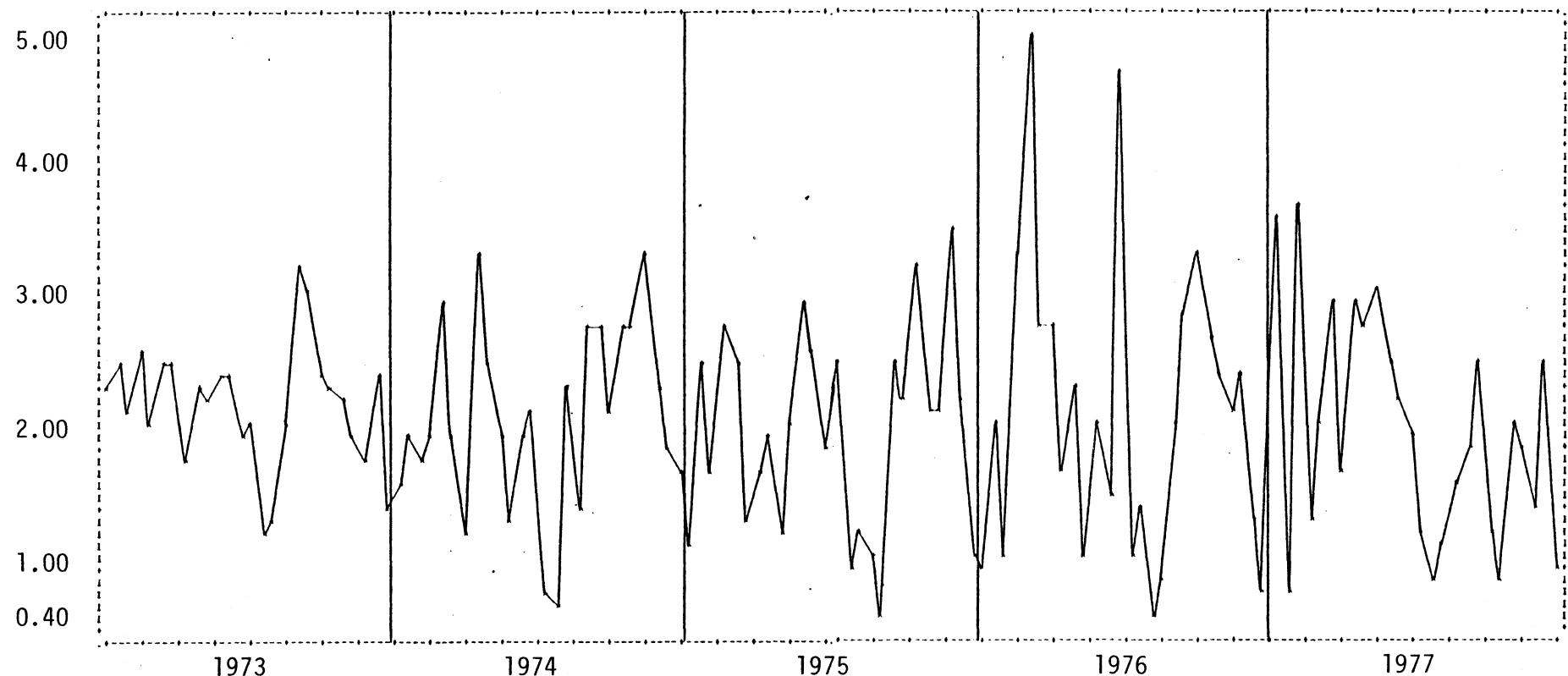
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.19. Motorcars, bicycles. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
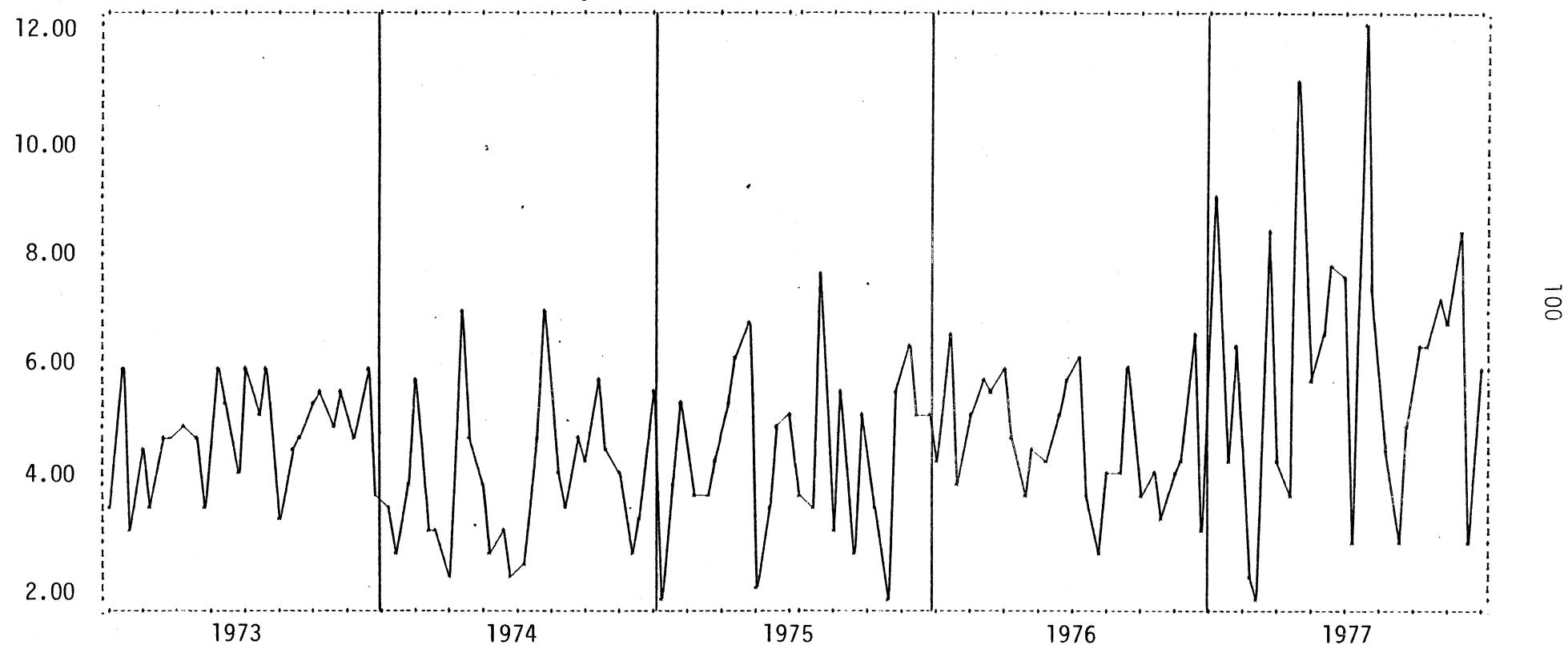
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.20. Running costs of vehicles. Average budget share at current prices[1] in each accounting
period. 1973 - 1977. Percentages
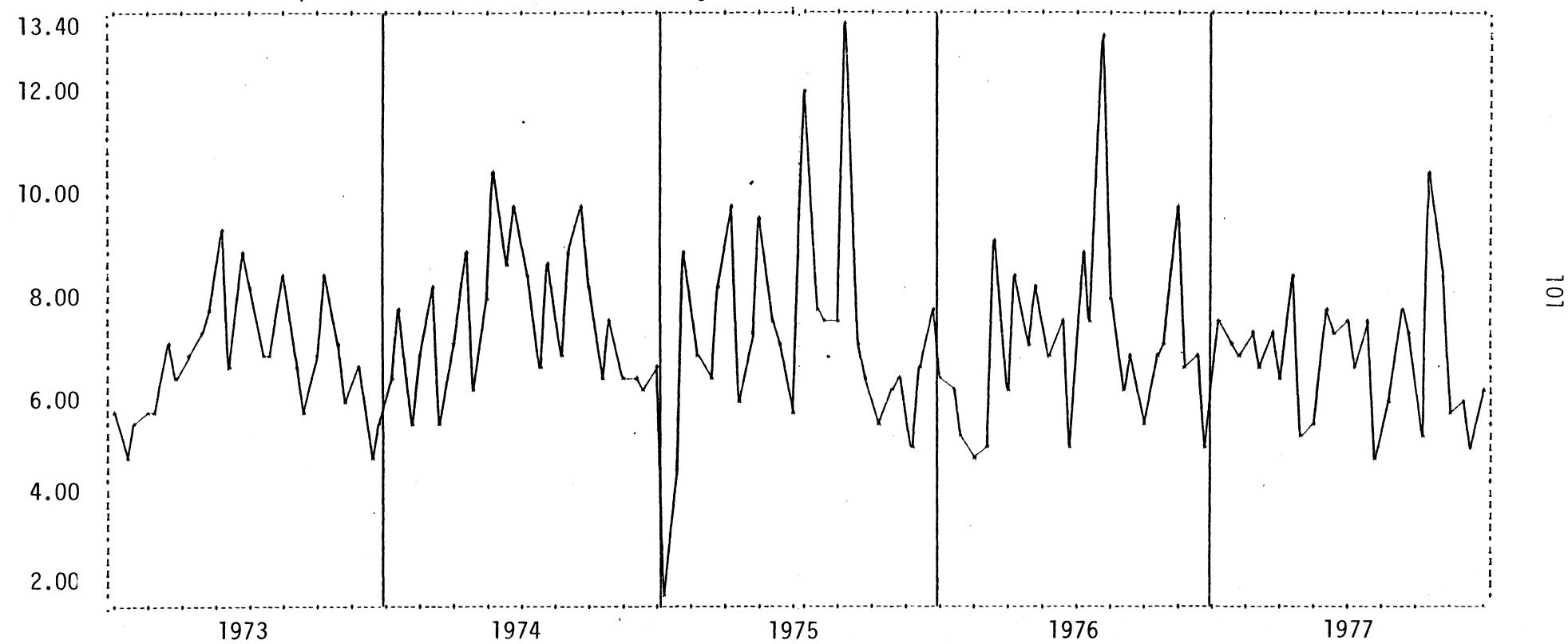
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.21. Public transport. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
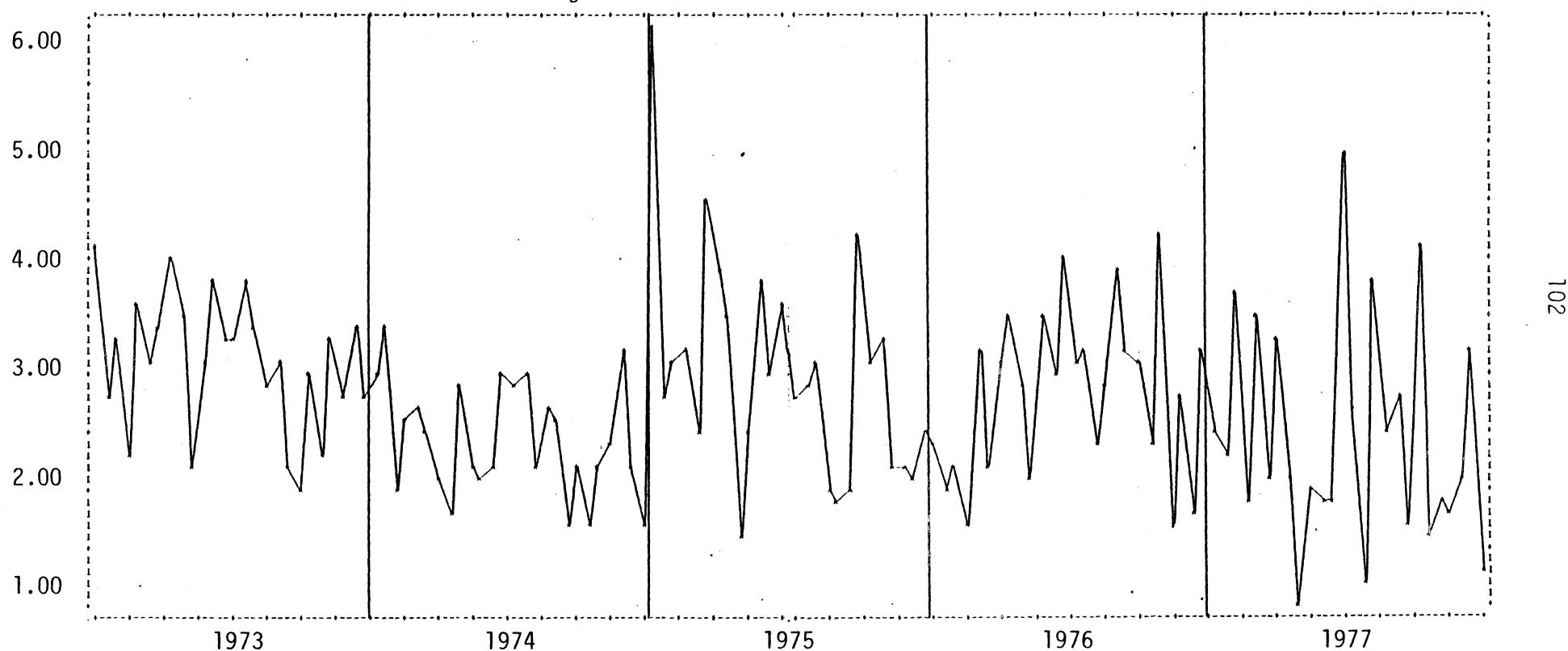
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.22. P.T.T. charges. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
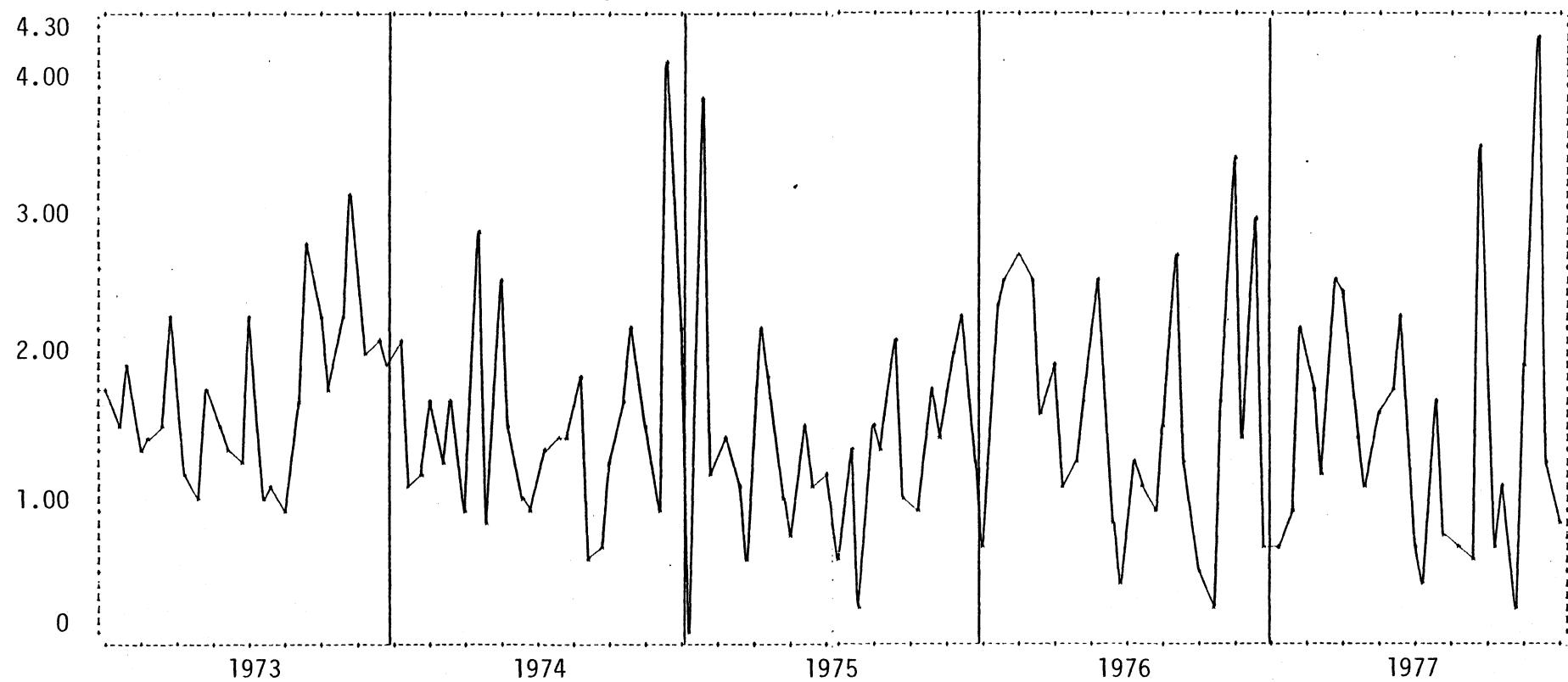
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.23.   Recreation.   Average budget share at current prices[1] in each accounting period.
1973 - 1977.   Percentages
