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Income-Expenditure Relations of Danish Wage and Salary Earners

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PREFACE

The present analysis of the expenditure behaviour of Danish households of wage and salary earners is essentially based on the model used by Prais and Houthakker in their analysis of a similar English material (The Analysis of Family Budgets, Cambridge, 1955).

The scope of the analysis was determined by the Statistical Department, the Institute of Statistics of the University of Copenhagen and the Institute of Economics of the University of Copenhagen in concert. Mr. Kjeld Bjerke, lecturer, chief of division, the Statistical Department, and the heads of the two institutes, Professor Anders Hald, dr. phil., and Professor P. Nørregaard Rasmussen, dr. polit., having met regularly to discuss problems arising in the course of the work; this committee has also gone through the final report.

The day-to-day work was directed by Mr. Erling Jørgensen, cand. polit., The Statistical Department, assisted for a brief period by Mr. Åbling Thomsen, cand. polit., the Statistical Department. Mr. Erling Jørgensen has also prepared the manuscript of the present report. Computations have been carried out by The Danish Institute of Computing Machinery, the staff of which has rendered valuable assistance in the programming process. Mrs. Lis Taxøe Jensen, the Statistical Department, has displayed great skill and care in preparing the many tabulations and examples to be used in the analysis.

The Translator of the Statistical Department, Mr. Vagn K. Sandberg, has translated the draft manuscript into English, and Mr. Niels Thygesen, cand. polit., has carried out a terminological revision of this manuscript.

The expenditure in connection with the computations carried out by The Danish Institute of Computing Machinery has been covered by a grant from the Danish State Research Foundation, and a grant has been received from the Rask-Ørsted Foundation to cover the cost of the terminological revision of the manuscript. The expenditure incidental to the publishing of the book has been defrayed by the Statistical Department.

The analysis was started in the summer of 1959 and was concluded with a provisional report at the end of 1962.

Copenhagen 1964.

Chapter I.

BACKGROUND OF THE STUDY AND THE MAIN RESULTS

I a. Background of the study.

The survey of income, consumption and saving patterns in 1955 of households of Danish wage and salary earners which was carried through at the beginning of 1956 is the most comprehensive and the most detailed of the consumption surveys undertaken by the Danish Statistical Department since it started making this kind of surveys in 1897[1]). The primary object of the surveys was originally to procure information of the "Conditions of life in the different classes of society, including nutrition and consumption"[2]), but after the system of adjusting salaries, wages, benefits and other payments in accordance with a price index became generally adopted, the consumption surveys were primarily undertaken in order to provide the basic material for constructing a system of weights to be used in the calculation of price indices. During recent years, however, the generally descriptive purpose, which was the primary one in the first consumption surveys, seems to be gaining ground again. One of the reasons for this development is the fact that it has been realized that the basic material which is obtained by means of a consumption survey carefully planned and carried out—in this connection the substantial advances in survey techniques of the last decades should be borne in mind—provides information on essential economic relationships, particularly in connection with spending in relation to income, which cannot be illustrated so completely in any other way[3]).

The Danish consumption survey for 1955 has, in fact, been subject to a more detailed processing than any of the previous surveys. Thanks to the scope and quality of the 1955 survey it has been possible, through this detailed processing, to arrive at results which are of direct interest to private institutions and persons as well as to public authorities.

A general outline of the 1955 survey, its planning and main results, was given in *Statistiske Efterretninger* in 1957[4]). Food consumption was dealt with separately in an article

[1]) A complete list of publications on Danish consumption surveys will be found p. 118.
[2]) Act concerning the Central Statistical Bureau 1895.
[3]) Cf. I.L.O. (11).
[4]) *Statistiske Efterretninger* 1957, No. 83.

in *Statistiske Efterretninger* in 1958[5]). The data collected concerning the saving and personal wealth of the households of wage and salary earners were subject to a special analysis, the results of which were given in a volume of the series of *Statistiske Undersøgelser* in 1960[6]). Two volumes in the same series dealt with the data collected on the distribution and composition of the wage and salary incomes[7]).

The greater part of the information obtained from the households of wage and salary earners concerned their consumption expenditure in the year 1955, and it was decided to subject the consumption behaviour of these households to a more detailed analysis. It is the results of this study which are contained in the present publication.

I b. Main results of the analysis.

The analysis aimed at giving a precise description of the relationship between the disposable income of the Danish households of wage and salary earners and their expenditure on some essential items in the year 1955. This relationship between disposable income and the expenditure on given items is undoubtedly of considerable importance in helping to explain differences in consumption behaviour from one household to another, although, of course, many other factors must be included if all such differences are to be explained, such as type of household, residential and social classification, etc. However, the income-expenditure relationship is of great importance in another connection, namely for forecasting the development of consumption in response to given changes in income, for one household or group of households or for all households as a whole[8]).

The analytical work thus consisted mainly in deriving the best possible description of the income-expenditure relationships. Such income-expenditure relationships often go by the name of Engel curves after the German economist and statistician, Ernst Engel[9]). More specifically, the work in connection with the analysis has consisted in calculating estimates of the parameters of five types of functions selected in advance and then comparing these functions by means of a number of tests for goodness of fit in order to find the Engel function most suitable for each expenditure item.

This is on the whole the same type of analysis as was adopted by J. S. Prais and H. S. Houthakker in their study of British family budgets from 1955[10]). In fact, in many respects the present inquiry may be considered an application to Danish data of the analytical tools which Prais and Houthakker present and discuss in their work.

[5]) *Statistiske Efterretninger* 1958, No. 46.

[6]) Opsparing i lønmodtagerhusstandene 1955, *Statistiske Undersøgelser*, No. 3, Copenhagen 1960. (Summary in English).

[7]) Lønmodtagerindkomster, Fordeling og sammensætning, *Statistiske Undersøgelser*, No. 6, Copenhagen 1962 and An Analysis of the Personal Income Distribution for Wage and Salary Earners in 1955. *Statistical Inquiries*, 1964.

[8]) Cf. chapter III, p. 28, and Erling Jørgensen (10), pp. 54–61.

[9]) Cf. Ernst Engel (10)

[10]) Prais J. S. and Houthakker H. S. (10)

Prais and Houthakker's study contains a discussion of alternative approaches to analyses of budget data as well as a list of literature dealing with family budget studies[11]). These background problems, therefore, will not be elaborated here.

As regards the main lines of the present study a few points deserve mention in this summary of methods and results.

To eliminate the most disturbing influences deriving from differences in the size of the households interviewed, all expenditure and income amounts were converted into amounts per person for each of the 3100 households for which data were obtained.

The income concept used, which is the independent variable of the Engel curve, was then determined as disposable income (all cash receipts less paid personal taxes) per person, and Engel functions were derived for 13 main expenditure items. In the appendix will be found a detailed classification of these expenditures which together amount to 85 per cent of total consumption expenditures for all households of wage and salary earners. The 13 main items were the following:

1. Dwelling
2. Fuel and lighting
3. Food (incl. regular eating out, beer, wine, and liquor within the usual household consumption)
4. Tobacco
5. Clothing
6. Footwear
7. Washing and cleaning
8. Durable goods (excl. motor vehicles)
9. Personal hygiene
10. Books, newspapers, etc.
11. Sports, holidays, hobbies, etc. (incl. visits to restaurants, theatres, cinemas, and beer, wine, and liquor outside the usual household consumption)
12. Transport (incl. motor vehicles)
13. Subscriptions, union fees, insurance premiums, etc. (excl. life and pension insurance)

The calculations were carried out separately for 12 groups of wage and salary earners, namely four social groups within each of the three regions of the country.

The three regions were the following

1. The capital incl. suburbs
2. The provincial towns incl. suburbs
3. Urban districts in the rural municipalities

In regions 1 and 2 the following social grouping was used

1. Higher public servants and salaried employees
2. Lower public servants and salaried employees
3. Skilled workers
4. Unskilled workers

[11]) Prais J. S. and Houthakker H. S. (10) p. 169.

In region 3, the urban districts in the rural municipalities, separate calculations were also carried out for the social group of *Agricultural workers*. In this region no calculations were carried out for the group of *Higher public servants and salaried employees*.

The five types of functions used were the following, x denoting disposable income per person and y the expenditure per person on the item in question:

$$
\begin{aligned}
&(I,1) \qquad \log \eta = \alpha + \beta\,(\log \nu - \overline{\log \nu}),\\
&(I,2) \qquad \log \eta = \alpha + \beta\,(\nu^{-1} - \overline{\nu^{-1}}),\\
&(I,3) \qquad \eta = \alpha + \beta\,(\log \nu - \overline{\log \nu}),\\
&(I,4) \qquad \eta = \alpha + \beta\,(\nu^{-1} - \overline{\nu^{-1}}),\\
&(I,5) \qquad \log \eta = \log \varkappa + \log\,[\Phi\,(\alpha + \beta \log \nu)]
\end{aligned}
$$

a bar denoting average value and Φ (t) denoting the cumulative distribution function of the normal distribution $\varphi\,(t) = \frac{1}{\sqrt{2\pi}}\, 1^{\div} \frac{t^2}{2}$

Considerable parts of the report on the analysis are devoted to a discussion of the estimation procedure so that it may be said that an evaluation of the *methods of analysis* was another main objective of the analytical work besides the calculation of *the results of the analysis*.

The tests applied showed almost consistently that the double-logarithmic function (I,1) gave the best description of the Engel curve for all 13 expenditure items as a whole. This result is in a way surprising because it implies that the income elasticity[12]) of the households in their demand for each of the 13 commodity groups is constant over the income range (for given social group, since the calculations have, as mentioned, been carried out separately for 12 groups of wage and salary earners). It might have been expected that commodity groups which are considered necessities in the higher income groups would be regarded as luxuries in the lower income groups. This, however, is not confirmed by the estimates of the income elasticities.

It might then be thought that this constancy of the income elasticity would hold good only in the case of the individual groups of wage and salary earners, which do not each of them cover any wide income interval, but that the matter would be different if all households were grouped together, in other words, that the estimates of β should be different for the different groups. However, there proves[13]) to be a remarkable stability as regards the mentioned estimate of β, when we move from one group of wage and salary earners to another. In the case of six expenditure items a hypothesis of constant income elasticity through all 12 household groups can be maintained, and in the case of the remaining 7 items the deviations, though statistically significant, are not very great. The demonstration of this stability in the income elasticity of the households in

[12]) Note that the income elasticity is identical with the parameter β in the double-logarithmic Engel function (I, 1).

[13]) Cf. chapter V p. 83.

their expenditure on the most important items is one of the most conspicuous results of the analysis[14])

This stability renders it justifiable to calculate the average income elasticity for the 12 groups of wage and salary earners for each of the 13 expenditure items. These average elasticities are shown in table I,1, where the expenditure items have been arranged by size of the average income elasticity.

Table I,1.
Income elasticities for 13 expenditure items; average values for 12 groups of wage and salary earners.

Item	Average income elasticity
Fuel and lighting	0.51
Footwear	0.56
Food	0.61
Subscriptions, union fees, etc.	0.82
Personal hygiene	0.86
Washing and cleaning	0.86
Dwelling	0.89
Books, newspapers, etc.	0.98
Tobacco	0.98
Durable goods (excl. motor vehicles)	0.99
Clothing	1.04
Transport (incl. motor vehicles)	1.39
Sports, holidays, hobbies, etc.	1.50

It will be seen from this table that the expenditure items fall into three clearly defined groups:

1. A group, which might be called necessities, in which the elasticity is just over 0.5, consisting of three items, *food, footwear, fuel and lighting.*

2. A second group, which might be called neutral commodities, with an elasticity close to unity. This group includes 8 items, among which the two important items of *dwelling* and *clothing.*

3. Finally, there is the third group, which might be called luxuries, in which the elasticity is significantly higher than unity; this group consists of the two items of *transport* (incl. motor vehicles) on the one hand and *sports, holidays, hobbies, etc.* on the other

As already mentioned, the main objective of the analysis has been to give a description of the relationship between the income of the households of wage and salary earners and their expenditures on important items. The analytical method employed, which consists chiefly in linear regression analysis, seems to yield satisfactory results in the case

[14]) This result invites the postulate that the income elasticities found for the population of wage and salary earners have general validity for all population groups. Concerning the consequences of this postulate, see Erling Jørgensen (12).