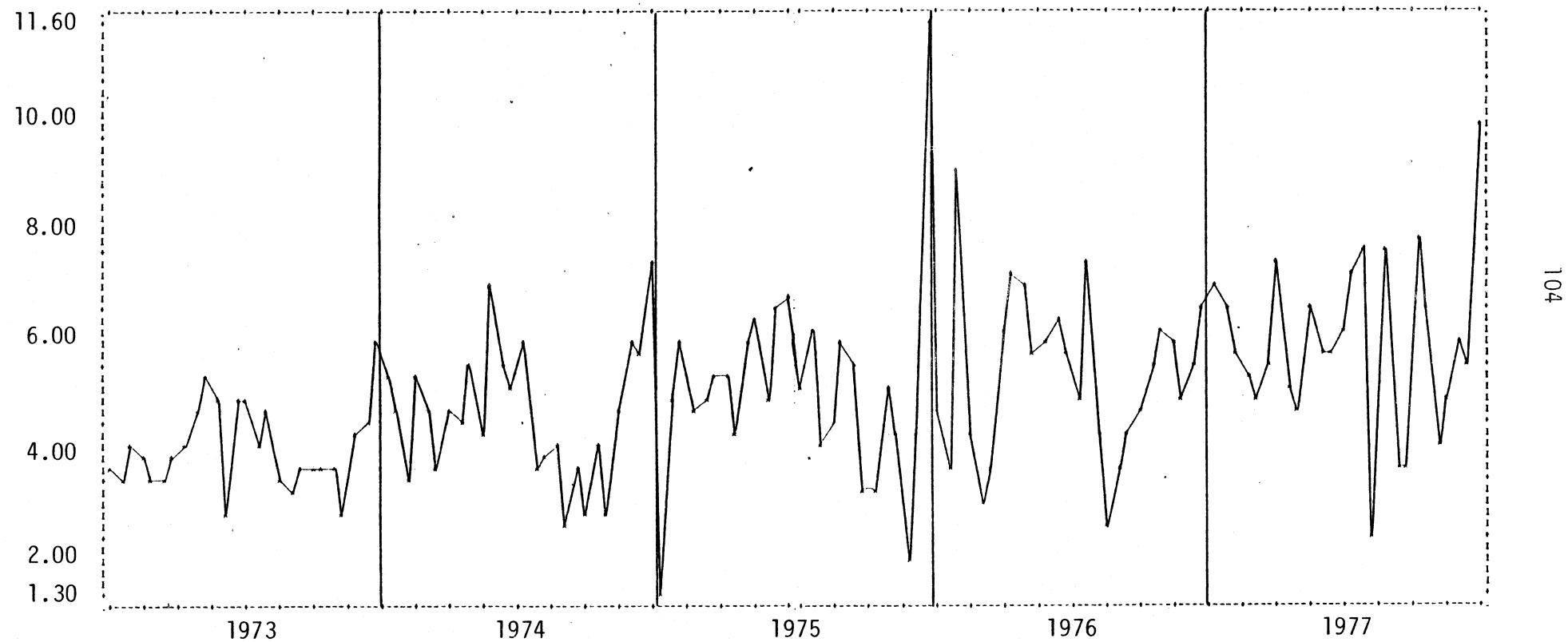
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.24. Public entertainment. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
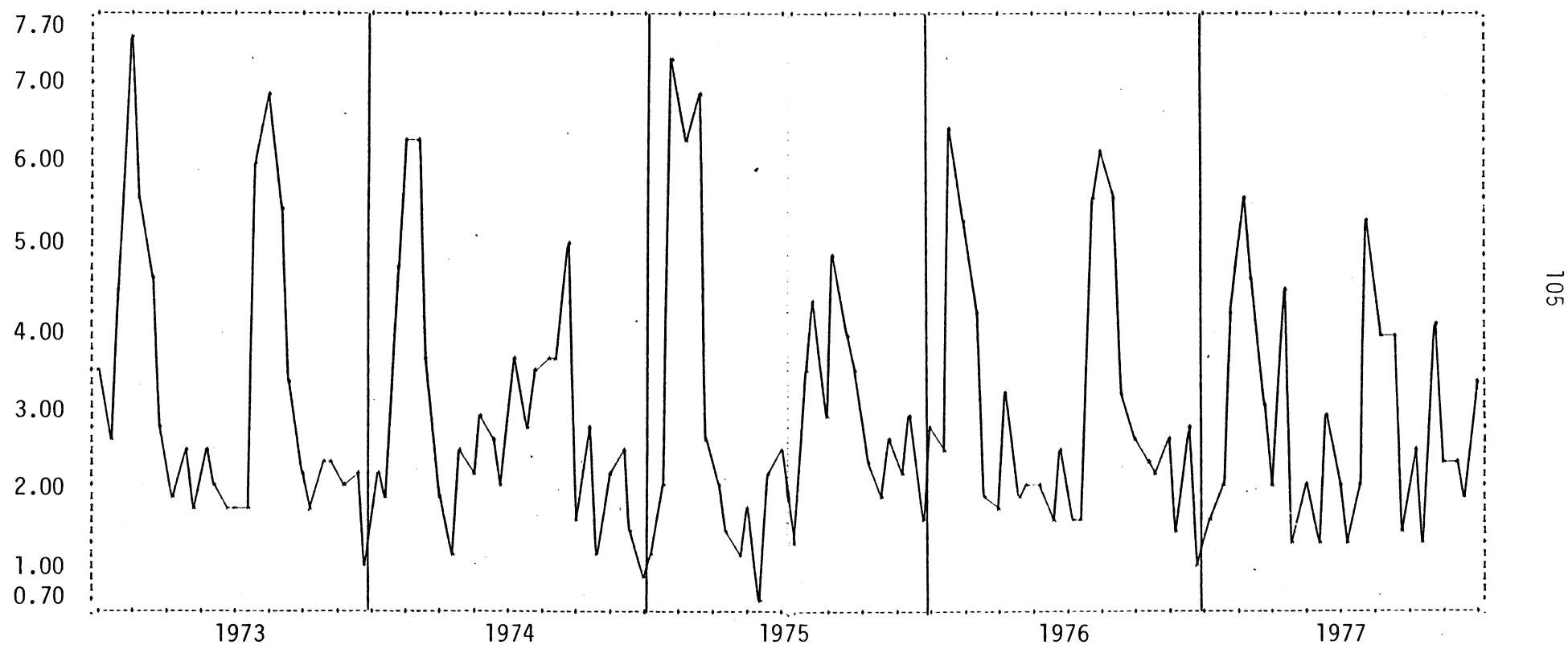
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.25.   Books and newspapers.   Average budget share at current prices[1] in each accounting period.
1973 - 1977.   Percentages
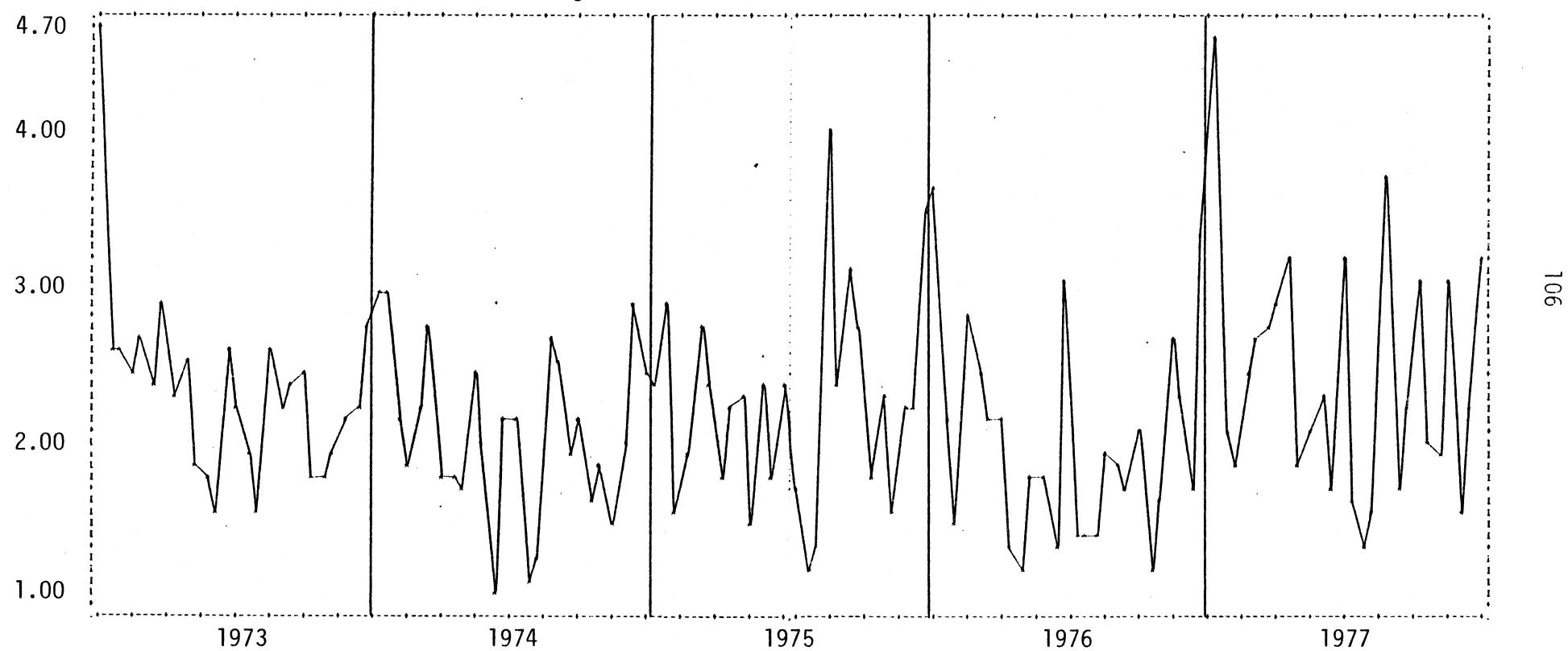
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.26. Personal care. Average budget share at current prices[1] in each accounting period.
1973 - 1977. Percentages
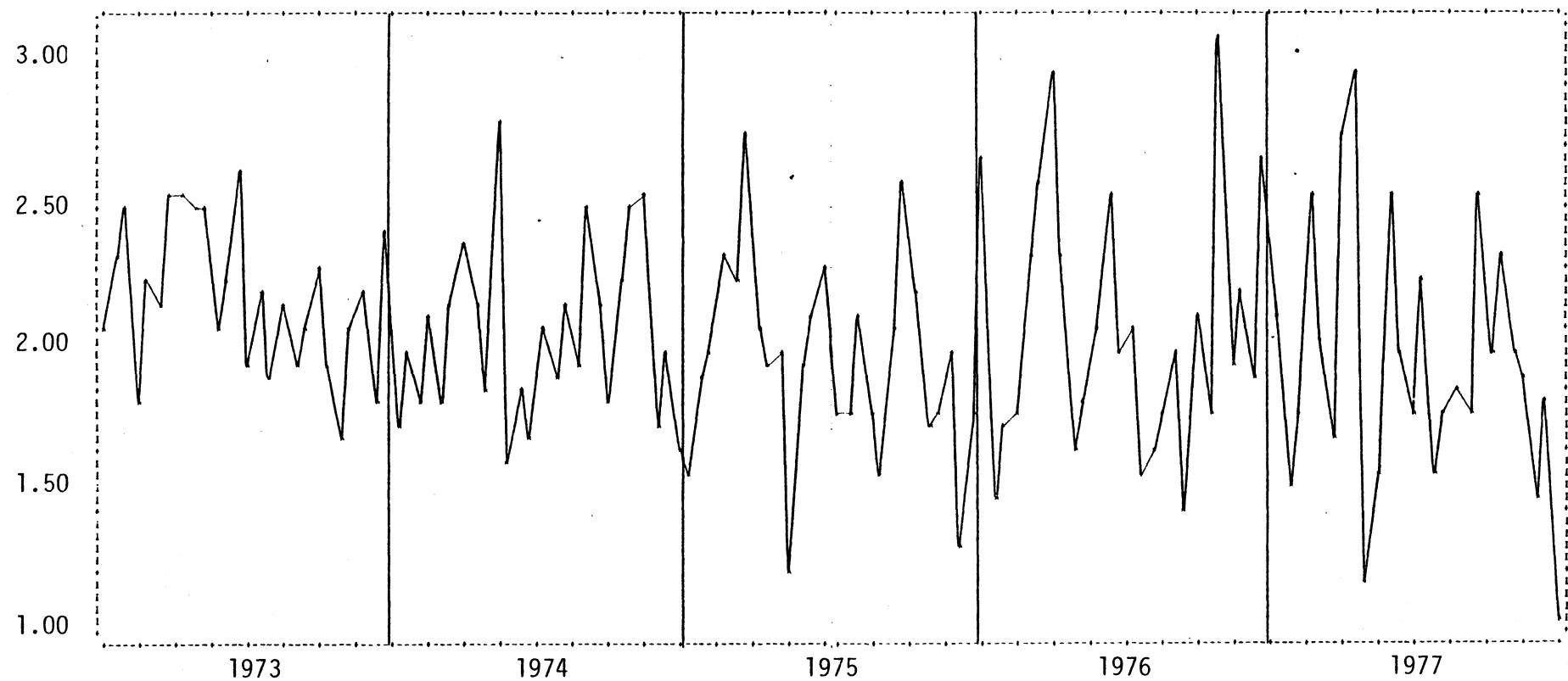
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.27. Misc. goods and services. Average budget share at current prices[1] in each accounting
period. 1973 - 1977. Percentages
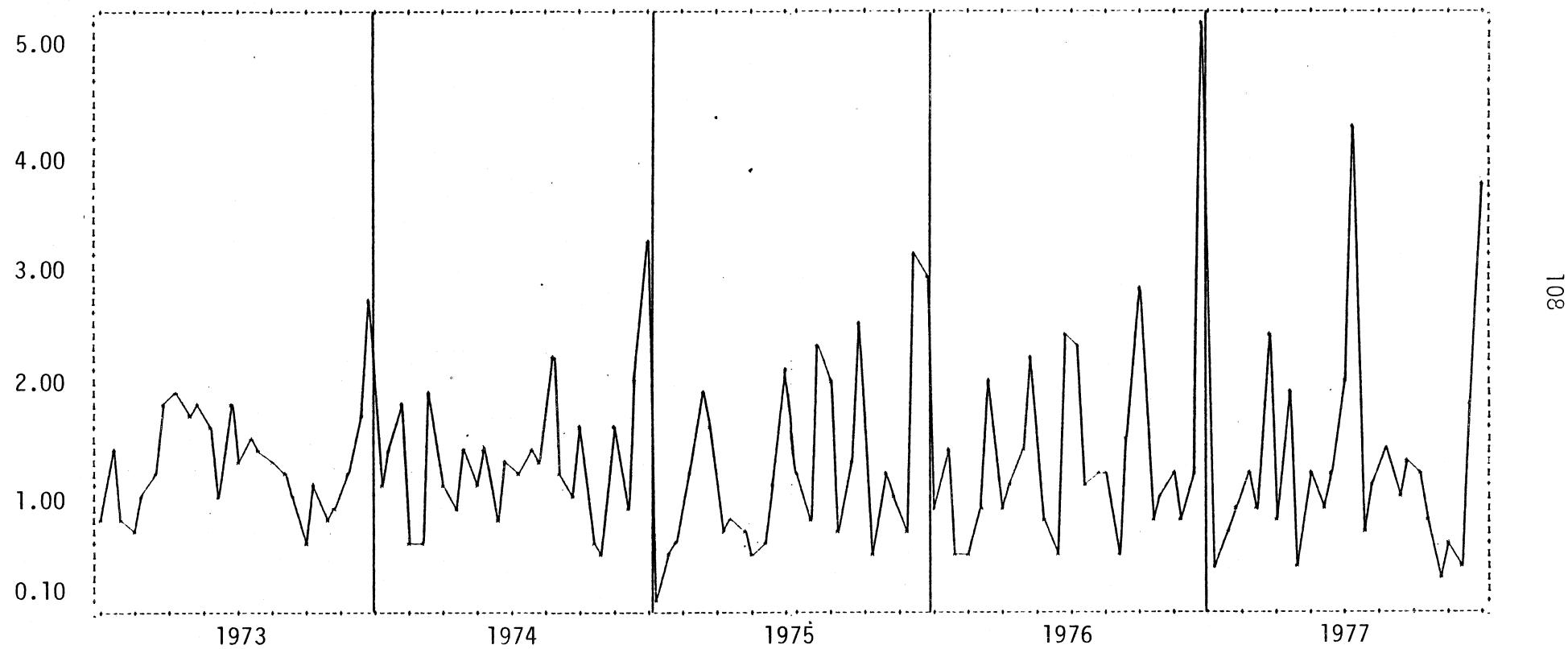
1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

Diagram W.28.   Restaurants, hotels, etc.   Average budget share at current prices[1] in each accounting
period.   1973 - 1977.   Percentages

1) The average budget share is defined by equation (3.10) of subsection 3.2.2.

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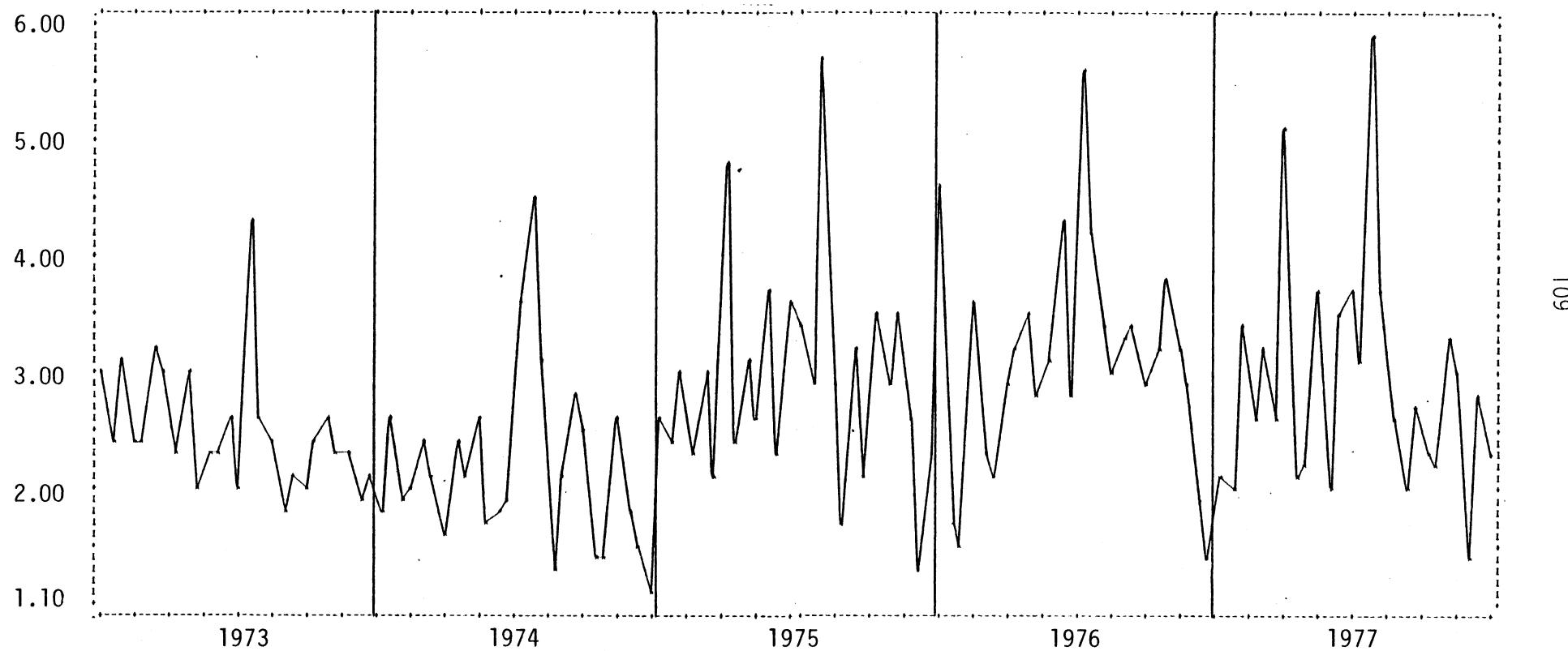
CLASSIFICATION OF THE COMMODITY GROUPS

        In this appendix, we give the detailed definitions of the commodity groups specified for the
present analysis. Our starting point is the standard three-digit classification used in the Surveys
of Consumer Expenditure 1973 - 1977 (see CBS (1975 a), table 3). As shown in table A1.1, the 28 dis-
aggregated commodity groups represent an aggregation of all 150 items which are specified in these
Surveys. Moreover, the table shows how these groups can be derived from 46 groups of consumption
commodities specified in the Norwegian medium-term planning model MODIS IV (see Bjerkholt and Longva
(1979)).

        Table A1.2 gives the key to the aggregation of the twenty-eight commodity groups into a five
commodity grouping. It is easy to verify this grouping corresponds to the one-digit classification
(9 items) in the Surveys of Consumer Expenditure 1973 - 1977 in the following way:

-   I   includes 0 and 1
- II   includes 2
- III   includes 3 and 4
- IV   includes 6 and 7
-   V   includes 5 and 8

Table A1.1. Contents of expenditure groups at the disaggregated level. (28 commodity groups.)

Group no.	Commodity group	Contents as defined in Survey of Consumer Expenditure[1]		Contents in terms of the commodity classification in MODIS IV[2]	
1	Flour and bread	001	Flour and meal	01	Flour and grain
		002	Biscuits, crispbread, etc.	02	Bakery products
		003	Bread		
		004	Cakes		
		005	Macaroni and corn flakes		
2	Meat and eggs	011	Fresh meat and pork	03	Meat, meat products and eggs
		012	Salted, smoked and dried meat		
		014	Other meat products		
		015	Frozen meat and meat products		
		035	Eggs		
3	Fish	021	Fresh fish	04	Fish and fish products
		022	Frozen fish		
		023	Salted, dried and smoked fish and shellfish		
		026	Other fish products		
4	Canned meat and fish	013	Canned meat	05	Canned meat and fish
		024	Canned dinner fish products		
		025	Sardines, etc.		
5	Dairy products	031	Milk	06	Milk, cheese, condensed milk
		032	Cream	07	Cheese
		033	Condensed milk		
		034	Cheese		
6	Butter, margarine	041	Butter	08	Butter
		042	Margarine and edible oils	09	Margarine and oils
7	Potatoes and vegetables	051	Cabbage and carrots	10	Fresh vegetables
		052	Other fresh vegetables	11	Fruits
		053	Apples, pears and plums	12	Dried fruits, berries and preserved fruits and vegetables
		054	Citrus fruits, bananas and grapes	13	Potatoes
		055	Dried fruit and nuts		
		056	Berries		
		057	Preserved vegetables and fruits, jams and fruit juices		
		061	Potatoes		
		062	Potato products		
8	Other foods	071	Sugar	14	Chocolate and sweets
		081	Coffee	15	Coffee, tea, sugar, etc.
		082	Tea		
		083	Cocoa and chocolate		
		091	Confectionary		
		092	Ice cream		
		093	Other		
9	Beverages	111	Mineral waters, etc.	16	Mineral waters
		112	Beer	17	Beer
		113	Wines and spirits	18	Wines and spirits
10	Tobacco	121	Cigars and cherrots	19	Tobacco
		122	Cigarettes		
		123	Smoking tobacco		
		124	Other		

1) See CBS (1975 a), table 3.
2) The Norwegian medium-term planning model. For a general description, see Bjerkholt and Longva (1979).