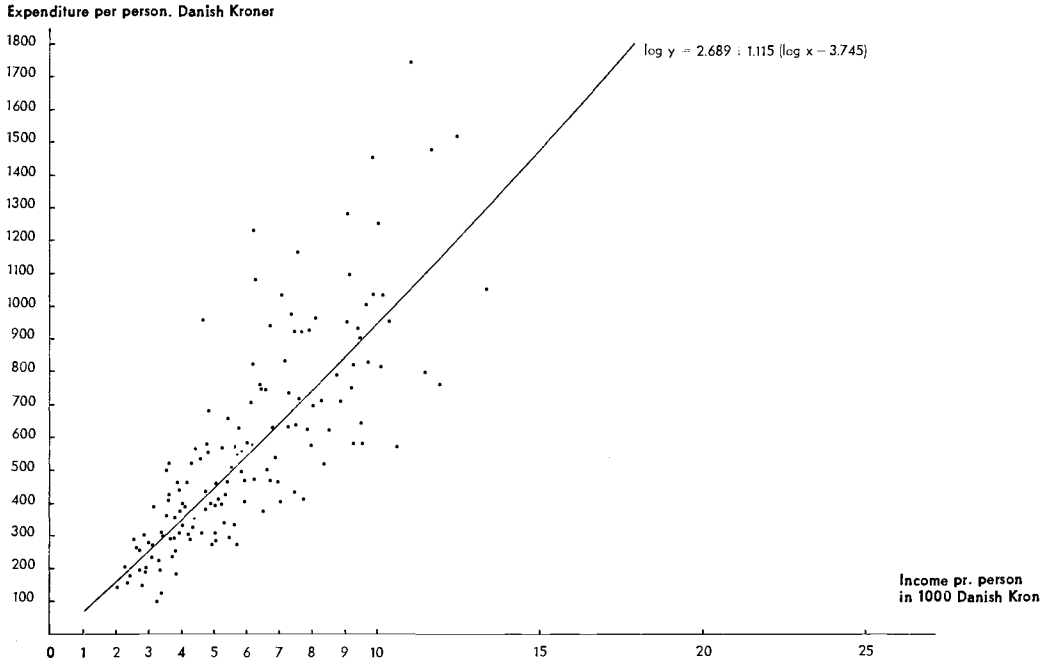

Fig. I, 1. Income and expenditure on *clothing*. Average values of 154 groups of 3 observations among lower public servants and salaried employees in the capital.

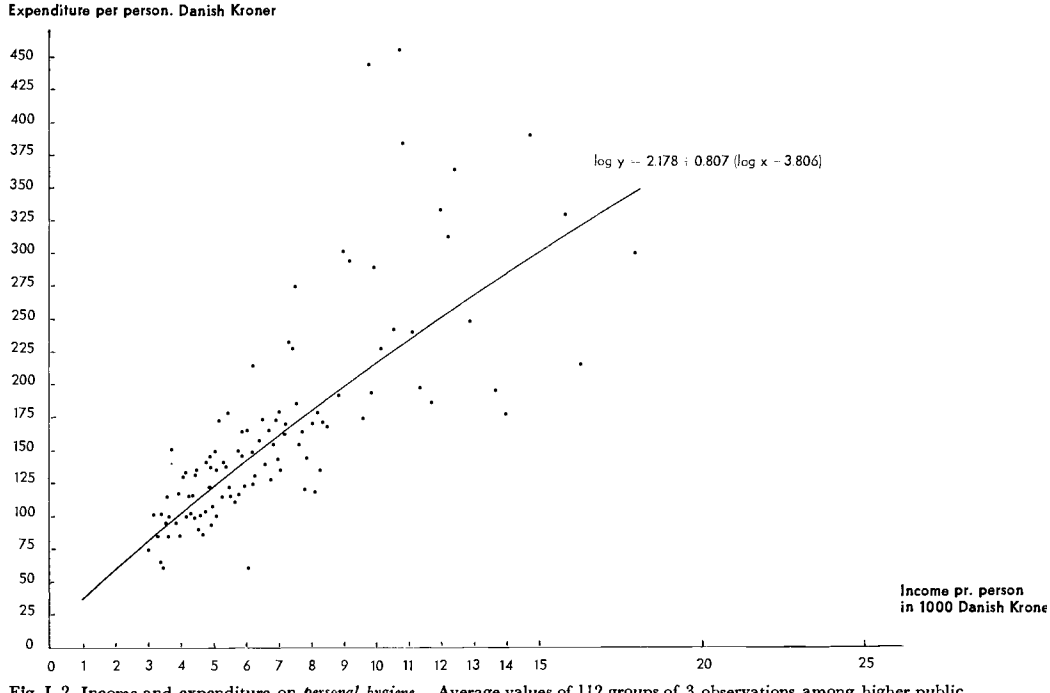

Fig. I, 2. Income and expenditure on *personal hygiene*. Average values of 112 groups of 3 observations among higher public servants and salaried employees in the capital.

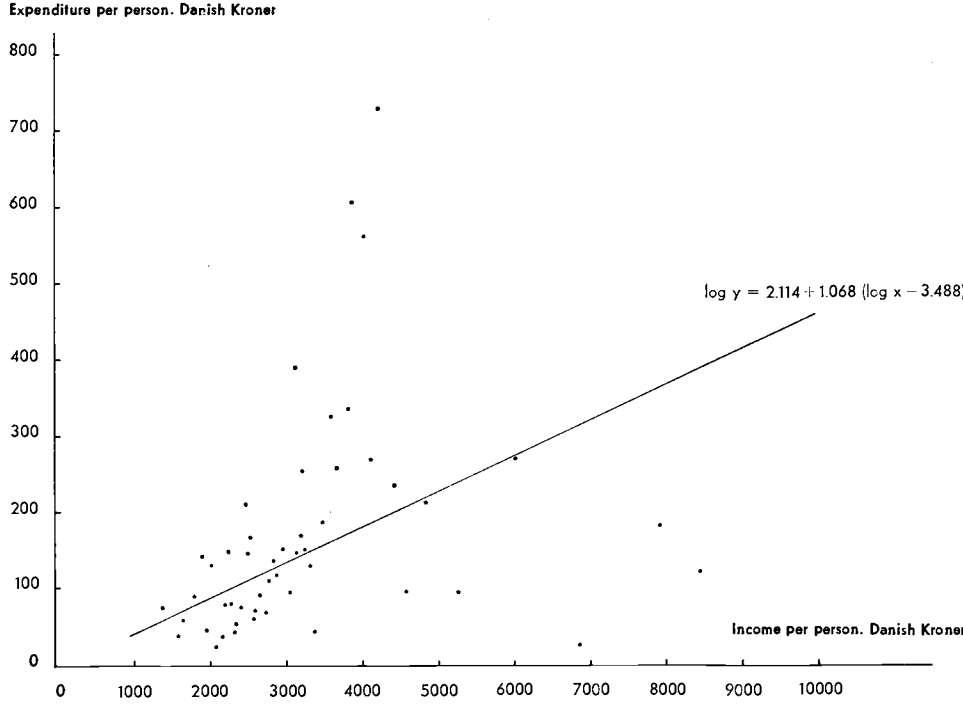

Fig. I, 3. Income and expenditure on *durable goods* (excl. motorcars). Average values of 51 groups of 3 observations among skilled workers in the rural districts.

of most expenditure items, cf. fig. I, 1 and fig. I, 2. For a few items, however, particularly for *durable goods* and *transport incl. motor vehicles*, the residual variation in expenditure from household to household is very high; the introduction of the disposable income of the households as explanatory variable has not reduced the variation appreciably. Fig. I, 3 demonstrates the high residual variation as regards durable goods in the group of skilled workers in the rural municipalities.

It may probably be concluded that the analysis of the expenditures of the households on these items will have to be tackled differently, by including information on type of household and other environmental factors and particularly on income changes and the consumption behaviour in earlier periods. Such a dynamic analysis has, however, been outside the scope of the present study, but it must be admitted that in the case of durables and transport the results presented here are rather unsatisfactory.

In a few respects the report goes beyond the objective of the analysis as set out above. In a concluding chapter it is examined to what extent the 13 expenditure items are correlated, i.e., whether households which spend much or little on one item display a characteristic expenditure behaviour as regards one or more of the other items. It was attempted to discover, e.g. whether households with a high consumption of tobacco have a lower consumption of food than households with a low consumption of tobacco. It was also tried to outline the importance of differences in type of households (size and

composition of household) to the consumption behaviour of households for given income classes.

As regards the first problem—the interrelationships of the 13 expenditure items—the calculations show only a slight correlation. Only in the case of the two items of *dwelling* and *fuel and lighting* was there a significant (positive) correlation. This result is a consequence of the design of the analysis, since the grouping of the many goods and services for which information was obtained into a moderate number of main expenditure items aimed precisely at a grouping with only a slight positive or negative correlation between the individual groups. This attempt to arrive at stable relationships between income and a few groups of expenditures at the same time ruled out a description of the consumption behaviour of the households towards individual goods and services; if such a description were to be attempted, the expenditure on other closely related goods and services would undoubtedly have to be taken into account.

As regards the importance of type and size of the household to the consumption behaviour of the households, the examinations show that the size (i.e. number of persons) of the household was the dominant factor, and that the conversion into amounts per person from amounts per household eliminated the greater part of this "disturbing" influence. In the case of certain expenditure items, among them *dwelling* and *tobacco*, other influences made themselves felt; a general influence, as was to be expected, was the "economies of scale" effect, i.e. the expenditure per person falls as the number of persons per household rises.

I c. The report.

After this introductory survey of the background and plan of the analysis and of some of its main results, chapter II will present a *review of the basic material.* This review consists of a description of the practical work of carrying through the survey of consumption and saving, i.e. the collection and processing of the basic material, and also a description of the inaccuracy attaching to the figures derived from the basic material. Chapter II also contains a brief summary of average expenditure per household on the main expenditure items. In chapter III the *aim of the analysis* will be defined, various models for an analysis of the expenditure behaviour of the households being discussed, a discussion which concludes in a statement of the reasons for choosing the Engel curve approach as the main subject of the analysis. Chapter IV contains a detailed discussion of the *methods of analysis.* What types of functions are to be chosen as a basis for deriving Engel curves for the different expenditure items? How are the variables to be specified? How is the suitability of the functions employed in the description of the income-expenditure relationship to be tested?

In chapter V *the results of the analysis* are presented. The double-logarithmic Engel curve was, according to the test made, found to be the "best" of the 5 types of function tested.

Finally, chapter VI suggests *examples of* some *further calculations* which should make it possible to achieve a more exhaustive description of the consumption behaviour of the

households than has been possible with the main tool of the present analysis, the Engel curve. In order to explain the variations observed in the expenditures of the households on a given item, differences in the size and composition of the households will be discussed as well as the expenditures of the households on one or more other items.

An appendix to the report contains partly the basic material and a detailed description of the expenditure items comprised by each of the 13 main items and partly tables showing the results of the computations. These tables fall into two parts, the results of the main analysis, cf. chapter V and the results of the further calculations, cf. chapter VI.

A list of the literature used will be found on pages 117–118.

Chapter II.

REVIEW OF THE SURVEY MATERIAL

IIa. Introductory remarks.

The present analysis of the consumption patterns of Danish wage and salary earners in 1955 is based on the family budget survey of households of Danish wage and salary earners undertaken in 1956[1]).

This survey comprised a total of 3100 households, selected by stratified sampling among all households of wage and salary earners; the sampling procedure is decribed below.