Table Al.1 (cont.). Contents of expenditure groups at the disaggregated level. (28 commodity groups.)

Group no.	Commodity group	Contents as defined in Survey of Consumer Expenditure[1]		Contents in terms of the commodity classification in MODIS IV[2]	
11	Clothing	211	Shirts and nightwear	20	Clothing
		212	Dresses, blouses and aprons	21	Fabrics and yarn
		213	Suits, jackets, etc.		
		214	Coats and rain apparel		
		215	Stockings and socks		
		216	Underwear and infants' garments		
		217	Knitwear		
		218	Fur and leather products		
		219	Hats, caps and gloves		
		221	Fabrics		
		222	Yarn and sewing thread		
		223	Other		
12	Footwear	231	Leather footwear	22	Footwear and repairs of footwear
		232	Rubber footwear		
		233	Other footwear		
		234	Repairs of footwear		
13	Housing	311	Interest charges	23	Housing and maintenance
		312	Insurance		
		313	Water charges		
		314	Other charges		
		315	Rent and hiring of holiday houses		
		316	Maintenance		
14	Fuel and power	321	Electricity	24	Electricity
		322	Kerosene and fuel oils	25	Fuel
		323	Fuelwood and peat		
		324	Coal and coke		
15	Furniture	411	Furniture	26	Furniture, etc.
		412	Floor coverings		
		413	Lamps, etc.		
		421	Textiles, furnishings, etc.		
		422	Ornamental articles		
16	Household equipment	431	Kitchen ranges, hot-plates, etc.	27	Electric appliances and kitchen utensils
		432	Vacuum cleaners		
		433	Washing machines		
		434	Refrigerators and food freezers		
		435	Sewing and knitting machines		
		436	Electric heaters and other electric appliances		
		441	Glassware, china, ceramic tableware		
		442	Knives, forks, spoones		
		443	Other kitchen utensils		
		444	Electric bulbs		
		445	Other		
17	Misc. household goods	451	Washing powder	28	Miscellaneous household goods and services
		452	Other cleaning materials	29	Domestic services
		453	Other goods		
		454	Laundering, cleaning and dyeing		
		455	Repairs of furniture and other household equipment		
		456	Insurance of household property		
		461	Domestic services		

1) See note 1, page 112.
2) See note 2, page 112.

Table A1.1 (cont.). Contents of expenditure groups at the disaggregated level. (28 commodity groups.)

Group no.	Commodity group	Contents as defined in Survey of Consumer Expenditure[1]		Contents in terms of the commodity classification in MODIS IV[2]	
18	Medical care	511	Medicines and medical goods	30	Medical care
		512	Eye glasses and ortopedic equipment		
		513	Dental services		
		514	Physicians' services		
		515	Massage and physical treatment		
19	Motorcars, bicycles	611	Motorcars and comping trailers	31	Purchases of private vehicles
		612	Motorcycles and bicycles		
20	Running costs of vehicles	621	Gasoline and oil	32	Gasoline and oil
		622	Parts and maintenance	33	Other running costs of vehicles
		623	Workshop repairs		
		624	Insurance of vehicles		
		625	Other expenditure		
21	Public transport	631	Railway	34	Public transport
		632	Tram and suburban railway		
		633	Ship		
		634	Airline		
		635	Bus		
		636	Taxis		
		637	Moving expences and freights		
		638	Free travelling		
22	P.T.T. charges	641	Postal charges	35	Post and telephone charges
		642	Telephone and telegraph charges		
23	Recreation	710	Television sets	36	Television sets and radio receivers
		711	Radio receivers and record players	37	Other recreation goods
		712	Musical instruments		
		713	Photographic and optical instruments		
		714	Purchases of boats, boat engines and weapons		
		715	Sports equipment		
		716	Gramophone records, sound-recording tape and film		
		717	Play equipment and hobby articles		
		718	Flowers and decorating shrubs		
		719	Equipment for and repairs of recreation equipment		
24	Public entertainment	721	Cinemas	38	Public entertainment and other services
		722	Theatres	41	Schooling
		723	Other entertainment		
		724	Television and radio licences		
		725	Lotteries, etc.		
		726	Photographing and expenses for hobby courses		
		741	Schooling		
25	Books and newspapers	731	Books	39	Books and newspapers
		732	Newspapers	40	Magazines and periodicals
		733	Magazines and periodicals		
26	Personal care	811	Hairdressing and beauty treatment	42	Cosmetic articles
		812	Cosmetic articles	43	Other articles and services for personal care
		813	Toilet soap and shaving soap		
		814	Other toilet articles		
27	Misc. goods and services	821	Travel goods	44	Travel goods, watches and jewellery
		822	Watches		
		823	Jewellery	46	Financial services and other services
		824	Other goods		
		841	Services from financial institutions		
		851	Other services		
28	Restaurants, hotels, etc.	831	Expenses on restaurants and café	45	Restaurants, hotels, package tours, etc.
		832	Package tours and other tours		
		833	Expenses for hotels and boarding houses, domestic		

1) See note 1, page 112.
2) See note 2, page 112.

Table A1.2. Contents of the expenditure groups at the aggregated level (5 commodity groups)

Group no.	Commodity group	Contents in terms of the 28 disaggregated commodities[1]
I	Food, beverages and tobacco	1 Flour and bread 2 Meat and eggs 3 Fish 4 Canned meat and fish 5 Dairy products 6 Butter and margarine 7 Potatoes and vegetables 8 Other goods 9 Beverages 10 Tobacco
II	Clothing and footwear	11 Clothing 12 Footwear
III	Housing, fuel and furniture	13 Housing 14 Fuel and power 15 Furniture 16 Household equipment 17 Misc. household goods
IV	Travel and recreation	19 Motorcars, bicycles 20 Running costs of vehicles 21 Public transport 22 P.T.T. charges 23 Recreation 24 Public entertainment 25 Books and newspapers
V	Other goods and services	18 Medical care 26 Personal care 27 Other goods and services 28 Restaurants, hotels, etc.

1) See table A1.1 of this appendix.

PERIOD SPECIFIC PRICE INDICES.
1973 - 1977

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	1973 PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
A. DISAGGREGATED LEVEL. 28 COMMODITIES.													
1. FLOUR AND BREAD	85.1	85.2	85.5	85.7	85.8	85.9	86.2	86.4	86.5	86.6	87.0	87.5	88.1
2. MEAT AND EGGS	98.0	97.6	97.8	97.9	97.8	97.9	98.7	99.3	99.4	99.3	99.3	99.4	99.1
3. FISH	80.8	81.3	81.7	82.1	82.2	82.4	82.8	83.2	83.6	84.1	84.5	85.0	85.1
4. CANNED MEAT AND FISH	85.3	85.6	85.8	86.0	86.2	86.3	86.5	86.7	86.9	87.0	87.3	87.5	87.8
5. DAIRY PRODUCTS	105.4	105.4	105.4	105.6	106.2	106.7	106.9	106.9	105.6	104.1	103.7	103.7	103.6
6. BUTTER AND MARGARINE	92.4	92.1	91.5	91.0	91.2	91.4	91.8	92.1	90.4	88.6	87.9	87.7	88.4
7. POTATOES AND VEGETABLES	87.2	87.3	87.7	88.1	88.4	88.7	89.3	89.8	90.3	90.8	93.2	96.0	98.3
8. OTHER FOODS	81.2	82.1	82.6	83.1	83.3	83.5	83.8	84.2	84.4	84.6	84.7	84.9	85.0
9. BEVERAGES	88.4	89.1	90.7	91.9	92.4	92.7	92.8	92.9	93.1	93.3	93.3	93.3	93.3
10. TOBACCO	87.7	89.8	94.0	97.2	97.3	97.4	97.4	97.5	97.5	97.5	97.5	97.5	97.5
11. CLOTHING	86.0	85.7	86.6	87.5	88.4	89.3	90.0	90.7	91.2	91.6	91.9	92.2	92.2
12. FOOTWEAR	84.9	85.6	85.7	86.0	86.9	87.7	88.2	88.6	88.8	89.0	89.1	89.3	89.1
13. HOUSING	87.4	87.5	87.6	88.0	89.0	89.3	90.2	90.4	90.5	90.6	91.0	91.5	91.7
14. FUEL AND POWER	82.9	83.6	83.8	84.0	84.1	84.2	84.2	84.2	84.3	84.3	84.4	84.6	85.2
15. FURNITURE	83.0	83.4	83.9	84.3	84.5	84.8	85.1	85.4	85.4	85.5	85.8	86.3	86.5
16. HOUSEHOLD EQUIPMENT	88.9	88.9	89.0	89.3	89.6	89.9	90.1	90.3	90.4	90.5	90.8	91.1	91.4
17. MISC. HOUSEHOLD GOODS	83.9	83.9	84.1	84.3	84.9	85.3	85.5	85.7	86.3	87.1	87.5	87.7	87.9
18. MEDICAL CARE	92.4	93.3	93.3	93.4	93.5	93.6	93.6	93.6	93.6	93.6	93.8	94.0	94.0
19. MOTORCARS, BICYCLES	93.7	93.8	93.8	93.8	93.9	94.0	94.1	94.1	94.2	94.2	94.7	95.2	95.5
20. RUNNING COSTS OF VEHICLES	80.6	80.8	80.9	81.4	82.9	84.1	84.3	84.4	84.4	84.5	84.8	85.1	85.6
21. PUBLIC TRANSPORT	87.3	87.9	89.2	90.1	90.2	90.2	90.2	90.2	90.2	90.2	90.5	91.0	91.2
22. P.T.T. CHARGES	85.4	87.7	87.7	88.0	89.2	90.0	90.1	90.1	90.1	90.1	90.1	90.1	90.1
23. RECREATION	95.5	95.7	94.8	94.1	93.9	93.7	93.8	93.9	93.8	93.7	94.0	94.5	94.4
24. PUBLIC ENTERTAINMENT	94.2	94.3	94.3	95.1	97.9	100.1	100.3	100.3	100.3	100.3	99.0	97.5	96.9
25. BOOKS AND NEWSPAPERS	89.1	90.2	90.2	90.2	90.2	90.2	90.3	90.3	90.4	90.4	90.4	90.4	90.4
26. PERSONAL CARE	86.2	86.5	86.9	87.3	87.7	88.2	88.5	88.9	89.1	89.4	89.5	89.6	89.7
27. MISC. GOODS AND SERVICES	86.0	86.2	86.5	86.7	87.0	87.2	87.3	87.4	87.6	87.7	87.9	88.0	88.1
28. RESTAURANTS, HOTELS, ETC.	89.8	90.1	90.3	90.5	90.7	91.0	91.4	91.8	91.8	91.7	92.2	92.8	93.1
B. AGGREGATED LEVEL. 5 COMMODITIES.													
I FOOD, BEVERAGES AND TOBACCO	90.8	91.1	91.8	92.3	92.5	92.7	93.2	93.5	93.5	93.4	93.8	94.3	94.8
II CLOTHING AND FOOTWEAR	85.8	85.7	86.4	87.2	88.2	89.1	89.7	90.3	90.8	91.1	91.4	91.7	91.7
III HOUSING, FUEL AND FURNITURE	85.6	85.8	86.1	86.4	87.0	87.5	87.7	87.9	88.1	88.2	88.5	88.9	89.2
IV TRAVEL AND RECREATION	88.8	89.2	89.3	89.5	90.3	90.9	91.0	91.1	91.1	91.1	91.2	91.4	91.5
V OTHER GOODS AND SERVICES	88.9	89.4	89.6	89.8	90.0	90.3	90.5	90.8	90.9	90.9	91.2	91.4	91.6
ALL COMMODITIES	88.4	88.7	89.0	89.4	89.9	90.4	90.7	91.0	91.0	91.1	91.4	91.7	92.0

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	1973 PER.14	PER.15	PER.16	PER 17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26

A. DISAGGREGATED LEVEL.
   28 COMMODITIES.

Commodity	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26
1. FLOUR AND BREAD	88,7	89,1	89,3	89,6	89,9	90,2	90,6	91,0	91,3	91,6	92,0	92,3	92,7
2. MEAT AND EGGS	98,6	98,4	98,4	98,7	99,4	100,1	100,5	100,9	101,3	101,7	102,6	103,5	102,4
3. FISH	85,1	85,2	85,4	85,8	86,5	87,3	88,3	89,4	91,0	92,6	93,6	94,4	94,7
4. CANNED MEAT AND FISH	88,3	88,5	88,5	88,6	89,0	89,3	89,6	89,9	90,7	91,5	91,9	92,3	93,0
5. DAIRY PRODUCTS	103,6	103,6	103,6	103,6	103,6	103,6	103,5	103,3	102,0	100,6	100,2	100,2	100,8
6. BUTTER AND MARGARINE	89,6	90,9	92,3	93,6	94,5	95,2	95,3	95,1	93,3	91,4	91,2	91,9	93,7
7. POTATOES AND VEGETABLES	101,5	101,1	97,4	94,1	92,2	90,9	92,1	93,6	95,0	96,3	95,5	93,8	93,4
8. OTHER FOODS	85,2	85,4	85,5	85,7	85,7	85,7	85,7	85,8	86,0	86,3	86,7	87,2	86,3
9. BEVERAGES	93,3	93,4	93,6	93,8	93,9	93,9	93,8	93,8	94,2	94,7	95,1	95,4	95,9
10. TOBACCO	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,8
11. CLOTHING	92,0	91,6	90,8	90,6	91,8	93,0	93,7	94,4	94,8	95,2	95,7	96,3	96,1
12. FOOTWEAR	88,7	88,4	88,5	88,9	90,5	91,9	92,7	93,4	93,9	94,3	94,4	94,4	94,9
13. HOUSING	91,7	91,7	91,7	91,9	92,6	93,2	93,6	94,0	94,0	94,1	94,5	95,1	95,5
14. FUEL AND POWER	86,0	86,5	86,5	86,6	87,1	87,6	88,1	88,6	88,9	89,3	90,4	91,9	93,3
15. FURNITURE	86,8	87,3	88,2	89,0	89,5	90,0	90,5	91,1	91,7	92,3	92,7	92,9	93,5
16. HOUSEHOLD EQUIPMENT	91,5	91,6	91,6	91,6	91,8	91,9	92,1	92,4	92,6	92,9	93,1	93,3	93,8
17. MISC. HOUSEHOLD GOODS	88,1	88,2	88,3	88,4	88,7	88,9	89,1	89,2	89,4	89,6	89,8	89,9	90,5
18. MEDICAL CARE	94,0	94,0	94,0	94,1	94,4	94,6	94,6	94,6	94,6	94,6	94,6	94,6	95,7
19. MOTORCARS, BICYCLES	95,5	96,1	97,4	98,6	99,4	100,0	100,1	100,2	100,2	100,3	99,1	97,4	97,0
20. RUNNING COSTS OF VEHICLES	86,2	86,5	86,5	86,6	86,8	87,1	87,9	88,6	88,7	88,7	89,1	89,5	91,1
21. PUBLIC TRANSPORT	91,2	91,2	91,2	91,2	91,1	91,1	91,1	91,1	91,0	91,0	91,0	91,0	91,3
22. P.T.T. CHARGES	90,1	90,1	90,1	90,1	90,1	90,1	90,1	90,1	90,1	90,1	90,1	90,1	92,9
23. RECREATION	94,0	93,7	93,5	93,5	94,0	94,4	94,9	95,3	95,6	95,8	96,1	96,4	97,0
24. PUBLIC ENTERTAINMENT	96,9	97,0	97,2	97,6	98,0	98,4	98,5	98,6	98,6	98,6	98,6	98,6	98,7
25. BOOKS AND NEWSPAPERS	90,4	90,5	90,5	90,5	90,5	90,8	92,2	93,6	93,9	93,9	93,9	93,9	94,5
26. PERSONAL CARE	89,8	90,0	90,3	90,6	90,9	91,3	91,7	92,1	92,4	92,7	92,8	92,8	93,2
27. MISC. GOODS AND SERVICES	88,2	88,3	88,2	88,3	88,6	89,0	89,3	89,6	89,9	90,2	90,2	90,2	91,5
28. RESTAURANTS, HOTELS, ETC.	93,1	93,1	93,1	93,1	93,1	93,2	93,6	94,1	94,4	94,7	95,0	95,3	95,9

B. AGGREGATED LEVEL.
   5 COMMODITIES.

Commodity	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26
I FOOD, BEVERAGES AND TOBACCO	95,2	95,2	94,8	94,4	94,4	94,5	94,9	95,3	95,6	95,8	96,1	96,2	96,3
II CLOTHING AND FOOTWEAR	91,5	91,0	90,4	90,3	91,6	92,8	93,6	94,2	94,6	95,0	95,5	96,0	95,9
III HOUSING, FUEL AND FURNITURE	89,4	89,6	89,8	90,1	90,6	91,1	91,5	91,9	92,1	92,3	92,8	93,4	94,0
IV TRAVEL AND RECREATION	91,6	91,8	92,1	92,4	92,8	93,1	93,5	93,9	94,0	94,1	93,9	93,8	94,4
V OTHER GOODS AND SERVICES	91,7	91,7	91,8	91,9	92,1	92,3	92,6	92,9	93,2	93,4	93,5	93,6	94,4

| ALL COMMODITIES | 92,2 | 92,2 | 92,2 | 92,2 | 92,6 | 93,0 | 93,4 | 93,8 | 94,0 | 94,2 | 94,4 | 94,6 | 95,0 |

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TABLE A2.1. (CONT.) PERIOD SPECIFIC PRICE INDICES FOR EACH ACCOUNTING PERIOD, 1975 - 1977.

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	1974 PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
A. DISAGGREGATED LEVEL. 28 COMMODITIES.													
1. FLOUR AND BREAD	93,1	93,5	94,0	94,5	94,9	95,2	95,6	95,9	96,0	96,1	96,9	97,9	99,3
2. MEAT AND EGGS	99,8	98,4	98,5	98,6	98,7	98,8	99,4	99,8	99,4	98,7	98,1	97,5	96,2
3. FISH	94,7	95,0	95,7	96,3	96,5	96,7	96,9	97,2	97,9	98,6	99,1	99,4	95,7
4. CANNED MEAT AND FISH	93,9	94,5	94,7	95,0	95,6	96,2	96,8	97,3	97,8	98,4	98,6	98,8	99,2
5. DAIRY PRODUCTS	101,7	102,2	102,3	102,4	102,5	102,5	102,4	102,0	98,7	95,0	94,0	93,9	93,9
6. BUTTER AND MARGARINE	96,3	98,6	100,5	101,9	102,3	102,5	102,7	102,4	99,1	95,3	93,3	92,0	92,3
7. POTATOES AND VEGETABLES	93,9	94,3	94,8	95,4	95,9	96,4	96,9	97,3	98,1	99,0	100,5	102,1	104,0
8. OTHER FOODS	89,9	91,4	92,7	93,9	94,5	95,0	95,5	96,1	97,0	97,9	98,6	99,2	99,5
9. BEVERAGES	96,3	96,6	96,6	96,8	97,5	98,0	98,1	98,2	98,3	98,5	98,5	98,0	99,3
10. TOBACCO	98,2	98,4	98,4	98,4	98,4	98,6	99,3	100,0	100,1	100,1	100,1	100,1	100,1
11. CLOTHING	95,3	95,2	95,7	96,3	96,9	97,6	98,4	99,2	99,4	99,4	99,6	99,7	100,0
12. FOOTWEAR	95,8	96,5	97,0	97,5	98,0	98,3	98,5	98,7	98,7	98,8	98,9	98,9	99,3
13. HOUSING	95,9	96,2	96,5	97,0	97,7	98,3	98,4	98,5	98,6	98,7	99,1	99,7	100,1
14. FUEL AND POWER	94,7	96,4	98,3	100,4	103,3	105,2	104,6	103,7	102,5	101,4	100,9	100,6	100,2
15. FURNITURE	94,6	95,3	95,6	95,9	96,2	96,5	96,9	97,2	97,5	97,7	97,9	98,1	98,6
16. HOUSEHOLD EQUIPMENT	94,5	95,2	95,9	96,6	97,0	97,4	97,7	98,0	98,6	99,2	99,5	99,7	100,1
17. MISC. HOUSEHOLD GOODS	91,4	92,1	92,6	93,2	93,9	94,5	94,8	95,2	96,6	98,2	98,9	99,3	99,9
18. MEDICAL CARE	97,4	98,3	98,3	98,4	98,5	98,7	98,7	98,7	98,7	98,7	98,7	98,7	98,7
19. MOTORCARS, BICYCLES	97,3	97,5	97,6	97,6	97,5	97,5	97,6	97,7	98,3	98,9	99,1	99,0	99,0
20. RUNNING COSTS OF VEHICLES	93,4	95,0	95,8	96,7	98,4	99,6	99,7	99,8	99,8	99,8	100,1	100,4	100,7
21. PUBLIC TRANSPORT	91,9	92,3	92,7	93,0	93,5	94,5	96,6	98,5	98,9	98,9	98,9	98,9	100,1
22. P.T.T. CHARGES	97,5	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,3
23. RECREATION	97,8	98,2	98,2	98,1	97,7	97,5	97,7	97,9	97,8	97,7	98,7	99,9	100,3
24. PUBLIC ENTERTAINMENT	98,8	98,8	98,8	98,9	98,9	98,9	98,9	98,9	98,9	98,8	98,9	98,9	98,9
25. BOOKS AND NEWSPAPERS	95,6	96,2	96,2	96,2	96,2	96,4	97,0	97,5	97,6	97,6	97,6	97,6	97,8
26. PERSONAL CARE	93,9	94,5	94,9	95,4	96,0	96,4	96,6	96,8	97,2	97,7	98,0	98,4	98,8
27. MISC. GOODS AND SERVICES	93,7	95,0	95,3	95,6	95,9	96,2	96,6	96,9	97,1	97,3	97,9	98,6	99,6
28. RESTAURANTS, HOTELS, ETC.	96,7	97,1	97,0	97,0	97,1	97,2	97,5	97,7	97,9	98,1	98,6	99,2	99,5
B. AGGREGATED LEVEL. 5 COMMODITIES.													
I FOOD, BEVERAGES AND TOBACCO	96,2	96,5	96,9	97,3	97,6	97,9	98,3	98,6	98,3	98,0	98,1	98,5	99,0
II CLOTHING AND FOOTWEAR	95,4	95,4	95,9	96,5	97,1	97,7	98,4	99,1	99,3	99,3	99,5	99,8	99,9
III HOUSING, FUEL AND FURNITURE	94,8	95,5	96,1	96,8	97,8	98,5	98,6	98,7	98,8	98,9	99,2	99,5	99,8
IV TRAVEL AND RECREATION	95,7	96,5	96,8	97,1	97,5	98,0	98,3	98,6	98,8	98,9	99,2	99,5	99,8
V OTHER GOODS AND SERVICES	95,6	96,4	96,5	96,7	97,0	97,2	97,4	97,6	97,8	98,0	98,4	98,8	99,1
ALL COMMODITIES	95,6	96,1	96,5	97,0	97,5	98,0	98,3	98,6	98,6	98,8	98,8	99,1	99,5

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER.17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
							1974						

A. DISAGGREGATED LEVEL.
   28 COMMODITIES.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER.17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
1. FLOUR AND BREAD	100.8	102.2	103.3	104.1	104.3	104.5	104.8	105.1	105.4	105.5	105.6	105.7	106.3
2. MEAT AND EGGS	99.7	100.3	99.9	99.8	100.4	100.9	100.9	100.9	101.5	102.2	102.9	103.7	104.7
3. FISH	100.0	100.4	100.8	101.3	101.9	102.5	103.3	104.0	104.3	104.6	104.6	104.6	104.7
4. CANNED MEAT AND FISH	99.7	100.2	100.6	101.1	101.8	102.5	103.3	104.0	104.8	105.5	106.0	106.4	106.1
5. DAIRY PRODUCTS	94.0	95.6	99.0	101.4	101.5	101.6	101.7	101.8	101.8	101.7	101.8	101.8	103.3
6. BUTTER AND MARGARINE	93.8	95.6	97.7	99.3	99.4	99.8	101.6	103.4	104.2	104.9	105.7	106.5	108.2
7. POTATOES AND VEGETABLES	105.9	106.1	104.4	102.7	101.5	100.7	101.8	102.8	102.2	101.3	100.8	100.6	100.9
8. OTHER FOODS	99.5	100.0	101.0	101.7	102.0	102.3	103.1	104.0	105.3	106.7	109.0	111.6	113.2
9. BEVERAGES	100.4	101.1	101.2	101.2	101.2	101.2	101.4	101.7	102.5	103.5	104.0	104.5	106.8
10. TOBACCO	100.1	100.1	100.1	100.2	100.6	101.0	101.0	101.0	101.0	101.0	101.0	101.0	102.5
11. CLOTHING	100.2	100.1	99.6	99.5	100.4	101.3	102.2	103.0	103.6	104.2	104.5	104.6	104.6
12. FOOTWEAR	99.9	100.3	100.3	100.6	101.3	102.0	102.2	102.4	102.6	102.7	103.1	103.5	103.5
13. HOUSING	100.4	100.6	100.7	101.0	101.0	102.1	102.3	102.3	102.4	102.4	102.5	102.9	103.7
14. FUEL AND POWER	99.7	99.3	99.3	99.3	99.4	99.4	99.0	98.6	98.6	98.6	98.6	98.5	102.8
15. FURNITURE	99.2	100.0	100.9	101.6	102.1	102.7	103.4	104.1	104.6	105.1	105.7	106.3	106.6
16. HOUSEHOLD EQUIPMENT	100.6	100.9	101.1	101.4	101.7	102.1	102.3	102.5	102.8	103.2	103.5	103.9	104.7
17. MISC. HOUSEHOLD GOODS	100.8	101.7	102.4	103.1	103.5	104.0	104.5	105.0	105.5	106.1	106.8	107.6	108.9
18. MEDICAL CARE	98.7	98.7	98.7	99.1	100.7	102.0	102.2	102.2	102.2	102.2	103.1	104.4	106.6
19. MOTORCARS, BICYCLES	99.1	99.1	99.3	99.5	100.1	100.7	101.8	102.9	103.8	104.6	104.9	104.9	105.8
20. RUNNING COSTS OF VEHICLES	100.9	101.0	101.0	101.1	101.5	101.8	101.9	101.9	101.7	101.6	101.7	101.9	102.7
21. PUBLIC TRANSPORT	102.1	103.1	103.1	103.1	103.2	103.4	104.1	104.7	104.9	105.0	105.0	105.0	106.3
22. P.T.T. CHARGES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
23. RECREATION	100.1	100.0	100.0	100.1	100.4	100.9	101.4	102.0	102.6	103.0	103.5	103.9	105.2
24. PUBLIC ENTERTAINMENT	98.9	99.4	100.5	101.3	101.3	101.3	101.3	101.4	101.6	101.3	101.9	101.9	102.1
25. BOOKS AND NEWSPAPERS	98.1	99.0	100.5	101.7	101.7	102.0	103.7	105.3	105.6	105.6	105.6	105.6	106.5
26. PERSONAL CARE	99.2	99.9	100.8	101.7	102.6	103.3	103.9	104.5	105.1	105.6	106.0	106.3	107.1
27. MISC. GOODS AND SERVICES	100.7	101.4	101.6	101.9	102.3	102.8	103.6	104.3	104.6	104.8	105.0	105.2	107.6
28. RESTAURANTS, HOTELS, ETC.	99.6	99.9	100.3	100.6	100.6	100.8	101.7	102.5	102.7	103.0	104.4	106.3	107.9