The questionnaire used in the survey was very detailed as it was desirable to collect information on household expenditures for a large number of consumer goods cf. the detailed list in the appendix p. 240. For the purpose of the present analysis, however, only main expenditure items are of interest as the emphasis of the analysis is on the consumption pattern as a whole rather than on consumption of individual commodities.

IIb. Concepts and methods of the survey.

1. Collecting the information.

The consumer survey has been carried through by personal interviews. This method has been chosen in preference to the far cheaper one of mailing questionnaires to the households for two reasons. Firstly because some of the questions were so complicated that the interpretation of an interviewer was considered necessary in order to ensure that the households would understand them, and secondly to reduce the non-response rate to a minimum. Both as regards the quality of the information collected and as regards the response rate, gratifying results were achieved. Only 61 questionnaires out of a total of 3161 had to be rejected owing to unsatisfactory completion, and only 473 households, or less than 12 per cent of all households approached, refused to cooperate. (Besides, 345 other households could not be contacted because of illness, change of address, etc.).

The survey comprised income and assets of the household as well as its expenditures and savings during 1955, the expenditure being broken down into various items, and saving being distributed by the various forms of saving.

[1]) Cf. references p. 118.

Total saving, defined as net change in assets, was calculated on the basis of the figures for changes in debts payable and receivable in the course of the year. The interviewer checked the figures against the difference between income and total consumption. Where appreciable discrepancies were found, the household was contacted again, and substantial errors in the figures for saving as well as in the various consumption items were eliminated. On the whole, it may perhaps be concluded that both the interview method and the fact that the total budget of the household was included in the survey have helped in keeping what might be called errors of measurement at a minimum in the data collected for consumption, saving and personal wealth.

2. Income and expenditure concepts; unit of analysis.

The purpose of the 1955 consumer survey was to illustrate expenditures and savings in households of wage and salary earners. Hence it follows directly that it is the *household* which is the relevant unit of analysis both as regards consumption and saving. This gives rise to the problem of defining the household concept on which the survey was to be based.

In drawing up such a definition there are two considerations to keep in mind. Firstly, the household should be defined in such a way that it contains those—and only those—persons who behave as a unit both in relation to the earning of income (income unit) and to the spending of income (spending unit). Secondly, the household unit adopted should be practical for the purpose of selecting, collecting and processing the survey material.

Without going into detailed definitional problems it should be emphasized that these two considerations may in fact be irreconcilable. The consideration that the persons included in the household should act as one income and spending unit might lead to the selection of a household concept which will prove to be impractical in the selection of the sample or in the collection and processing of the material. Moreover, even if we insist only on the point that the household should act as one income and spending unit we are not assured of an unambiguous definition. Thus with regard to board and lodging, domestic servants take part in the consumption of the household, but their incomes are not included in the joint income of the household. On the contrary, they are paid out of this income; domestic servants in some respects form part of the spending unit, but not of the income unit. If it is desired, e.g., to inquire into the relationship between the income of the household and its food consumption, information supplied by the households in which there are domestic servants will give misleading results.

Further, it may be mentioned that the household concept which would be most relevant in an analysis of consumption, will not necessarily be the one that is most relevant in an analysis of saving, since it may very well be imagined that persons who act as one unit as regards consumption will not make their saving decisions in common; examples are: households in which there are boarders and/or older children living at home who pay a certain amount towards the joint consumption of the household, but otherwise dispose independently of the rest of their income.

The household concept actually used was the following: those persons (and only those) who take part in the joint consumption, i.e., husband, wife, and children without an income of their own are included; also included were children living at home who had incomes of their own and others who stayed permanently with the household, provided that these persons did not spend more than 50 per cent of their incomes outside the households.

As regards income, consumption and saving the following concepts were used:

Income:

Cash wages and salaries.—Contributions to pension schemes withheld out of the salaries of public servants and salaried employees.—Interest and Dividends.—Pension, incl. old-age pension.—Disablement pension.—Contributions from separated or divorced spouse.—Unemployment relief.—Contributions to housekeeping made by children and relatives.—Payment by lodgers for board and lodging.—Amounts received under insurance policies.—Gifts.—Inheritance, scholarships.—Sales of motor car, moped, bicycle, furniture, clothing, etc.[2]).—Savings certificates received[3]).

Consumption expenditure:

Expenditures on purchases of all consumer goods, including all expenditures in connection with purchases of durable consumer goods (motor cars, motor cycles, furniture, household appliances, radio and television sets[2]), etc.), i.e. both initial payments on durable consumer goods acquired in the course of the year and instalments on hire-purchase debt relating to acquisitions in this or previous years; taxes, subscriptions, etc.—Also cash contributions to relatives and gifts.

Saving:

Amounts spent on increasing, or received by reducing, the below-mentioned items:

Cash-in-hand.—Bank and savings bank deposits.—Bonds and shares.—Premium bonds.—Private mortgage deeds.—Compulsory saving and savings certificates.—Value of real property.—Business assets.—Other assets.—Life and deferred annuity insurance (incl. contributions of public servants to pension funds).

Amounts spent on reducing, or received by increasing, the below-mentioned items:

Debt to bank and savings bank not secured by mortgage in real property.—Mortgage debt in real property.—Other debt apart from hire-purchase debt, etc.

Only a few comments are necessary in connection with these definitions. As mentioned above, saving was calculated also as the difference between income and consumption in the course of the year. Since this method of calculation must, of course, give the same result as the calculation according to the above definition[4])—if the figures are correct

[2]) In the case of purchases of motor vehicles, the value of any motor vehicle traded in has been set off against the value of the new vehicle.

[3]) In connection with the imposing of new indirect taxes in 1955 saving bonds were issued to all persons with assessed income of kr. 4000 or more. The face value of the bonds was increasing with increasing income of the persons concerned.

[4]) Cf. Statistiske Undersøgelser, No. 3, Opsparing i Lønmodtagerhusstandene. 1955, Copenhagen 1960, pp. 11–16.

—the interviewers were able to get a good check on the data collected by comparing the amounts of saving resulting from the two definitions.

Besides, it should be emphasized that the definitions used are based on a "cash point of view". Income comprises all cash payments to the household, incl. gifts and amounts received under insurance policies. On the other hand, consumption contains, as a general rule, all amounts actually paid by the household; this involved, for instance, that in the case of purchases of durable goods, only the initial cash payment and any instalments paid during the survey period were included.

3. Period of the survey.

In the choice of *survey period* two conflicting considerations have to be taken into account. Firstly, it is desirable that the households interviewed should be able to remember, at the time of the interview, the size of their income during the survey period and, in particular, how they have spent this income. For this reason, it would be desirable to have as brief a survey period as possible. On the other hand, however, it is desirable that accidental fluctuations should not be allowed to have too much influence on the results, neither as regards the income earned nor as regards the spending of it. If both the earning of the income and the consumption took place at a regular rate, this consideration would not give rise to any problems, but since particularly some consumption expenditures occur irregularly, it would be reasonable to make the survey period so long that these irregularities will be smoothed out. Since seasonal factors must be presumed to play a dominant part in these fluctuations, it was found reasonable to use the year as the survey period.

Especially as regards income earned experience shows that most households will have a precise idea of it only for a period of one year and only once a year, namely when they fill in their income tax returns. Therefore the survey was carried out immediately after the date for delivering of the income tax returns, viz. the 1st of February.

4. Method of selection.

The selection of a sample of basic sampling units on the basis of probability theory (i.e., in such a way that it becomes possible to calculate the standard error of the results) requires, firstly, a specification of the population from which the sample is to be drawn (setting up a *frame* for the selection), and secondly, the choice of a *sampling design* based on random selection (i.e., a selection by which all the elements of the population have a specified probability of being selected).

As regards the setting up of a *frame* for the consumer survey, the population census on the 1st October, 1955, provided a complete "list" of all households in Denmark. In view of the main object of the survey, which was an analysis of the consumption patterns of households of wage and salary earners, it was decided to exclude from the frame all rural municipalities without urban areas because there are very few wage and salary earners in those municipalities. The few wage and salary earners who were to be found there were considered to be represented by the households of wage and salary earners

selected in the rural minicipalities with urban areas. The frame was accordingly those households in the whole of Denmark, except in the "purely" rural municipalities, which were recorded in the population census schedules as having a wage or salary earner as head of household.

The choice of *sampling design* was influenced by a number of factors, the most important of which will now be briefly discussed.

The guiding principle in the considerations which preceded the choice of sampling design was that the standard error of the estimates calculated on the basis of the sample drawn should be below a certain limit, and that the costs of the survey should be held at a minimum given this maximum standard error[5]).

However, the sampling design which gives the lowest standard error for *one* of the estimates, e.g. for total food consumption expenditure per household, will not always at the same time give the lowest standard error for all the other estimates. As soon as a survey is to form the basis of a calculation of several estimates, it is therefore necessary to specify one of the quantities which it is desired to estimate on the basis of the sample as the decisive one in the choice of sampling design. One may then hope that this design will also be favourable as regards the other quantities to be estimated. Alternatively, all the quantities to be estimated must be arranged by order of priority and an overall evaluation must be made for the purpose of arriving at a design which minimizes the sum of the standard errors for all the quantities estimated, the individual standard errors being assigned weights corresponding to their order of priority.

One of the objects of the 1955 survey was to provide the basis for calculating a system of weights for the Danish price index. Therefore the estimation of average expenditure on the main items of goods and services which are covered by the price index were assigned a high priority. As estimates made on the basis of preceding consumer survey (1948) showed that there was a high correlation between the total expenditure of a household and expenditures on certain main items, the desired end was assumed to be attained by fixing certain limits of the standard error for the total expenditures per household for each of twelve groups of wage and salary earners[6]).

In a following section an account will be given of the calculation of these standard errors.

With the mentioned point of departure (that the survey should be planned with a view to minimizing the standard error for the total consumption expenditure), the sampling design was otherwise determined by a number of practical and theoretical considerations.

Firstly, already the choice of method of enumeration places certain restrictions on the sampling procedure. The decision to carry through the survey by means of interviewers who are to call on each sample household up to six times, makes it natural to assign to each interviewer as many households as he is able to call on within the period of the survey. This procedure ensures that interviewers gain a maximum of experience in taking interviews. It may also be mentioned that the possibilities of supervision for the central authorities will be considerably reduced if there are too many interviewers.

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[5]) See E. Lykke-Jensen: (13), pp. 16–18.

[6]) Viz. four social status groups separately within three district categories; cf. below p. 34.

Consequently, it was desirable that the households should be selected in clusters within geographical areas, whereby the transport costs of the interviewers would be considerably reduced. Each cluster corresponds to the capacity of one interviewer, in this survey approximately twenty households.

Besides, the very form of the frame will play a part in the considerations concerning the method of selection. In this case, as already mentioned, the schedules from the 1955 population census provided the frame from which the sample was drawn, and as these schedules are arranged by municipalities (in Copenhagen by "roder" (tax collection districts), in Frederiksberg and Gentofte by parishes), it seemed natural to base the sampling on whole municipalities (parishes or "roder"). As it was possible to group these municipalities in accordance with the criteria which were considered relevant to this inquiry, viz. distribution by industry and degree of urbanization, it was found reasonable to use stratified sampling. Finally, the desirability of illustrating the consumption patterns of the individual social status groups separately within each of the three district categories, (the capital, provincial towns with suburbs, and rural municipalities with urban areas) made it natural to conduct the survey in such a way that it would be possible to calculate separate estimates for each status group within these three district categories.

The result of these considerations was accordingly that the sampling was made in two stages within each of the three mentioned district categories. At the first stage municipalities ("roder", parishes) were drawn by random selection from strata of uniform municipalities already formed, the probability of selection of each municipality ("rode", parish) being proportionate to the number of households in the municipality. Actually, the selection ought to have been made in proportion to the number of households of wage and salary earners, but this number was unknown. As the households of wage and salary earners constituted a more or less constant share of the total number of households within each stratum of municipalities this procedure seems permissible. At the second stage households of wage and salary earners (basic sampling units) were drawn from each municipality in the first stage sample of municipalities, households belonging to different status groups[7]) drawn with different probability.