B. AGGREGATED LEVEL.
   5 COMMODITIES.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER.17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
I FOOD, BEVERAGES AND TOBACCO	100.0	100.7	101.1	101.3	101.4	101.5	102.0	102.5	102.8	103.2	103.7	104.3	105.4
II CLOTHING AND FOOTWEAR	100.2	100.1	99.7	99.7	100.5	101.4	102.2	102.9	103.4	104.0	104.3	104.4	104.4
III HOUSING, FUEL AND FURNITURE	100.1	100.4	100.7	101.1	101.6	102.0	102.2	102.4	102.6	102.8	103.1	103.2	104.2
IV TRAVEL AND RECREATION	100.0	100.3	100.6	100.8	101.1	101.5	102.0	102.6	103.0	103.1	103.2	103.4	104.2
V OTHER GOODS AND SERVICES	99.5	99.9	100.2	100.7	101.4	102.1	102.7	103.2	103.5	103.7	104.5	105.6	107.4
ALL COMMODITIES	100.0	100.4	100.6	100.9	101.3	101.7	102.1	102.6	102.9	103.2	103.6	104.0	105.0

TABLE A2.1. (CONT.) PERIOD SPECIFIC PRICE INDICES FOR EACH ACCOUNTING PERIOD. 1973 - 1977.

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	1975 PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13

A. DISAGGREGATED LEVEL.
   28 COMMODITIES.

	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
1. FLOUR AND BREAD	107,4	108,1	108,2	108,7	110,2	111,5	111,9	112,2	112,5	112,8	112,9	112,9	113,1
2. MEAT AND EGGS	105,9	106,6	106,8	107,3	108,4	109,3	109,2	109,3	110,4	111,8	113,2	114,5	115,7
3. FISH	104,8	104,8	104,8	104,7	104,5	104,4	104,5	104,7	104,8	105,0	105,4	105,7	105,9
4. CANNED MEAT AND FISH	105,4	105,0	104,7	104,5	104,2	104,1	104,3	104,5	104,9	105,3	105,6	105,9	106,2
5. DAIRY PRODUCTS	105,6	106,9	107,1	107,2	107,3	107,4	107,5	107,5	107,5	107,4	107,4	107,5	114,7
6. BUTTER AND MARGARINE	110,4	111,3	110,8	110,0	108,9	107,9	107,4	106,8	105,9	105,0	103,8	102,6	102,3
7. POTATOES AND VEGETABLES	101,7	102,2	102,6	103,0	103,5	104,3	105,7	107,2	108,2	109,2	112,8	116,9	123,4
8. OTHER FOODS	114,2	115,2	116,1	116,8	117,4	117,8	118,2	118,5	118,2	117,8	117,8	117,9	117,8
9. BEVERAGES	110,4	112,9	114,0	114,8	115,0	115,2	115,2	115,2	115,2	115,1	115,2	115,2	115,6
10. TOBACCO	104,9	106,2	106,2	106,4	107,4	108,1	108,2	108,2	108,2	108,2	108,2	108,2	108,2
11. CLOTHING	104,5	104,5	104,7	105,1	106,2	107,1	107,2	107,2	107,0	106,8	107,0	107,3	107,1
12. FOOTWEAR	103,4	103,3	103,2	103,4	103,9	104,4	104,8	105,2	106,0	106,8	107,3	107,5	107,1
13. HOUSING	103,7	103,9	104,2	104,8	106,1	107,1	107,3	107,5	107,7	107,8	108,2	108,7	108,9
14. FUEL AND POWER	109,7	113,2	112,7	112,3	112,1	112,0	112,0	112,0	111,7	111,4	111,4	111,5	111,9
15. FURNITURE	106,9	107,2	107,7	108,0	108,2	108,4	108,9	109,3	109,6	109,8	110,2	110,5	110,9
16. HOUSEHOLD EQUIPMENT	105,6	106,5	107,3	108,2	108,9	109,6	110,2	110,7	110,9	111,1	111,2	111,3	111,7
17. MISC. HOUSEHOLD GOODS	110,5	111,7	112,1	112,8	114,0	115,0	115,5	116,1	117,3	118,6	119,2	119,5	119,9
18. MEDICAL CARE	109,6	111,2	111,2	111,6	112,8	113,8	113,9	113,9	113,9	113,9	114,0	114,0	114,0
19. MOTORCARS, BICYCLES	107,4	108,4	108,7	108,9	108,9	109,0	109,6	110,1	111,0	111,8	112,5	113,1	113,4
20. RUNNING COSTS OF VEHICLES	104,0	104,5	104,3	104,2	104,4	104,5	104,6	104,7	104,7	104,7	105,0	105,4	105,6
21. PUBLIC TRANSPORT	108,4	109,8	110,1	110,4	110,7	110,9	111,1	111,2	111,2	111,2	111,2	111,3	111,5
22. P.T.T. CHARGES	100,0	100,0	100,0	100,4	101,8	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9
23. RECREATION	107,1	107,8	107,2	106,9	107,3	107,6	107,8	108,0	108,1	108,2	108,6	109,1	109,3
24. PUBLIC ENTERTAINMENT	102,4	102,9	103,5	104,0	104,1	104,3	104,4	104,5	104,9	105,5	105,5	105,6	105,6
25. BOOKS AND NEWSPAPERS	108,0	109,0	109,4	109,9	110,9	111,7	112,0	112,3	112,4	112,4	112,4	112,4	112,8
26. PERSONAL CARE	108,4	109,4	110,1	110,8	111,6	112,3	112,7	113,2	114,0	114,8	115,5	116,0	116,5
27. MISC. GOODS AND SERVICES	111,5	113,7	113,9	114,1	114,1	114,4	115,0	115,6	116,4	117,2	117,8	118,3	118,8
28. RESTAURANTS, HOTELS, ETC.	109,3	110,0	110,1	110,2	110,5	110,9	111,7	112,3	112,4	112,3	113,3	114,6	115,4

B. AGGREGATED LEVEL.
   5 COMMODITIES.

	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
I FOOD, BEVERAGES AND TOBACCO	106,9	107,8	108,1	108,6	109,1	109,7	110,0	110,3	110,7	111,1	112,0	113,0	113,2
II CLOTHING AND FOOTWEAR	104,3	104,3	104,5	104,8	105,8	106,6	106,8	106,9	106,8	106,8	107,0	107,3	107,1
III HOUSING, FUEL AND FURNITURE	106,2	107,2	107,5	107,9	108,6	109,3	109,6	109,9	110,1	110,3	110,6	111,0	111,3
IV TRAVEL AND RECREATION	105,6	106,3	106,4	106,5	106,8	107,1	107,3	107,6	107,8	108,1	108,4	108,7	108,9
V OTHER GOODS AND SERVICES	109,6	110,9	111,1	111,4	112,0	112,6	113,1	113,5	113,9	114,3	114,8	115,4	115,9

| ALL COMMODITIES | 106,3 | 107,2 | 107,4 | 107,7 | 108,3 | 108,8 | 109,1 | 109,3 | 109,6 | 109,9 | 110,4 | 110,9 | 111,7 |

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TABLE A2.1. (CONT.) PERIOD SPECIFIC PRICE INDICES FOR EACH ACCOUNTING PERIOD. 1973 - 1977.

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

	1975												
COMMODITY GROUP	PER.14	PER.15	PER.16	PER.17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26

A. DISAGGREGATED LEVEL.
28 COMMODITIES.

1. FLOUR AND BREAD	113,3	113,4	113,4	113,5	113,6	113,8	113,7	113,7	113,8	113,9	113,9	113,9	114,1
2. MEAT AND EGGS	116,9	117,9	118,7	119,7	121,1	122,4	123,0	123,6	124,8	126,0	126,8	127,3	126,9
3. FISH	105,9	105,2	103,7	101,6	98,3	95,4	94,7	94,2	94,3	94,4	94,5	94,7	95,5
4. CANNED MEAT AND FISH	106,5	106,8	107,2	107,7	108,4	109,0	108,8	108,5	108,8	109,1	109,3	109,3	109,6
5. DAIRY PRODUCTS	126,6	133,3	133,7	134,1	134,2	134,3	134,4	134,4	134,4	134,4	134,4	134,4	134,3
6. BUTTER AND MARGARINE	104,1	104,7	104,8	105,1	106,3	107,3	107,4	107,3	106,9	106,4	105,8	105,2	104,9
7. POTATOES AND VEGETABLES	131,2	133,6	129,9	127,5	128,5	129,3	128,5	127,7	128,0	128,5	127,4	125,8	125,3
8. OTHER FOODS	117,6	115,4	111,3	108,6	109,7	111,0	112,1	113,3	114,6	115,9	116,6	117,0	117,3
9. BEVERAGES	116,3	116,8	117,3	118,2	119,9	121,4	121,5	121,5	121,4	121,4	121,4	121,3	122,7
10. TOBACCO	108,2	108,2	108,2	108,4	109,1	109,7	109,7	109,8	109,8	109,8	109,8	109,8	112,4
11. CLOTHING	106,7	106,4	106,3	106,5	107,5	108,5	109,2	109,7	109,9	110,0	110,1	110,3	110,1
12. FOOTWEAR	106,1	105,9	106,5	107,2	108,5	109,5	109,4	109,2	109,6	110,0	110,5	110,9	111,3
13. HOUSING	109,0	109,1	109,1	109,3	109,9	110,4	110,4	110,5	110,5	110,5	110,6	110,9	111,0
14. FUEL AND POWER	112,4	112,7	112,7	113,1	114,2	115,2	115,3	115,4	116,1	116,9	117,3	117,6	119,6
15. FURNITURE	111,4	111,7	111,7	111,9	112,6	113,3	113,8	114,2	114,4	114,6	114,7	114,7	114,7
16. HOUSEHOLD EQUIPMENT	112,1	112,4	112,6	112,7	113,0	113,2	113,4	113,6	113,9	114,1	114,2	114,3	114,5
17. MISC. HOUSEHOLD GOODS	120,4	120,9	121,3	121,8	122,3	122,8	122,9	123,1	123,7	124,3	124,6	124,8	125,1
18. MEDICAL CARE	114,0	114,1	114,1	114,7	116,6	118,1	118,3	118,4	118,4	118,4	118,4	118,4	120,4
19. MOTORCARS, BICYCLES	113,3	113,4	113,5	114,0	115,3	116,5	116,8	117,1	117,5	117,9	118,0	117,9	117,9
20. RUNNING COSTS OF VEHICLES	106,2	106,4	106,4	106,7	107,7	108,6	108,9	109,2	109,4	109,7	110,0	110,3	110,6
21. PUBLIC TRANSPORT	112,0	112,3	112,3	112,3	112,5	112,7	112,7	112,7	112,6	112,4	112,4	112,4	114,1
22. P.T.T. CHARGES	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9
23. RECREATION	109,3	109,3	109,5	109,8	110,3	110,7	110,8	110,9	111,3	111,7	112,1	112,5	113,4
24. PUBLIC ENTERTAINMENT	105,7	106,2	107,2	107,9	107,9	107,9	107,9	107,9	107,9	107,9	107,9	107,9	108,4
25. BOOKS AND NEWSPAPERS	113,4	113,8	113,8	113,8	113,8	113,9	114,4	114,9	115,0	115,0	115,0	115,0	117,4
26. PERSONAL CARE	117,0	117,5	118,2	118,8	119,2	119,5	119,7	119,8	120,0	120,1	120,2	120,1	120,5
27. MISC. GOODS AND SERVICES	119,3	119,9	120,6	121,1	121,0	121,0	121,4	121,8	121,9	121,9	122,0	122,0	122,4
28. RESTAURANTS, HOTELS, ETC.	115,9	116,1	116,0	116,0	116,1	116,2	116,5	116,8	117,1	117,3	117,6	117,9	118,4