In the capital 16 first stage units were selected, comprising about 36000 households of wage and salary earners, from which were drawn 1262 second stage or final units, i.e. individual households. In the provincial towns the numbers of first and second stage units were 17 and 920 respectively, the sample of first stage units comprising about 85000 households. In the rural districts the numbers were 26, 918 and about 4000 respectively. Whereas the final sample of 3100 basic sampling units comprised only about 0.45 per cent of all households of wage and salary earners, the number of such households in the first stage sample of municipalities comprised about 18 per cent of the total number[8]).

Finally, it should be mentioned that the definition adopted of the basic unit of analysis—all members of the expenditure unit—did not quite correspond to the units

[7]) Higher salaried, lower salaried, skilled and unskilled, cf. p. 5.

[8]) A similar approach was used in the Danish labor force surveys in 1951 and 1952, cf. The Danish Labor Force Surveys. *Statistical Review,* New-Series vol. 2, No. 7, pp. 259–267.

selected at the second stage (the sampling units), as these units had been determined by the choice of the frame of the survey, namely the schedules from the 1955 population census. Since, according to the definition used in the population census, the household comprises all persons staying permanently in the household, with the exception of lodgers providing their own food, whereas in the consumer survey the household comprises only the persons who contribute at least fifty per cent of their income towards the consumption of the household[9]), the population census household will in some cases comprise more persons than the basic sampling unit of the consumer survey. This fact leads to certain complications in estimating averages for the whole country and also in estimating the true standard errors of these averages, but in the following this has not been taken into account as we have assumed that the inaccuracy introduced hereby is insignificant compared with the inaccuracies which arises in the course of the collection and processing of the questionnaires.

IIc. Estimating mean values and their standard errors.

1. Accuracy of the results of the survey.

The estimates based on the 1955 consumer survey are subject to a certain degree of inaccuracy. This inaccuracy consists of two components. The first originates in the collection and processing of the material, i.e., wrong or inadequate information, errors in coding and punching, etc. The errors of this type are often called systematic errors (bias), cp. the following section. The other component is called sampling error, and it occurs because only a sample of households and not the entire population is observed.

As the sample of households of wage and salary earners has been selected by stratified two-stage sampling, the sampling error of the estimates for each of the twelve groups of wage and salary earners will consist of two elements; firstly, the error due to the variation, within strata, among the sampling units at the first stage, municipalities, and secondly the error which is due to the variation among the sampling units at the second stage, i.e., among the individual households within municipalities.

While it is impossible to arrive at more precise estimates of the systematic errors, the sampling method adopted makes it possible to form estimates of the two elements of the sampling error[10]).

The calculation have shown that the error element due to variation among individual households within municipalities is dominant.

Table II,1 shows estimates of average expenditure per household for 14 expenditure groups; the table shows also the average saving and cash income per household for each of the twelve groups of wage and salary earners. The standard sampling error of the estimated total expenditure per household is estimated at kr. 140 or approximately 1 per cent of the total expenditure; 70 per cent of the standard error is due to variation between households within first-stage sampling units.

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[9]) Cfr. the exact definition, p. 14 above.

[10]) Cf. Statistiske Undersøgelser No. 3, Opsparing i lønmodtagerhusstandene 1955, Copenhagen 1960, pp. 3–4.

In the regression analyses which form the greater part of the present inquiry the observations for each of the twelve groups of wage and salary earners into which the 3100 households observed have been divided, have been treated as deriving from a simple random selection. The estimates of the standard errors of the parameter estimates will therefore become a little too high since the stratification effect is ignored, and besides, some bias may be expected to occur in the estimation of the parameters because the deviation of the observations from the regression line is evaluated on an assumption of simple random selection, whereas the actual procedure is two-stage stratified sampling, cf. chapter 3, page 23. Howewer, this bias must be considered insignificant in relation to the total variance in the distribution of the deviations from the regression line of the observations.

2. Processing of the material.

The inaccuracy of the estimates, discussed above, refers only to the sampling error, i.e., the error which will inevitably occur when estimates for the whole population are to be made on the basis of a sample of the population. With a given standard deviation in the distribution of the elements of the population the sampling error depends on the size of the sample and the sampling methods; it has been attempted, within the given cost framework, to make this sampling error as small as possible.

However, the estimates can also be subject to another type of error, which also occurs in complete enumerations, namely the so-called systematic errors, i.e., errors caused by wrong or inadequate completion of questionnaires and from the processing of the material, that is, errors in the scrutiny, coding and punching of the material received.

In the paragraph above on the enumeration method it was mentioned that the survey was conducted through interviews, partly to induce the sample households to cooperate, and partly to reduce the number of wrong answers. The 160 interviewers had received thorough instruction concerning the survey through letters and at special lessons at which officers from the Statistical Department went through the problems in connection with the completion of the questionnaires. A provisional scrutiny of the answers could therefore be made by the interviewers themselves at the time of the interview, the interviewers making a rough comparison of incomes and expenditures. In cases of discrepancy the interviewer was to take care that the household interviewed provided, whereever possible, the necessary supplementary information. There is reason to believe that thereby more correct figures have been obtained for the size of income and for items of expenditure which people might otherwise fail to state correctly.

It is obviously extremely difficult to indicate, even with rough approximation, the magnitude of errors which have arisen owing to people giving wrong answers to the interviewer. Experience from similar surveys abroad supports a belief that such incorrect statements are particularly frequent within the field which is often designated conspicuous consumption, i.e., such items as tobacco, liquor, consumption in restaurants, etc[11]).

[11]) Cf. Prais S. J. and Houthakker H. S. (10) p. 42.

Table II,1. Average income, saving and expenditures in 1955 in kroner per household.

	Capital and suburbs				Provincial towns	
	Higher public servants and salaried employees	Lower public servants and salaried employees	Skilled workers	Unskilled workers	Higher public servants and salaried employees	Lower public servants and salaried employees
Number of households in the sample	336	469	206	251	212	341
Average number of persons	2,9	2,3	2,8	2,6	3,0	2,6
of whom men	1,5	1,0	1,5	1,3	1,5	1,2
of whom women	1,4	1,3	1,3	1,3	1,5	1,4
Expenditure on:						
1. Dwelling	1789	1183	1160	995	1514	1044
2. Fuel and lighting	867	552	618	570	967	679
3. Food	4318	3235	4160	3761	3822	2978
4. Tobacco	739	575	862	792	645	506
5. Clothing	1682	1194	1246	1044	1681	1120
6. Footwear	353	267	295	255	338	257
7. Washing and cleaning	363	251	296	253	264	191
8. Durable goods (excl. motor vehicles)	1011	705	803	642	1111	791
9. Personal hygiene	451	354	373	332	383	289
10. Books, newspapers, etc.	727	493	449	368	660	320
11. Sports, holidays, hobbies (incl. cinemas, theatres, restaurants, etc.)	1975	1112	1210	925	1461	812
12. Transport, (incl. motor vehicles)	1489	726	902	639	1444	519
13. Union fees, subscriptions[1]	244	225	413	394	248	227
14. Other expenditure[2]	1744	1044	1085	859	1502	868
15. Saving	1384	554	475	405	1433	617
16. Total cash income	22606	13921	16111	13437	20866	12530

[1]) Excluding life insurance, deferred, annuity insurance, etc. which have been included in saving.
[2]) Personal taxes not included.

A detailed comparison with figures for total consumption per household for the whole country obtained from production statistics and import—export figures for all expenditure items showed an over-all agreement, which confirms our impression that deliberately incorrect answers occurred only in few cases.

After the material was received at the Statistical Department it was subjected to a thorough scrutiny, in the course of which particularly the information concerning personal assets and liabilities as well as the changes in these items were critically examined as it turned out that it was these items in the questionnaire which had caused the greatest difficulty. The questionnaires which were found to be inadequately completed were returned with a request for supplementary information. A few questionnaires (61 in all) had to be rejected altogether, i.a., because the quality of the information provided was on the whole found to be too poor.

and their suburbs		Rural districts with urban areas							
Skilled workers	Unskilled workers	Lower public servants and salaried employees	Skilled workers	Unskilled workers	Agri-cultural workers	All households (weighted average)	Capital total (weighted average)	Prov. towns total (weighted average)	Rural districts with urban areas total (weighted average)
154	213	322	155	281	160	3100	1262	920	918
3,0	2,9	2,7	3,3	3,3	3,3	2,8	2,6	2,9	3,2
1,5	1,4	1,3	1,7	1,7	1,8	1,4	1,3	1,4	1,7
1,5	1,5	1,4	1,6	1,6	1,5	1,4	1,3	1,5	1,5
993	824	792	884	695	503	1027	1217	997	771
747	647	708	745	706	603	683	629	719	715
3409	3196	2746	3181	3208	2879	3467	3838	3288	3139
659	517	478	511	477	349	616	751	567	472
1012	981	936	883	873	624	1108	1240	1103	904
232	225	217	205	195	144	251	285	247	202
218	173	175	189	163	150	226	282	199	175
749	533	665	555	482	359	690	761	711	546
287	249	230	228	200	153	300	368	283	215
262	213	263	224	201	148	357	479	302	242
756	610	655	580	453	302	903	1222	793	556
492	404	697	829	567	304	712	873	578	650
387	425	201	356	395	337	344	334	354	341
764	648	667	597	551	366	887	1111	828	619
799	468	581	352	562	294	635	626	703	555
12780	10876	10967	11192	10253	7743	13569	15810	12934	10928

After this scrutity the information in the questionnaires was transferred to punch cards. Both the punching operation and the subsequent mechanical processing were checked; in the case of the punching operation the check consisted in a complete verification of all punch cards, and in the case of the tabulation in check runs on the sums; the risk of error at these two stages is very small.

The figures which have been worked out on the basis of the punch card material must be presumed to be subject to rather few systematic errors compared with earlier Danish surveys. The errors of this type which might exist originate from the first two stages of the process: the interviewer's collection of information and the scrutiny of this information. As mentioned, special efforts have been made in this survey to limit the possibilities of error at these two stages, cf. the section concerning the enumeration method.

Chapter III.

OBJECTIVES OF THE ANALYSIS. ENGEL FUNCTIONS

IIIa. Introductory remarks.

The basic material available from the 1955 consumer survey is, as mentioned above, very comprehensive. For each of the 3100 households included in the survey approximately fifty punch cards (80 columns) were prepared. A complete description of this material, including an analysis of the relationships among the many quantities of which it is made up, is naturally out of the question. In order to keep the analytical work within reasonable limits, it is necessary to concentrate on some essential, well-defined problems. More precisely: among the many possible models which could be tested by means of this material, a few are to be selected which are of substantial interest from the points of view of economic theory, social policy, etc. The analysis then consists in confronting these models with the information collected.

From the point of view of economic theory, interest would focus on a model capable of explaining the consumption expenditures of households as a function of quantities familiar from economic theory as determinants of consumer behaviour. Hereby it might be possible to evaluate consumption, once information on those quantities to which it is functionally related becomes available. If the quantities in question may be more confidently predicted than consumption itself, such functional relationships will be useful in predicting consumption.

From the point of view of statistical theory the greatest interest will attach to estimation procedures; how are the best estimates of the parameters in the chosen models to be computed? What tests are applicable for purposes of comparing the estimates?

The computional work involved in the analysis has been carried out on an electronic computer. Accordingly it has been possible to choose more labour-consuming models and methods of calculation than if only the traditional calculating facilities had been available.

IIIb. Choice of model.

1. Determinants of expenditure.

According to traditional economic theory the expenditure of a household on a given commodity is determined primarily by the income of the household and by the price of the item in question. Prices of other commodities, expenditure of the household on other commodities as well as expenditure of other households on this and other commodi-

ties may also appear as important arguments. Other factors are of course, the composition of the household, its geographical location and social status. Also previous income and income change of the household as well as its assets might play an important role in determining the consumption behaviour.