B. AGGREGATED LEVEL.
5 COMMODITIES.

I FOOD, BEVERAGES AND TOBACCO	118,2	119,3	118,4	118,0	118,7	119,4	119,6	119,7	120,2	120,7	120,8	120,7	121,0
II CLOTHING AND FOOTWEAR	106,6	106,3	106,3	106,6	107,7	108,6	109,2	109,7	109,8	110,0	110,2	110,4	110,3
III HOUSING, FUEL AND FURNITURE	111,6	111,8	111,9	112,1	112,8	113,4	113,6	113,7	114,0	114,2	114,4	114,6	115,0
IV TRAVEL AND RECREATION	109,2	109,4	109,5	109,8	110,5	111,1	111,3	111,5	111,7	111,9	112,1	112,2	112,8
V OTHER GOODS AND SERVICES	116,3	116,6	116,9	117,3	117,8	118,4	118,6	118,8	119,0	119,1	119,2	119,3	120,1

ALL COMMODITIES	112,7	113,1	113,0	113,0	113,8	114,4	114,6	114,8	115,1	115,4	115,6	115,6	116,1

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	1976 PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
A. DISAGGREGATED LEVEL. 28 COMMODITIES.													
1. FLOUR AND BREAD	114,4	114,6	114,8	114,9	115,1	115,3	115,5	115,7	115,9	116,0	116,6	117,3	118,1
2. MEAT AND EGGS	125,9	125,4	125,4	125,6	126,1	126,5	126,8	127,2	129,2	131,6	133,9	136,0	137,8
3. FISH	96,6	97,4	97,7	98,0	98,1	98,2	98,3	98,5	98,8	99,1	99,8	100,5	101,6
4. CANNED MEAT AND FISH	110,1	110,4	110,5	110,5	110,4	110,3	110,4	110,6	110,9	111,2	111,5	111,7	113,1
5. DAIRY PRODUCTS	134,2	134,2	134,3	134,6	135,8	136,7	136,9	136,9	137,0	137,0	137,0	137,0	139,0
6. BUTTER AND MARGARINE	104,7	104,4	104,1	103,9	103,7	103,5	103,4	103,3	102,5	101,6	100,7	100,0	101,2
7. POTATOES AND VEGETABLES	126,0	126,8	127,4	128,7	131,7	134,6	137,0	139,4	141,1	142,7	146,0	149,6	149,5
8. OTHER FOODS	117,6	118,3	119,5	121,1	123,7	125,4	124,9	124,3	124,0	123,7	123,5	123,4	123,5
9. BEVERAGES	125,0	126,3	126,5	126,6	126,7	126,7	126,9	127,1	127,3	127,6	127,9	128,2	128,4
10. TOBACCO	116,8	119,2	119,3	119,4	119,5	120,0	121,9	123,7	124,0	124,0	124,0	124,0	124,0
11. CLOTHING	109,8	109,7	109,9	110,2	110,9	111,6	112,0	112,5	113,0	113,5	113,7	113,9	113,9
12. FOOTWEAR	111,8	112,4	112,9	113,5	113,9	114,4	115,2	115,9	116,3	116,6	116,7	116,7	117,2
13. HOUSING	111,1	111,2	111,3	111,7	113,1	114,2	114,4	114,6	114,6	114,7	115,2	115,7	116,3
14. FUEL AND POWER	122,7	124,4	124,5	124,5	124,5	124,5	124,3	124,2	124,2	124,2	124,2	124,2	124,6
15. FURNITURE	114,8	114,9	114,8	114,9	115,2	115,5	115,8	116,2	116,9	117,6	118,2	118,8	119,3
16. HOUSEHOLD EQUIPMENT	114,9	115,3	115,8	116,2	116,7	117,2	117,8	118,3	118,6	118,8	119,0	119,2	119,5
17. MISC. HOUSEHOLD GOODS	125,6	126,0	126,3	126,9	127,9	128,8	129,0	129,3	130,7	132,3	132,9	133,3	133,6
18. MEDICAL CARE	123,6	125,3	125,3	125,3	125,4	125,5	125,5	125,5	125,6	125,8	126,0	126,2	126,6
19. MOTORCARS, BICYCLES	117,9	118,1	118,5	119,2	120,6	121,6	121,7	121,8	122,1	122,5	123,1	123,7	124,0
20. RUNNING COSTS OF VEHICLES	110,9	111,1	111,3	111,8	112,9	113,9	114,2	114,4	114,6	114,8	114,9	115,1	116,0
21. PUBLIC TRANSPORT	116,9	118,5	118,9	119,1	119,1	120,0	123,3	126,5	127,1	127,3	129,0	131,2	132,3
22. P.T.T. CHARGES	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9
23. RECREATION	114,6	115,2	114,9	114,8	114,9	115,0	114,9	114,8	115,1	115,3	115,6	115,9	116,1
24. PUBLIC ENTERTAINMENT	109,2	109,8	109,9	110,0	110,1	110,2	110,3	110,5	110,5	110,5	110,5	110,5	110,5
25. BOOKS AND NEWSPAPERS	121,3	124,1	125,5	126,5	126,6	126,7	127,2	127,7	127,8	127,6	127,9	128,1	128,2
26. PERSONAL CARE	121,1	121,8	122,6	123,2	123,3	123,6	124,2	124,9	125,8	126,7	126,9	126,9	127,3
27. MISC. GOODS AND SERVICES	123,1	123,6	123,7	123,8	124,2	124,5	124,6	124,7	124,7	124,7	124,9	125,0	125,9
28. RESTAURANTS, HOTELS, ETC.	119,0	119,5	119,8	120,0	120,4	121,0	122,1	123,1	123,3	123,4	123,9	124,6	125,6
B. AGGREGATED LEVEL. 5 COMMODITIES.													
I FOOD, BEVERAGES AND TOBACCO	121,5	121,9	122,2	122,8	123,9	124,6	125,4	125,9	126,7	127,5	128,6	129,6	130,7
II CLOTHING AND FOOTWEAR	110,1	110,2	110,4	110,8	111,4	112,0	112,5	113,1	113,5	114,0	114,2	114,4	114,4
III HOUSING, FUEL AND FURNITURE	115,7	116,1	116,2	116,5	117,3	118,0	118,2	118,4	118,8	119,2	119,6	120,0	120,4
IV TRAVEL AND RECREATION	113,8	114,4	114,7	115,1	115,7	116,3	116,9	117,4	117,6	117,8	118,2	118,7	119,2
V OTHER GOODS AND SERVICES	121,4	122,3	122,5	122,8	123,1	123,4	123,9	124,4	124,7	125,0	125,3	125,6	126,3
ALL COMMODITIES	116,7	117,2	117,5	117,9	118,6	119,3	119,8	120,3	120,7	121,2	121,7	122,4	122,9

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CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER 17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
							1976						

A. DISAGGREGATED LEVEL.
   28 COMMODITIES.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER 17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
1. FLOUR AND BREAD	118,9	119,5	119,6	119,6	119,1	118,7	118,6	118,5	118,6	118,3	118,6	118,4	118,8
2. MEAT AND EGGS	139,2	140,5	141,5	141,2	137,5	134,2	133,1	132,4	133,1	134,0	134,5	134,7	134,7
3. FISH	103,0	104,1	104,9	105,6	106,1	106,3	106,9	107,2	107,4	107,6	107,9	108,2	108,6
4. CANNED MEAT AND FISH	115,2	116,5	116,7	117,0	117,4	117,7	117,9	118,0	118,1	118,2	118,4	118,6	119,1
5. DAIRY PRODUCTS	142,2	144,1	144,4	142,2	133,9	126,8	125,9	125,6	125,6	125,5	125,5	125,5	125,6
6. BUTTER AND MARGARINE	103,7	105,5	106,4	107,3	107,7	107,1	102,3	98,2	101,8	106,5	108,2	108,7	110,4
7. POTATOES AND VEGETABLES	146,8	143,5	139,6	136,2	134,2	132,5	131,4	130,4	129,9	129,4	128,7	128,0	127,9
8. OTHER FOODS	123,6	123,5	123,3	123,1	123,1	123,4	124,6	125,7	125,9	126,1	127,3	129,0	130,8
9. BEVERAGES	128,5	128,5	128,6	129,0	130,0	131,0	131,1	131,1	131,0	131,0	131,0	131,0	133,1
10. TOBACCO	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0	124,0
11. CLOTHING	113,7	113,5	113,3	113,7	115,5	117,2	118,0	118,7	119,3	119,8	120,3	120,6	120,3
12. FOOTWEAR	118,0	118,3	117,8	118,5	121,9	125,0	126,1	126,9	127,5	128,1	128,3	128,3	128,5
13. HOUSING	116,8	117,1	117,2	117,4	118,0	118,5	118,6	118,6	118,9	119,2	119,5	119,7	119,9
14. FUEL AND POWER	125,3	125,7	125,7	125,9	126,3	126,6	126,6	126,6	126,6	126,5	126,6	126,6	129,7
15. FURNITURE	119,7	120,1	120,3	120,8	121,6	122,3	122,4	122,6	123,0	123,5	123,7	123,7	124,0
16. HOUSEHOLD EQUIPMENT	119,8	119,9	120,0	120,1	120,5	120,8	121,1	121,3	121,7	122,0	122,2	122,4	122,6
17. MISC. HOUSEHOLD GOODS	133,9	134,1	134,2	134,5	135,2	135,8	136,0	136,1	136,2	136,3	136,5	136,7	137,1
18. MEDICAL CARE	127,3	127,6	127,6	127,9	128,9	129,7	129,8	129,8	130,0	130,2	130,7	131,4	132,5
19. MOTORCARS, BICYCLES	124,1	124,1	124,1	124,6	126,4	127,8	128,1	128,1	128,4	128,5	128,5	128,5	129,3
20. RUNNING COSTS OF VEHICLES	117,4	118,2	118,3	118,6	119,5	120,3	120,5	120,7	120,8	121,0	121,3	121,6	122,9
21. PUBLIC TRANSPORT	132,8	133,7	134,8	135,7	135,7	135,7	135,7	135,7	135,7	135,7	135,7	135,8	136,0
22. P.T.T. CHARGES	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	102,9	103,0	105,8
23. RECREATION	116,2	116,4	116,4	116,8	117,7	118,6	119,6	120,5	120,6	120,6	120,8	121,1	121,7
24. PUBLIC ENTERTAINMENT	110,6	110,8	110,9	111,1	111,2	111,4	111,7	112,0	112,0	112,0	112,0	112,0	112,1
25. BOOKS AND NEWSPAPERS	128,4	128,7	128,9	129,1	129,2	129,3	130,2	131,1	131,3	131,3	131,3	131,3	133,3
26. PERSONAL CARE	127,8	128,2	128,6	128,9	129,2	129,4	129,5	129,7	129,9	130,1	130,2	130,2	130,8
27. MISC. GOODS AND SERVICES	127,2	128,2	128,8	129,5	130,6	131,5	131,5	131,5	131,5	131,6	131,8	132,0	132,3
28. RESTAURANTS, HOTELS, ETC.	127,0	127,7	127,8	127,8	128,0	128,1	128,3	128,6	128,8	129,1	129,7	130,4	131,9

B. AGGREGATED LEVEL.
   5 COMMODITIES.

COMMODITY GROUP	PER.14	PER.15	PER.16	PER 17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
I FOOD, BEVERAGES AND TOBACCO	131,2	131,4	131,1	130,4	128,4	126,6	126,1	125,7	126,0	126,3	126,5	126,7	127,3
II CLOTHING AND FOOTWEAR	114,5	114,3	114,1	114,5	116,6	118,5	119,3	120,1	120,7	121,2	121,6	121,9	121,7
III HOUSING, FUEL AND FURNITURE	120,9	121,2	121,3	121,6	122,2	122,7	122,8	122,9	123,1	123,4	123,6	123,8	124,4
IV TRAVEL AND RECREATION	119,7	120,1	120,3	120,7	121,5	122,2	122,6	122,9	123,0	123,0	123,1	123,3	124,5
V OTHER GOODS AND SERVICES	127,3	127,9	128,1	128,4	129,0	129,5	129,6	129,7	129,9	130,1	130,5	130,9	131,9

| ALL COMMODITIES | 123,4 | 123,7 | 123,7 | 123,7 | 123,8 | 123,8 | 123,9 | 124,0 | 124,3 | 124,5 | 124,7 | 124,9 | 125,6 |

TABLE A2.1. (CONT.) PERIOD SPECIFIC PRICE INDICES FOR EACH ACCOUNTING PERIOD. 1973 - 1977.