As the present analysis is based upon a consumer survey relating to a given point of time and a given market, prices may be considered constant, independent of other variables as e.g. income and expenditure. All other variables mentioned above, however, can be found in the basic material of this inquiry, and if it was possible to set up a simple model of the relationships of these variables the parameters of such a model might be estimated.

However, there is no presumption that the relationships between the variables are simple at all. If the analysis is to be practicable, a relatively simple type of function must be chosen and the number of variables must be further reduced. Of the quantities mentioned above there is a strong presumption that household income is dominant in the determination of the expenditure pattern, while the household expenditure on other commodities plays a less prominent part, cf. chapter VI, p. 110. Therefore, it we further disregard income changes and assets as well as household expenditure on other commodities (and the consumption pattern of other households), a relationship remains within given social groups of households containing solely the two variables expenditure of the household and its income.

In a discussion of the relationship between these two quantities it is natural to start by emphasizing that expenditure is in the nature of a dependent variable to income, while income may reasonably be considered an independent or a determining variable cf. Prais & Houthakker (10) p. 80. It is quite obvious, however, that very often there is an influence the other way round, planned or incurred expenditures determining to some extent the income-earning behaviour of the household. On the whole this influence may be considered weak as compared to the influence of income on expenditure and especially as regards households of wage and salary earners as their possibilities for increasing income in the short run are rather limited.

Assuming that all households (household size and composition, social and geographical group held constant) show identical income-expenditure relationships except for random variation, a description of the "average" household of wage and salary earners will be of the form

$$(III,1)\quad y = f(x) + \varepsilon$$

where y denotes household expenditure on a given item, x the household income and ε the effects on y from omitted determining variables plus random effects.

2. Engel curves and household survey data.

Formula (III,1) is the general expression of the Engel curve for a given expenditure item indicating the relationship between a household's income and its expenditure on that item. It was decided to place the Engel curve in the centre of the analysis, and the greater part of this and the following chapter is therefore devoted to a discussion of

methods of determining parameters in Engel functions by means of a household budget survey material.

Before discussing the question of the type of Engel functions a few remarks should be made in connection with the general approach of the analysis, which is indicated by the choice of the Engel curve as the main object of investigation.

Is it at all possible conceptually to estimate Engel curves on the basis of household budget surveys? Or stated more precisely: Assuming that all information in a survey provides reliable measurements of the incomes and expenditures of a number of individual households in the population group investigated, is it then possible to estimate true Engel curves based on that survey? Obviously, the degree of interest which would attach to the analysis from the point of view of economic theory depends very much on the answer to this question.

It is important to realize from the outset that our basic material does not allow of any direct testing of an Engel function relating to an individual household. For a given household only one set of income and expenditures is known, whereas several different sets of such observations would be necessary to enable us to test any hypothesis concerning the income-expenditure relationships of this household.

However, it may be possible to make up for this defect by inserting observations of the expenditures of other households on the commodity, these other households being selected in such a way that the relevant values of the income scale will be represented. Thus, instead of studying each household's expenditure reaction to various income levels, the relationship between the expenditures and incomes of many different households for one period is studied and it is postulated that by doing so the Engel curve of the "average" household in 1955 as written in (III,1) above will be obtained.

On the face of it, this postulated Engel curve is merely a description of the incomes and expenditures of various households. Such a description is, of course, valuable in itself since it enables us to make a statement of the following form: in the Danish population of wage and salary earners in 1955, households with an income of x_1 kr. spent an average of $f_i(x_1)$ kr. on the i'th commodity, and households with an income of x_2 kr. spent $f_i(x_2)$ kr. apart from random deviations. Obviously the significance of the analysis as seen from the viewpoint of economic theory will be higher if this description of the income and the expenditure on certain commodities or groups of commodities of 3100 households will be a useful approximation to the Engel curves for the Danish population of wage and salary earners in 1955.

The Engel function, as defined in (III,1), is static, i.e., it gives an expression for the expenditure behaviour which the "typical" household will display, *ceteris paribus*, at alternative levels of income after any initial adjustment processes have been completed. This function, accordingly, entirely disregards the time factor and also the process whereby the households passes from one income level to the other. More concretely this process might be exemplified as follows: a household whose income rises will not adjust its expenditure behaviour to the new income level until some time has passed; hereby the saving of this household may temporarily be higher than the average for households whose incomes are permanently on this higher level. Conversely, a household which passes from a higher to a lower income will try to maintain consumption—

thereby reducing saving—than the average for households whose incomes are permanently on this lower level. Furthermore, the related 'more general' question arises whether the reaction of an individual household to changes in income will depend on income and consumption changes in neighbouring households[1]).

These and other dynamic elements in the consumption behaviour of the households have been left out of account in the Engel functions of the type shown in (III,1)—but they are included in the estimates of the income-expenditure curve which can be made from the observations of the 3100 households in the basic material, and probably in such a way that the estimates are influenced systematically. It is thus highly probable that among the high-income households in the survey there will be relatively many who have experienced an appreciable increase in income since the immediately preceding period, while, conversely, there will be relatively many households with declining incomes at the lower end of the scale. The consumption expenditures observed for the high income groups will therefore tend to understate the "true" (static) propensity to consume, while among the low income groups the "true" propensity to consume will be lower than the observed expenditures, i.e., the Engel curve which is estimated will rise more slowly than a "true", static Engel curve.

The postulate: that the observed relationships between income and expenditure for the 3100 households in 1955 are identical with the Engel curves as defined by (III,1) has, however, other weaknesses.

It does not allow for the dependence of the individual household on the consumption behaviour of other households. That such interdependence among the consumption expenditures of the individual households exists has long be recognized in demand theory[2]). The Engel curve is based on a *ceteris paribus* assumption and answers questions of the type: what amount would a household spend on the i'th commodity if its income rises by kr. 1000, kr. 2000, etc., *assuming that the other factors in the household situation are unchanged?* The most important factors here are: household size, residence, social status and the relative income position of the household in relation to its "neighbours". The curves we can estimate from the available observation material, however, refer to households with, frequently, highly deviating environmental factors, and in observations of expenditures for households at different income levels it is therefore impossible to maintain the mentioned *ceteris paribus* assumption. We may assume that expenditures on durable goods are highly susceptible to the influence of environmental factors, whereas, e.g., the expenditure on typical necessaries is less dependent on the consumption behaviour of other households.

The so-called layereffect[3]), may also lead to a wrong evaluation of the "true" Engel curve. If, e.g., we imagine that wage and salary earners in the rural districts, who are on an average at a lower income level than wage and salary earners in the towns, have a considerably lower expenditure on theatre and cinema than urban wage and salary

[1]) Cf. Duesenberry, J (3), Friedman, M. (7), Modigliani, F. (15) for a theoretical discussion of this aspect of the consumption pattern; Danish empirical studies on the subject are found in *Opsparing i lønmodtagerhusstandene* 1955, Copenhagen 1960.

[2]) Cf. Duesenberry, J. (3), Friedman, M. (7), Stone, R. (17).

[3]) Cf. Wold (19) p. 68.

earners on a corresponding income level, the observed income-expenditure relationships may come out as illustrated in fig. III,1.

The income-expenditure curve, 1 + 2, which is drawn as representing the households in both groups, exaggerates the income elasticity of the "average household of wage and salary earners" in the demand for theatre and cinema, because there is a marked shift in expenditure level from rural households to urban households. This shift may be due to the fact that these goods are not equally accessible to the two household types.

Now, the consumption survey of wage and salary earners in 1955 was so comprehensive that it was possible to make separate calculations for twelve different groups of wage and salary earners defined by residence and social status; to this should be added that adjustments were made also for observed differences in the size of the households. It may, perhaps, therefore be permissible to conclude that the shifting effects are smaller in this analysis than in most other similar analyses, in which the number of observations is most frequently so small as to render impracticable a breakdown into homogeneous subgroups. It should be emphasized however that this effect may still disturb the estimated Engel curves, cf. chap. V pg. 86.

In conclusion it must be underlined, therefore, that one cannot accept, without qualifications, Engel curves calculated on the basis of household surveys as representing the Engel curves as defined by (III,1).

If estimated Engel curves, based on household surveys, are to be used, e.g. for prediction of expenditure on certain commodities, income being known or guessed at, great care must be shown. Comparison should always be made to income-expenditure relationships calculated on the basis of other types of data primarily time-series data[4]).

On the other hand if time series data alone are used we are precluded from drawing conclusions as regards the situation at a specified time; we have instead to refer the calculated values to the whole of the period covered by the time series. Hereby the risk of introducing disturbing influences from other factors has grown—changed price relations, income level and distribution, etc.—so that the calculated values will, for that reason, become unreliable.

As will be shown in the last section of this chapter some of the biases mentioned above should not be excluded if the Engel-curve estimates are to be used on the macro-level; what are considered biases in one conception of the Engel curves are in other interpretations of the Engel curve rightly considered as true elements of the relationships.

In addition to these conceptual difficulties, which may cause serious biases in the estimates of the relationships between y and x, the estimated parameters in the functions of type (III,1) p. 23, are attended with errors from other sources. One important source of error is inaccuracy in the measurement of the independent variable, the household income. These errors of measurement are partly systematic and seem on the whole to lead to an understatement of income, a phenomenon which is well known from tax income statistics and which it has hardly been possible to avoid entirely in this survey

[4]) Cf. Wold (19) p. 50.

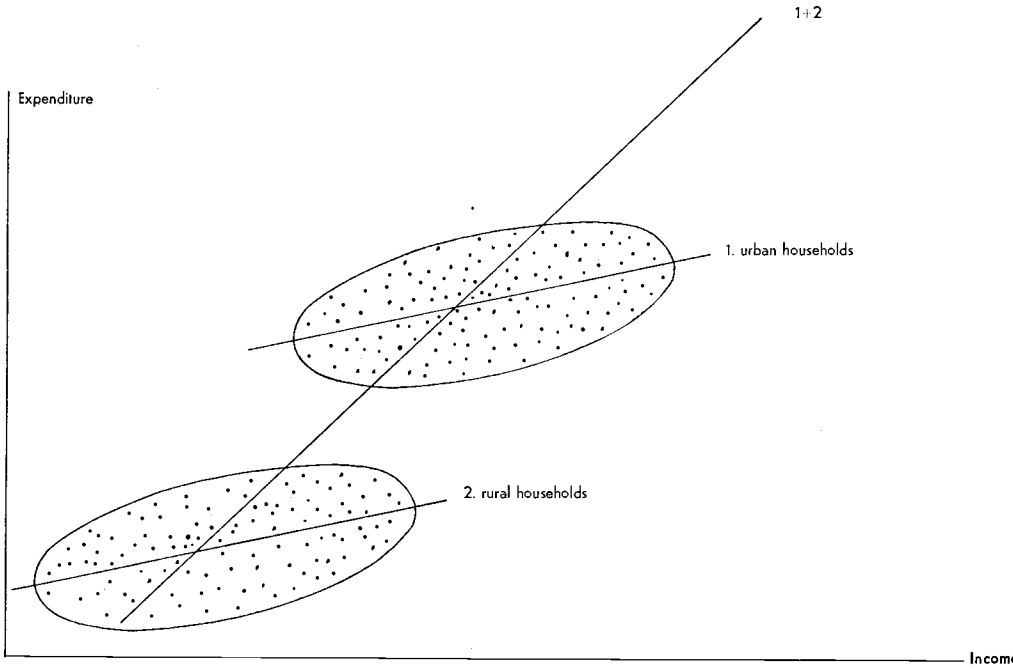

Fig. III, 1. Expenditure on theatre and cinema.

either[5]). The occurence of inaccuracy in the independent variable even if there is no systematic error of measurement, leads to a systematic error in the evaluation of the slope of the regression lines. If the amount of inaccuracy can be estimated, it will be possible to adjust for it in the evaluation of the slope[6]), but this is not possible in our case, and the mentioned adjustment therefore cannot be made.

One of the requirements for determining unbiased estimates of the parameters of an Engel function of the form (III,1) by means of the regression analysis—which will be the main tool in the following—is that this function is specified in such a way that ε is independent of x. This involves either (1) that x is a quantity given in advance and accordingly not subject to variation in our experimental set-up, or (2) that any variation in x is independent of ε, which is an expression of the unexplained variation in y.

The observed x values do not fulfil the requirement mentioned under (1), already because x is subject to a considerable error of measurement, cf. above. On the other hand, it is not quite clear whether the variations in x are of such a nature that not even the requirement under (2) is fulfilled. The variation in x due to errors of measurement may perhaps to a great extent be presumed to be independent of ε, but it is possible

[5]) It turns out, indeed, that on an average for all households observed the sum of expenditures and savings exceeds the recorded incomes by kr. 145, or slightly over one per cent of the average recorded income.

[6]) Cf. Hald, A. (8) p. 615 and Stone, R. (17) p. 296.

that there are some causes of income variations which also affect y—or which have their origin in y. If, for instance, a household's purchases of a motor car or other durables influence the "income-earning" behaviour of this household, there will be a risk of bias[7]).

In an evaluation of the conclusions which can safely be drawn from the estimated Engel curves, it is important to take the above-mentioned considerations into account. The fact is that it is not the "true" Engel curves we arrive at, and therefore care must be shown if the results are to be utilized in drawing further conclusions. Or, in other words, the validity of the analysis depends on the interpretation of the estimates.

3. What, then, can the results be used for?

Firstly, the estimated Engel curves give a more precise *description* of the income-expenditure relationships of the households of wage and salary earners in the year 1955 than would be possible by the mere presentation of summary averages of expenditures at different income levels. As the computations are made separately for twelve residential and social status groups, this description will give, in addition, useful illustration of existing differences in expenditure behaviour among these twelve groups.

Such a description of the expenditure pattern of the households of wage and salary earners is obviously of interest in many respects; questions concerning the marketing conditions of certain commodities or groups of commodities in the different parts of the country, and questions in connection with differences of the consumption patterns of the different social status groups and income gruops seen in relation to existing or contemplated excise duties are two important fields. More generally, it may be mentioned that the official Danish statistics concerning the disposal of national income are considerably less developed than statistics concerning the formation of national income, for which reason any supplementing description of the kind mentioned here will be very useful. However, it is true of all the fields where the results could be applied that they would be substantially more valuable if they covered the whole population, whereas this survey, as already mentioned, covers only households of wage and salary earners.

From the point of view of economic theory, however, it is quite as interesting to ascertain whether the estimates are of any value except from a purely descriptive point of view. Are they of value in the analysis of demand at the microlevel? And can they be used as a basis for forecasts of total consumption at the macro level?

The conclusion of the considerations stated above concerning this problem is that the estimates shown in the following chapters—and estimates from other similar family budget surveys—form a very valuable supplement to the existing empirical basis of demand theory. The results are primarily applicable at the micro level, i.e., in an analysis where the point of view is that of the individual household or group of households, whereas it would be more questionable to draw inferences for the analysis of the demand of the total population for the different groups of commodities.

By definition, Engel curves are expressions of the behaviour of individual households at alternative income levels and, subject to the above reservations as regards the inter-

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[7]) Cf. Wallander, Jan (18) p. 52.

pretation of the estimates of Engel curves calculated here, the results can therefore directly only say something about the conditions of an individual household, or group of households, under alternative assumptions as regards the income of the household or group of households. These reservations, as will be remembered, involved especially four problems:

1. The estimates of the Engel curves were to a certain extent influenced by dynamic adjustment processes, whereas the "true" Engel curves are static.

2. The estimates were influenced by the fact that for some groups of commodities consumer behaviour was to a considerable degree determined by environmental factors (the interdependence effect), whereas the "true" Engel curves are based on the usual *ceteris paribus* assumption.

3. The layer effect.

4. The inaccuracy introduced by any errors of measurement.

With these reservations in mind the estimates should, however, be useful as a basis for conclusions concerning the consumption behaviour of individual households. However, it should be emphasized that the estimates refer to the year 1955 so that statements concerning consumption in any subsequent period will be attended with a further unknown error. The applicability of the Engel curve estimates on the macro level will be discussed in the final section of this chapter.

IIIc. Use of estimated Engel curves on the macro level.

When it is attempted—on the basis of the estimates of Engel curves concerning the consumption behaviour of individual households—to draw conclusions as regards the consumption of all households, i.e., total national consumption expenditure, the problem of the environmental influence on consumption is again brought to the fore. In estimating Engel curves of the type of formula (III,1) above, one of the main problems is how to avoid too much disturbing influence from the behaviour of other households. The object is to estimate independent income-expenditure relationships for individual households. But the relationships between total income and total expenditure, i.e. a function or curve illustrating alternative values of income and expenditure of *all* households, must necessarily take into account the effects on expenditure of the j'th household brought about by a change in the income of other households. Or in other words, on the macro-level a possible interdependence effect must be taken into account. A curve expressing the relationship between the whole population's total consumption of certain commodities and its total income will therefore be biased if it is formed by simple aggregation of the Engel curves of individual households.

The occurrence of interdependence among the consumption behaviour of the individual households naturally makes it difficult to say anything about the development of total consumption under alternative assumptions as to the development in total income on the basis of knowledge of Engel curves for individual households. For distinct necessaries, where the interdependence effect is probably moderate, this drawback may not be of decisive importance.

An expression of the magnitude of the interdependence effect can be estimated under very simplified assumptions[8]), and in such cases we might be able to arrive at a better estimate of the "macro Engel curve". No such estimate of the interdependence effect has been made in this survey.

Assuming that a satisfactory estimate had been calculated of the "true" relation between the population's total income and its total expenditure on various commodities, this estimate would still be subject to the limitation that it would be valid only for the survey period, viz. the year 1955. Such an estimate would not be directly applicable as a basis for a calculation of a consumption forecast, because it does not, of course, contain any elements of shifts in the trend of consumption owing to changes in fashion, taste, etc. These trend factors, which are often of great importance, are, on the other hand, contained in the time series covering the development, over long periods, in total consumption, total income, etc., which are the usual basis of forecasts. However, it must be realized that such trend factors can be extremely unstable, and as they appear only implicitly in the relationships an adjustment for structural change is impossible.

If time series data concerning total income and total consumption of certain groups of commodities were supplemented with Engel curves for all groups of the population, based on household survey material and estimated with due regard to the above-mentioned reservations—and preferably estimated for several consecutive survey periods—then forecasts on consumption expenditures could be improved considerably.

[8]) Cf. Prais J. S. and Houthaker, H. S. (10) p. 18.

METHODS OF ANALYSIS

IVa. Introductory remarks.

The income-expenditure relation $\eta = f(v)$, is the main object of the present analysis; η denoting household expenditure on a given expenditure item and v household income. The question is now how this relation is to be estimated on the basis of the available observations.

In this situation it might be imagined that the form of the Engel function of a given commodity was given in advance or had been arrived at on the basis of, e.g., studies of the "expenditure process". The task would then "merely" consist in determining the parameters of this function, and the results of the analysis would then be of the following type: in the Danish population of wage and salary earners in the year 1955 the parameters of the Engel function for the expenditure on the i'th commodity assumed the following values .....

However, no such "true" Engel function is given in advance. This is so because a more general theory on the basis of which a specific function could be derived does not exist. The first step of the present analysis therefore consists in selecting a functional form. Next comes the comparison of the different functions selected by means of suitable tests for goodness of fit.

In short it may be said that the analysis consists of three stages: 1) the selection of a number of functions, 2) the estimation of parameters of the selected functions, and 3) a comparison of these functions and the data by means of various tests for goodness of fit.

IVb. Choice of Engel functions and specification of the variables.

1. Criteria for selecting Engel functions.

In selecting Engel functions one may adopt two different points of view. Firstly, on the basis of the existing theory of consumer behaviour, try to set up, for each expenditure item, a model which fulfils the theoretical requirements to the greatest possible extent. Or secondly, on the basis of the available observations, select one or more functions showing a satisfactory goodness of fit, whether or not these functions can be justified by the theory of consumer behaviour.

Of course, it would be most satisfactory to choose the former approach, but it must be acknowledged that the theory of consumer behaviour does not at present offer sufficient guidance for the selection of "true" Engel functions. But economic theory can tell that the "true" Engel curve for a given commodity has certain characteristics. This

information can then be utilized as a supplementary criterion for selecting among alternative functions. This criterion being a supplement to the selection by means of different tests for goodness of fit.

If a given type of function deviates from the characteristics of the true Engel curve for extreme values of income, whereas the function otherwise "behaves" satisfactorily, this, however, should not exclude the use of the function in question.

Moreover, it is to be observed that computational problems in connection with the determination of the parameters of the function should not be too complicated, and this requirement naturally limits the types of functions which can be used.

2. Description of the functions selected.

In the present survey the following five functions were selected, in which v is the household income, η the expenditure on a given expenditure item, and α, β and $\varkappa$ are parameters:

$$\text{(IV, 1)} \qquad \log \eta = \alpha + \beta \left(\log v - \overline{\log v}\right)$$

$$\text{(IV, 2)} \qquad \log \eta = \alpha + \beta \left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$$

$$\text{(IV, 3)} \qquad \eta = \alpha + \beta \left(\log v - \overline{\log v}\right)$$

$$\text{(IV, 4)} \qquad \eta = \alpha + \beta \left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$$

$$\text{(IV, 5)} \qquad \log \eta = \log \varkappa + \log \left[\Phi \left(\alpha + \beta \log v\right)\right]$$

Functions (IV, 1) to (IV, 4) find little justification in economic theory, whereas function (IV, 5) to a somewhat greater extent can be justified on the basis of studies of the "consumption process".

Functions (IV, 1) to (IV, 4) are two-parameter functions, which are linear in the two variables or in simple transformations of these variables. This means that we can use the computationally very convenient techniques of linear regression analysis. These functions represent to some extent alternative hypotheses as regards the income elasticity of the expenditure, $e = \frac{d\eta}{dv} \cdot \frac{v}{\eta}$ or the marginal propensity to consume $m = \frac{d\eta}{dv}$ and can thus be used for testing those hypotheses concerning the characteristics of the "true" Engel curves which are related to e and m as suggested by economic theory.

Table IV, 1 show the values of e and m for the five functions.

According to function (IV, 1) the income elasticity is a constant, being identical with the parameter β. According to function (IV, 2), e is inversely proportional to income, whereas according to function (IV, 3), e is inversely proportional to expenditure itself. If one considers the marginal propensity to consume, m, it will be found that according to function (IV, 3) m is inversely proportional to income and according to function (IV, 4) inversely proportional to the square of income. Among other characteristics

Table IV, 1.
Values of income elasticity, e, and marginal propensity to consume, m, for five Engel functions.

Function	e	m
$\log \eta = \alpha + \beta \left(\log v - \overline{\log v}\right)$	β	$\beta \frac{\eta}{v}$
$\log \eta = \alpha + \beta \left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$	$-\frac{\beta}{v}$	$-\beta \frac{\eta}{v^2}$
$\eta = \alpha + \beta \left(\log v - \overline{\log v}\right)$	$\frac{\beta}{\eta}$	$\frac{\beta}{v}$
$\eta = \alpha + \beta \left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$	$-\frac{\beta}{v\eta}$	$-\frac{\beta}{v^2}$
$\log \eta = \log \varkappa + \log [\Phi (\alpha + \log v)]$	$\frac{\varphi (\alpha + \log v)}{\Phi (\alpha + \log v)}$	$\frac{\eta [\varphi (\alpha + \log v)]}{v [\Phi (\alpha + \log v)]}$

of functions (IV, 1) to (IV, 4) which are interesting from the point of view of economic theory may be mentioned that functions (IV, 1) and (IV, 2) reflect one feature of true Engel curves: that expenditure can never be negative, while functions (IV, 2), (IV, 4) and (IV, 5) reflect a theoretically desirable property of Engel curves of certain commodities, viz. that expenditure asymptotically tends towards a saturation expenditure. Concerning function (IV, 5), it should be mentioned firstly that it contains many of the qualities which can be said to be characteristic of the "true" Engel curves. Expenditure can never be negative; the income elasticity is falling with rising income, and the marginal propensity to consume is first rising and then falling. Secondly, the use of function (IV, 5) as model for the consumption behaviour can be justified by analogy to certain biological experiments[2]).