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	PER.1	PER.2	PER.3	PER 4	PER.5	PER.6	1977 PER.7	PER.8	PER.9	PER.10	PER.11	PER.12	PER.13
A. DISAGGREGATED LEVEL. 28 COMMODITIES.													
1. FLOUR AND BREAD	119,6	120,2	120,5	120,8	121,1	121,3	121,5	121,7	121,7	121,8	122,6	123,6	124,2
2. MEAT AND EGGS	134,4	134,5	135,0	135,5	136,2	136,7	136,9	137,3	138,8	140,4	142,3	144,1	145,8
3. FISH	109,0	109,5	110,0	110,6	110,9	111,2	111,3	111,5	111,7	111,9	112,1	112,2	112,5
4. CANNED MEAT AND FISH	119,8	120,4	120,8	121,2	121,7	122,1	122,4	122,7	123,1	123,6	124,4	125,3	126,0
5. DAIRY PRODUCTS	125,6	125,7	125,6	125,6	125,7	125,8	125,6	125,5	125,5	125,6	125,6	125,6	125,6
6. BUTTER AND MARGARINE	113,1	112,1	107,1	105,0	110,6	115,3	116,5	117,4	117,9	118,1	116,4	114,3	116,7
7. POTATOES AND VEGETABLES	128,2	128,9	129,9	131,1	132,8	134,2	135,1	135,9	136,4	137,0	139,7	143,0	146,7
8. OTHER FOODS	132,8	134,9	137,0	139,3	141,7	144,4	148,0	151,7	154,8	157,8	160,4	162,0	163,3
9. BEVERAGES	136,8	139,0	139,4	139,8	140,0	140,2	140,5	140,7	140,7	140,7	140,7	140,8	141,0
10. TOBACCO	124,0	124,6	125,7	126,5	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6
11. CLOTHING	119,7	119,6	120,1	120,9	122,4	123,8	124,4	125,0	125,4	125,3	126,1	126,3	126,4
12. FOOTWEAR	128,9	129,0	128,6	128,7	130,5	131,9	132,3	132,6	133,2	133,9	134,2	134,3	134,3
13. HOUSING	120,0	120,3	120,9	121,8	123,2	124,2	124,2	124,1	124,1	124,2	124,7	125,3	125,7
14. FUEL AND POWER	134,9	137,7	137,8	138,1	138,9	139,6	139,7	139,7	139,7	139,7	139,7	139,7	140,0
15. FURNITURE	124,4	124,9	125,6	126,2	127,0	127,7	128,1	128,4	128,6	128,9	128,9	129,0	129,2
16. HOUSEHOLD EQUIPMENT	122,7	123,1	123,8	124,5	125,1	125,5	125,5	125,5	125,4	125,4	125,4	125,5	125,6
17. MISC. HOUSEHOLD GOODS	137,6	138,1	138,5	139,2	140,6	141,3	142,3	142,9	144,6	146,4	147,0	147,1	147,3
18. MEDICAL CARE	134,0	134,7	134,7	134,9	135,3	135,7	135,7	135,7	135,7	135,7	135,7	135,7	136,8
19. MOTORCARS, BICYCLES	130,5	131,2	131,2	131,3	131,4	131,6	132,0	132,4	132,5	132,5	132,6	132,8	133,0
20. RUNNING COSTS OF VEHICLES	124,8	125,8	126,0	126,6	128,1	129,3	129,5	129,6	129,6	129,7	129,9	130,3	130,7
21. PUBLIC TRANSPORT	141,7	143,6	143,6	143,7	144,2	144,6	145,1	145,5	146,0	146,5	146,6	146,6	146,6
22. P.T.T. CHARGES	110,7	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2
23. RECREATION	122,6	122,8	122,5	122,3	122,7	122,9	122,6	122,3	122,2	122,1	122,9	123,9	124,2
24. PUBLIC ENTERTAINMENT	112,4	112,7	113,1	114,1	116,7	118,9	119,7	120,4	120,7	121,0	121,0	120,9	120,9
25. BOOKS AND NEWSPAPERS	136,8	139,2	140,3	141,2	141,2	141,3	141,6	141,9	141,9	141,9	142,1	142,3	142,6
26. PERSONAL CARE	131,8	132,6	133,1	133,9	135,0	135,9	136,2	136,5	136,9	137,2	137,5	137,7	138,0
27. MISC. GOODS AND SERVICES	132,6	132,9	133,0	133,3	134,0	134,5	134,8	135,1	135,2	135,3	135,5	135,8	136,1
28. RESTAURANTS, HOTELS, ETC.	133,8	135,1	135,7	136,2	136,3	136,5	137,2	138,0	138,4	138,9	140,0	141,3	142,7
B. AGGREGATED LEVEL. 5 COMMODITIES.													
I FOOD, BEVERAGES AND TOBACCO	128,1	128,8	129,4	130,1	131,1	132,0	132,8	133,5	134,4	135,3	136,5	137,8	139,3
II CLOTHING AND FOOTWEAR	121,2	121,1	121,5	122,2	123,3	125,1	125,7	126,2	126,7	127,1	127,4	127,6	127,7
III HOUSING, FUEL AND FURNITURE	125,4	126,2	126,7	127,4	128,5	129,4	129,5	129,6	129,8	130,1	130,4	130,7	131,0
IV TRAVEL AND RECREATION	126,4	127,4	127,6	127,9	128,7	129,5	129,7	129,9	130,0	130,1	130,4	130,7	130,9
V OTHER GOODS AND SERVICES	133,1	134,0	134,4	134,8	135,3	135,8	136,2	136,5	136,8	137,0	137,5	138,0	138,9
ALL COMMODITIES	126,7	127,5	127,9	128,4	129,4	130,3	130,7	131,1	131,5	131,9	132,5	133,1	133,7

TABLE A2.1.   (CONT.) PERIOD SPECIFIC PRICE INDICES FOR EACH ACCOUNTING PERIOD. 1973 - 1977.

CALCULATED ACCORDING TO THE DESCRIPTION IN SECTION 2.3.

COMMODITY GROUP	1977 PER.14	PER.15	PER.16	PER 17	PER.18	PER.19	PER.20	PER.21	PER.22	PER.23	PER.24	PER.25	PER.26
A. DISAGGREGATED LEVEL. 28 COMMODITIES.													
1. FLOUR AND BREAD	124,5	124,7	124,7	124,8	124,8	124,9	125,1	125,2	125,4	125,6	125,7	125,9	126,2
2. MEAT AND EGGS	147,5	149,1	150,7	151,9	152,1	152,4	152,8	153,3	153,5	153,7	154,1	154,8	154,4
3. FISH	112,9	113,6	114,6	115,6	116,4	117,2	117,8	118,4	118,9	119,4	119,9	120,4	121,0
4. CANNED MEAT AND FISH	126,6	127,2	127,8	128,2	128,2	128,1	128,2	128,2	128,6	128,9	129,5	130,1	130,6
5. DAIRY PRODUCTS	125,6	125,6	125,7	125,7	125,7	125,7	125,7	125,7	125,7	125,7	125,7	125,7	125,7
6. BUTTER AND MARGARINE	122,2	124,9	124,3	123,6	122,7	121,8	121,5	121,2	121,2	121,1	121,1	121,0	121,0
7. POTATOES AND VEGETABLES	150,6	151,1	148,0	145,4	144,4	143,8	144,6	145,3	144,4	143,3	141,5	139,5	138,8
8. OTHER FOODS	167,6	169,1	169,3	169,1	167,6	166,0	164,4	162,8	161,3	159,8	159,1	158,8	158,8
9. BEVERAGES	141,2	141,4	141,6	141,8	142,0	142,1	142,1	142,2	142,2	142,2	142,2	142,2	145,0
10. TOBACCO	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,6	126,7	130,8
11. CLOTHING	126,4	126,2	125,7	125,7	127,0	128,3	129,1	129,8	130,1	130,3	130,6	130,9	130,6
12. FOOTWEAR	134,2	134,5	135,2	136,0	136,6	137,3	138,0	138,7	139,6	140,5	141,0	141,2	141,2
13. HOUSING	125,8	125,8	125,8	126,0	126,5	127,0	127,1	127,1	127,1	127,2	127,4	127,7	127,8
14. FUEL AND POWER	140,5	140,8	141,0	141,2	141,2	141,3	141,8	142,2	142,3	142,4	142,4	142,4	146,7
15. FURNITURE	129,7	130,0	130,0	130,2	130,8	131,3	131,7	132,0	132,4	132,8	133,0	133,1	133,6
16. HOUSEHOLD EQUIPMENT	125,7	125,8	125,9	126,0	126,4	126,7	126,8	126,9	126,9	126,9	127,1	127,2	127,4
17. MISC. HOUSEHOLD GOODS	147,6	147,8	148,0	148,4	149,2	149,9	150,1	150,2	150,5	150,7	151,0	151,2	151,5
18. MEDICAL CARE	138,6	139,6	139,6	139,8	140,4	141,0	141,0	141,0	141,1	141,2	141,3	142,6	143,1
19. MOTORCARS, BICYCLES	133,1	133,4	134,0	134,7	135,7	136,6	137,4	138,1	138,4	138,6	138,8	138,9	139,9
20. RUNNING COSTS OF VEHICLES	131,0	131,2	131,2	131,4	131,8	132,2	132,6	132,9	133,0	133,0	133,2	133,4	136,1
21. PUBLIC TRANSPORT	146,6	146,6	146,6	146,6	146,6	146,7	147,1	147,5	147,6	147,6	147,6	147,7	149,9
22. P.T.T. CHARGES	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	113,2	115,7
23. RECREATION	124,1	123,9	123,9	123,9	124,4	124,9	125,6	126,2	126,6	126,9	127,6	128,3	129,4
24. PUBLIC ENTERTAINMENT	121,0	121,3	121,8	122,2	122,3	122,3	122,3	122,3	122,3	122,3	122,3	122,3	122,4
25. BOOKS AND NEWSPAPERS	143,0	143,2	143,2	143,2	143,2	143,3	143,5	143,7	143,7	143,7	143,7	143,7	145,7
26. PERSONAL CARE	138,4	138,6	138,8	139,0	139,3	139,5	139,8	140,0	140,5	140,9	141,2	141,5	142,0
27. MISC. GOODS AND SERVICES	136,3	136,4	136,4	136,3	136,3	136,3	136,3	136,4	136,8	137,3	137,5	137,6	138,2
28. RESTAURANTS, HOTELS, ETC.	144,2	144,9	144,9	144,9	145,0	145,0	145,0	145,0	145,2	145,4	145,7	145,9	147,0
B. AGGREGATED LEVEL. 5 COMMODITIES.													
I FOOD, BEVERAGES AND TOBACCO	140,9	141,7	141,7	141,6	141,4	141,1	141,2	141,3	141,0	140,7	140,5	140,4	140,8
II CLOTHING AND FOOTWEAR	127,7	127,6	127,3	127,4	128,6	129,8	130,6	131,3	131,7	132,0	132,3	132,7	132,4
III HOUSING, FUEL AND FURNITURE	131,2	131,4	131,5	131,6	132,1	132,6	132,8	132,9	133,1	133,2	133,4	133,6	134,4
IV TRAVEL AND RECREATION	131,0	131,2	131,3	131,6	132,0	132,4	132,8	133,2	133,4	133,5	133,7	133,9	135,6
V OTHER GOODS AND SERVICES	140,0	140,5	140,6	140,7	140,9	141,1	141,2	141,3	141,5	141,8	142,1	142,5	143,2
ALL COMMODITIES	134,4	134,7	134,8	134,9	135,2	135,5	135,8	136,0	136,1	136,1	136,2	136,3	137,2

REFERENCES

Balestra, P. and M. Nerlove (1966): Pooling Cross Section and Time Series Data in the Estimation of a Dynamic Model: The Demand for Natural Gas. *Econometrica 34*, 585-612.

Biørn, E. (1979): Estimating Economic Relations from Incomplete Cross-Section/Time-Series Data. Unpublished paper, September 1979.

Bjerkholt, O. and S. Longva (1979): *MODIS IV. The Norwegian National Budget Model.* Samfunnsøkonomiske Studier 41, Central Bureau of Statistics of Norway, Oslo.

CBS (1969): *Survey of Consumer Expenditure 1967.* NOS A 280. Central Bureau of Statistics of Norway, Oslo.

CBS (1975 a): *Survey of Consumer Expenditure 1973.* NOS A 705. Central Bureau of Statistics of Norway, Oslo.

CBS (1975 b): *Konsumprisindeksen* (The Consumer Price Index). Statistisk Sentralbyrås Håndbøker 32. Central Bureau of Statistics of Norway, Oslo.

CBS (1979): *Survey of Consumer Expenditure 1974-1976.* NOS B 9. Central Bureau of Statistics of Norway, Oslo.

Kendall, M.G. and A. Stuart (1973): *The Advanced Theory of Statistics. Vol. 2: Inference and Relationship.* (Third edition). Charles Griffin, London.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner and D.H. Bent (1975): *SPSS. Statistical Package for the Social Sciences.* (Second edition). McGraw-Hill, New York.

Shapiro, S.S., M.B. Wilk and H.J. Chen (1968): A Comparative Study of Various Tests for Normality. *Journal of the American Statistical Association 63*, 1343-1372.

Woodland, A.D. (1979): Stochastic Specification and the Estimation of Share Equations. *Journal of Econometrics 10*, 361-383.

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