In the actual estimation procedure it was decided to fix the parameter β at a given value *inter alia* because the 3-parameter estimation met with serious difficulties, cfr. chap. IV, p. 55.

3. Specification of the variables.

After the functions have been chosen, the observations must be put into a form suitable for computation, and here a number of problems arise. The following deserve special attention: 1) the precise specification of the two variables, v and η, the household income and the expenditure on a given commodity or group of commodities, and 2) problems concerning the grouping of commodities and households. In the foregoing the interpretation of the Engel functions and the selection of certain functions have been

[2]) Aitchison and Brown (1), page 128, and the same authors in The Review of Economic Studies, No. 57, 1955.

discussed on the assumption that all variables other than income and expenditure, were "under control" (p. 23). Accordingly it has been assumed that the parameters of the functions selected were valid only for households in a certain area with that particular social status, of given size, etc.

Now, it is obvious that in real life one cannot estimate the parameters under such restricted assumptions. In this field it is impossible to make laboratory experiments in which all variables other than those examined are kept under control. It is therefore only with rough approximation that one can isolate and measure the influences due to the factors which are of interest in any given inquiry.

In the present survey of the income and expenditure in 1955 of households of wage and salary earners the factors which may be expected to influence the expenditure behaviour of households apart from the dynamic factors discussed above (p. 25) will especially be residential differences (whether the household lives in a rural district or in a provincial town or in the capital), differences as to social status (whether the household belongs to, for instance, the group of higher salaried employees or the group of unskilled workers), and differences in size and types of households.

The available basic material is so comprehensive that it is possible to make separate calculations for several subgroups of wage and salary earners, and by using domicile and social status as criteria in this subgrouping the greater part of the variation in expenditure attributable to differences in these two respects will be eliminated. The following subdivision was used in the survey:

1. Higher public servants and salaried employees in the Capital.
2. Lower public servants and salaried employees in the Capital.
3. Skilled workers in the Capital.
4. Unskilled workers in the Capital.
5. Higher public servants and salaried employees in the Provincial towns.
6. Lower public servants and salaried employees in the Provincial towns.
7. Skilled workers in the Provincial towns.
8. Unskilled workers in the Provincial towns.
9. Lower public servants and salaried employees in the Rural districts.
10. Skilled workers in the Rural districts.
11. Unskilled workers in the Rural districts.
12. Farm workers in the Rural districts.

By a further subdivision into subgroups by e.g. the size and composition of households, the number of observations would be so small in many subgroups that in spite of the subgroups being more homogeneous it would not be possible to calculate the parameters with reasonable accuracy[3]).

The size of household may, however, be taken into account, if for all households v and η represent *income per person* and *expenditure per person*, respectively[4]). Differences in

[3]) This in fact is the same thing as to say that no criteria for further subdividing are of "significant" importance for the stability of the relations in question.

[4]) Cf. S. J. Prais and H. S. Houthakker (10) pp. 88–93.

type of household will probably still make themselves felt, but this influence can now, with good approximation, be considered as being of a random nature.

In a following part of this chapter the stochastic element of the model, will be taken up for discussion in greater detail (cf. p. 40), and the discussion at this point can therefore be finished with a few further remarks concerning the definition of η and v, the dependent and the independent variable of the Engel functions.

The dependent variable, η, the expenditure per person on a given commodity group, is defined as the value of the goods (and services) in this commodity group which the household has *bought* during the survey period; there is one important exception to this rule, viz. with regard to goods bought on the hire purchase system. In the case of these goods (particularly certain *durable goods,* furniture, radios, refrigerators and not least *own means of transport,* motor-cars, motor-cycles, etc.) η is defined as the amount *spent* by the household during the survey period in connection with the purchase of these goods, i.e., down-payment plus any instalments.

The independent variable, v, is defined as household disposable income per person, i.e., income earned less personal taxes paid.

The use of disposable income as the independent variable rather than total income is of varying importance for the different household types. An examination of all groups of wage and salary earners as regards the taxes paid as a percentage of total income in certain income groups, separately for 5 household types, showed that this percentage falls for a given total income with growing size of household (allowances for dependents and children).

For a given household type the tax percentage naturally increases with rising income owing to the taxation system.

These facts must be borne in mind when reading the discussion of the income-expenditure relationship in the following chapter.

Disposable income and total income are thus strongly correlated, but differences in household type, and income level and changes in income give rise to systematic deviations between the two income concepts.

In the present survey well-founded estimates of the incomes of the individual households in the survey period have been obtained by checking information on income with information on expenditure + savings, see chapter II; it was therefore decided to use this estimate of household income (less personal taxes paid) as the independent variable, cf. what has been said above concerning the importance of errors in the measurement of the independent variable (p. 27). In the corresponding British inquiry, household income could not be used as the independent variable because information about the size of this income had been collected only for part of the material; instead the sum of all recorded expenditures was used as the independent variable[5]).

In their arguments to justify this procedure, however, Prais and Houthakker tend to conclude that the sum of expenditures actually is a "better" independent variable than the income concept defined above because it enables them to arrive at more stable relationships:

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[5]) S. J. Prais and H. S. Houthakker, (10) p. 80.

"The true determinants of the expenditure pattern of a household in a dynamic situation are a complicated function of past, present and expected incomes, and though this function can analytically be formulated in a precise way it is of little help here. The success of an empirical analysis must depend on the choice of some simple, readily obtainable, measure which substantially represents the facts. ... The use of total expenditure as the determining variable in the Engel curve can be justified on the assumption that while total expenditure may depend in a complicated way on income expectations and the like, the distribution of expenditures among the various commodities depends only on the level of total expenditure"[6]).

A priori the greatest interest seems, however, to attach to an elucidation of the relationship between income and expenditure rather than the relationship between the sum of all expenditures and components of this sum (cf. the discussion of the uses of the Engel curve functions on page 22).

If in many cases the use of total expenditure as the independent variable leads to better goodness of fit than the use of income, an important reason, of course, is the difference in saving behaviour of the households. It is obvious that differences in saving behaviour "disturb" the functional relationship between income and expenditure, but this does not mean that income is a bad independent variable. It means that one should explain both saving and consumption in the same model.

Any satisfactory model illustrating the relationship between income, expenditures on the different commodity groups, and saving would naturally also have to take *income changes* into account. This has not been done in the present survey, and therefore the relationship between v and η will to a certain extent be less stable than if the available information on the influence of income changes had been utilized[7]). In Appendix D, which presents some of the basic material, information is given on saving as well as on income changes of households from 1953 to 1954 and from 1954 to 1955.

4. Zero-observations.

Three of the functions selected (IV,1), (IV,2) and (IV,5) namely the functions in which the dependent variable is the logarithmic transformation of expenditure, η, are only defined for $\eta > 0$. Therefore a problem arises if zero observations of η are found in the basic material (assuming that negative values cannot occur). The occurrence of zero observations not only creates a purely computational problem, but also raises the fundamental question of whether the functions selected can be used at all in the description of the observed relationship between income and expenditures on various commodity groups.

Assuming that zero observations occur with the same frequency in all income intervals, one may get a picture as shown in figure IV, 1.

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[6]) S. J. Prais and H. S. Houthakker, (10) p. 81.

[7]) Cf. *Opsparing i lønmodtagerhusstandene,* Det Statistiske Departement, København, 1960, p. 31, where it is shown that households with increasing incomes save significantly more than households with falling incomes.

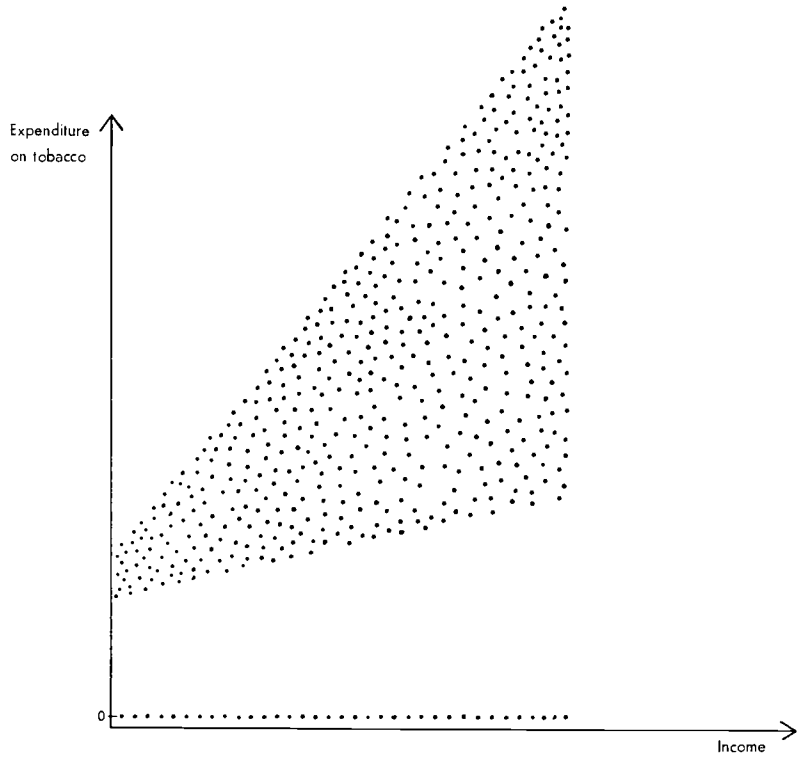

Fig. IV, 1. Two groups of Expenditures on tobacco.

Here it is evident that "true" zero observations exist and that it is therefore necessary to split the observation material into two groups before it is possible to give a satisfactory description of the relationship between v and η.

In one group, which contains all non-smokers (or rather all who do not *buy* tobacco) the function $\eta = 0$ applies and for the remainder group one can then try to use the functions selected.

However, it turned out that a hypothesis concerning the occurrence of "true" zero observations can only be confirmed in exceptional cases. For most commodity groups the occurrence of zero observations is limited to the lowest income intervals, and it is perhaps then permissible to assume that the zero observations may be due to random deviations from the true values. If this is the case, it will not be justified to split up the material; instead it is necessary to work out a computational technique which permits the occurrence of zero observations. Here several possibilities seem open.

Firstly, one can assign an arbitrarily low value to the zero observation households, e.g., as suggested by Prais and Houthakker[8]) $\eta = 0.25$ m, m being the unit of measure-

[8]) S. J. Prais and H. S. Houthakker (10) p. 50.

ment. Assuming that all observations of $\eta < 0.5$ have been recorded as 0, and assuming a rectangular distribution of these observations their mean value will then be 0.25 m. This method leads to biases in the estimates of the parameters; especially $\alpha \approx \overline{\log y}$ will be too big (compared with the corresponding uncorrected estimates in the other 3 Engel functions).

Even if, by means of suitable reductions of all $\eta > 0.5$, one might be able to avoid a systematic bias of the expenditure average, this method would nevertheless introduce a considerable element of arbitrariness into the calculation of the parameters of the functions and would therefore not be very satisfactory.

Another way out would be to try to estimate parameters direct from the functions, of which (IV, 1) and (IV, 2) have been formed by logarithmic transformation, i.e., in the functions

(IV, 1*) $$\eta = \alpha^* \nu^{\beta}$$

and

(IV, 2*) $$\eta = \alpha^* e^{\frac{\beta}{\nu}}$$

The parameters α^* and β can be estimated by an iterative process, where each stage of the iteration is a linear regression.

An examination of several examples showed that in the successive stages of iteration the estimates of α^* and β did not converge; the result of changes in one parameter seemed exactly to offset the result of the changes in the other parameter so that the results of the computations showed a continued oscillation. This method was therefore abandoned and instead it was decided not to use individual observations but to follow the method adopted in the British inquiry: to carry out the calculations on the basis of a grouped material. This, however, raises the problem of how to group the observations[9]).

5. Grouping problems.

In the grouping of the households the zero expenditure observations will in most cases be grouped together with positive η values, and the group averages will therefore, except in very few cases, be higher than zero.

In the present inquiry the observations have been grouped in the following way:

Within a given social group (see the list of social groups above p. 34) the households are arranged according to size of income per person. The households are then grouped in threes so that the one or two excess households (if the number of households is not divisible by three) are rejected "from the middle" of the income range as it must be considered valuable to fully utilize the relatively few observations at the outer limits of the field of observation. The values of ν and η which are accordingly included in the calculations are always the arithmetical average of the three household values observed

[9]) Cf. S. J. Prais and H. S. Houthakker (10) pp. 50–51, and concerning the computational consequences of grouping, pp. 59–62.

for each group. Hereby it is achieved that transformations into logarithms or reciprocal values can be confined to the group averages.

In the very few cases where a group value of η becomes equal to zero, it is rejected.

Also rejected are a few individual households where the expenditure on certain necessities (food and dwelling) was extraordinarily low, namely households with an observed expenditure on food of zero or households whose expenditure on food was below kr. 300 at the same time as their expenditure on dwelling was kr. 0. In the case of these households (most often households of single persons who receive board and lodging as part of their remuneration), there were so severe errors of measurement that their exclusion from the observation material was deemed unavoidable.

However, the material is also grouped in another way: the several hundred individual commodities and services are grouped into main commodities or commodity groups, so that only expenditure on these commodity groups are considered. Unlike the abovementioned grouping of the individual households, this grouping of commodities is indispensable, if an overall description of the expenditure pattern is aimed at. The problem in this connection is not, therefore, *whether* a grouping is to be undertaken, but *how* the material is to be grouped and *how far* this grouping is to be carried.

Here, there are several, more or less conflicting, points of view to be considered. A detailed classification of commodities will be desirable if the principal interest attaches to the marketing possibilities of the *individual commodity*. If the main interest—as in this analysis—attaches to an overall picture of the relationship between income and consumption expenditures, rather few groups should be considered. Another point has to be made; in order to arrive at a stable functional relationship between v and η it would be desirable to group the material into groups which are felt by the households to be "natural", i.e., that in spending their income the households think in terms of and actually distinguish among these categories of consumption expenditures. The breakdown into "natural" budget items which should contribute to stability in the consumption functions is, at the same time well in line with the aim of obtaining an overall description of the consumption behaviour. On the other hand, it must be borne in mind that this procedure may group together commodities with different income elasticities, although from other points of view a grouping which leads to a higher degree of homogeneity within the individual expenditure groups might be desirable.

In the present analysis the following grouping has been used:

1. Dwelling.
2. Fuel and lighting.
3. Food.
4. Tobacco.
5. Clothing.
6. Footwear.
7. Washing and cleaning.
8. Durable goods (excl. motor vehicles).
9. Personal hygiene.
10. Books, newspapers, etc.

11. Sports, holidays, hobbies, etc.
12. Transport (incl. motor vehicle).
13. Subscriptions, union fees, etc.

For all households together these groups comprise close to 90 per cent. of total consumption expenditures. The items which have been excluded are, *inter alia*, expenditures on education, domestic servants, gifts and charities. A detailed description of the 13 expenditure items will be found in the appendix.

IVc. Variance assumptions.

1. General remarks.

Now the actual calculation of the estimates of the parameters of the Engel curves is in sight. The alternative Engel functions have been set up; the dependent and the independent variables of these functions have been defined, and finally the problems relating to the grouping of commodities and households have been dealt with (whereby one also arrived at a workable procedure as regards the treatment of zero observations).

Before the calculation of parameter estimates of the Engel functions can be made it must be specified how the stochastic element enters. As mentioned above, the Engel functions which were chosen are of the form $\eta = f(\nu)$ where $f(\nu)$ is characterized by means of the parameters α and β (and further of $\varkappa$ for the log-normal distribution function); cf. p. 32 above. However, inserting in the model the actual income and expenditure observations x and y for ν and η, f(x) does not exhaustively describe a given household's expenditure on a given commodity group; each expenditure observation contains a stochastic element and it is necessary to specify the properties of this stochastic element, ε.

The simplest approach is to assume ε to be independent of x and normally distributed with mean value 0 and variance $V\{\varepsilon\} = \sigma^2 = V\{y|x\}$. If these assumptions are accepted, efficient estimates of the parameters of the five models will appear from a simple least-squares regression analysis[10]).

If, on the other hand, these simple assumptions are not fulfilled—and this they are not always in this analysis—then estimation of parameters carried out on these erroneous assumptions as to the distribution of the stochastic element will involve a loss in the efficiency of the parameter estimates; these estimates will accordingly have an unnecessarily high standard error. Moreover, an estimation on erroneous assumptions as regards the variance of the distribution of ε will make it difficult to apply the proposed tests for goodness of fit. If one accepts the—inefficient—parameter estimates obtained in this way, one may all the same be able to use the different tests for goodness of fit if certain corrections in the variance estimates are made[11]). Prais and Houthakker, in their analysis of the material of the British family budget surveys, have disregarded these complications and have everywhere estimated on the variance assumption mentioned above—also in cases where this assumption obviously does not hold good.

[10]) The homoscedastic case of J. Aitchison and J. A. C. Brown (1), p. 46 and S. J. Prais and H. S. Houthakker (10), p. 78.

[11]) Cf. S. J. Prais and H. S. Houthakker (10) p. 57 and p. 96.

However, it seems to be a more satisfactory alternative to try to specify the model in such a way that the least-squares regression estimator becomes the efficient estimator; thereby a correction to the testing procedure is, at the same time, avoided.

The efficient, least-squares regression estimate of the parameters will be achieved by weighting all y for given x values by the reciprocal value of their variance $V\{y \mid x\}$. Observations to which a high degree of variability attaches will then be included in the calculations with less weight than observations where $V\{y \mid x\}$ is small. If, therefore, we know the true value of $V\{y \mid x\}$ for all x, such a weighted calculation of the estimates will give the desired result. Now, this true value is unknown, and the problem then becomes to form suitable estimates of $V\{y \mid x\}$ for all x.

When plotting estimates of $V\{y \mid x\}$ against y^2 it was found in a number of cases that there seemed to be reason to assume that $V\{y \mid x\} = \sigma^2\eta^2$, i.e., that the variance of y for given x increases proportionally to the square of the dependent variable, cf. fig. IV,2.

If this assumption could be maintained, it would mean that the residual variance in the functions in which the logarithm of y is used as a dependent variable would become constant. This can be shown in the following way. The variance assumption $V\{y \mid x\} = \sigma^2\eta^2$ means that ε is included multiplicatively in the Engel function, i.e., that a given sample of expenditure observations can be described by a function of the form $y = f(x)(1 + \varepsilon)$. If, now, both sides of the equation are transformed logarithmi-

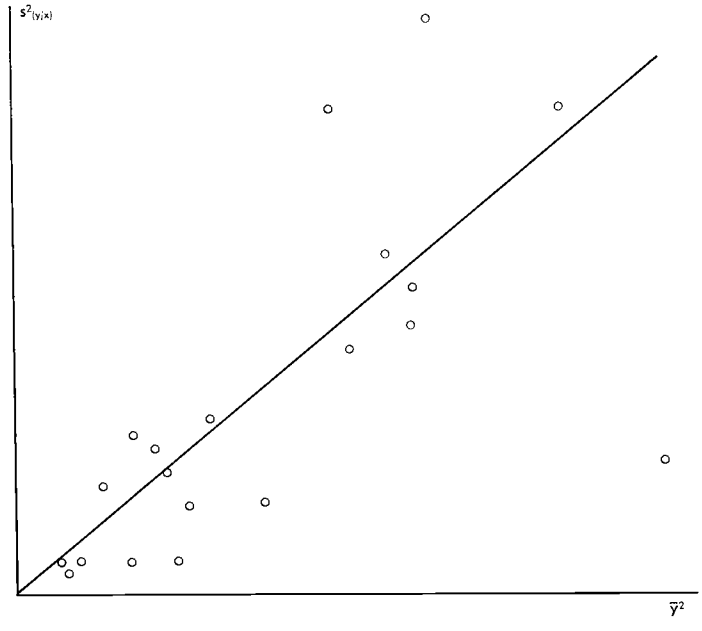

Fig. IV,2.—The variance of the expenditure on clothing (per person) within groups of ten households, arranged by the size of income per person, plotted against the square of this expenditure. Higher salaried employees and civil servants in provincial towns.

cally, the result will be a function of the form $\log y = \log f(x) + \log(1 + \varepsilon)$. The stochastic element of this quantity, $\log(1 + \varepsilon)$, will then be independent of y and x and the simple least squares regression estimator is efficient and unbiased. As will be shown later rather simple efficient and unbiased estimators can be devised for the remaining Engel functions in this case, too.

It is evident that this convenient property of the hypothesis concerning the distribution of the stochastic element will further increase the interest in having the hypothesis tested, and it was therefore decided to examine this problem in greater detail.

2. *Testing the hypotesis* $V\{y|x\} = \sigma^2 \eta^2$.

Assuming $V\{y|x\} = \sigma^2 \eta^2$, it follows that the coefficient of variation, γ, in the distribution of y for given x is constant since

$$\gamma^2 = \frac{V\{y|x\}}{\eta^2} = \sigma^2. \tag{IV, 6}$$

In other words, the hypothesis can be tested by means of a test for the constancy of the coefficient of variation. If a test for such constancy does not show significant results for too many expenditure items, it would seem justified to maintain the hypothesis.

As mentioned above, the observations have everywhere been grouped in threes. For each group an estimate, c, of γ has been calculated, the c-value for group number m being calculated by the formula

$$c_m = \frac{s_{y_m}}{\bar{y}_m}. \tag{IV, 7}$$

A test for the constancy of γ can be developed if one can construct a theoretical c-distribution derived from groups of three observations which are known beforehand to follow the variance hypothesis being tested and compare the observed c-values with this theoretical distribution.

In an article Hendricks[12]) has derived an approximation formula for the distribution of c, assuming y to be normally distributed and the number of observations per group = n.

Assuming n = 3, Hendricks formula can be developed into the following expression[13]

$$p\{c\}\,dc \simeq \frac{\frac{2}{3}c}{\sqrt{1 + \frac{2}{3}c^2}}\left(1 + \frac{3\eta^2}{\sigma^2(1 + \frac{2}{3}c^2)}\right)\exp\left\{-\frac{\eta^2 \cdot 3c^2}{\sigma^2(3 + 2c^2)}\right\}dc \tag{IV, 8}$$

and by integrating one obtains

$$P\{c\} \simeq 1 - \frac{\sqrt{3}}{\sqrt{3 + \frac{2}{3}c^2}}\exp\left\{-\frac{\eta^2 \cdot 3c^2}{\sigma^2(3 + 2c^2)}\right\} \tag{IV, 9}$$

$P\{c\}$ and $p\{c\}\,dc$ denote the cumulative distribution function and the distribution function respectively for c, η denote the mean value of y and σ^2 the mean value of s^2.

[12]) Hendricks (9), cf. also Mc. Kay (14).

[13]) Karl Vind, cand. polit., the Statistical Institute of the University of Copenhagen, has derived (IV, 8) and (IV, 9) and has taken part in the preparation of section IV, b, 2.

(IV, 8) and (IV, 9) are approximative, a good approximation depending on $\Phi\left(-\sqrt{3}\frac{\eta}{\sigma}\right)$ and $\Phi\left(-\frac{3\eta}{\sigma\sqrt{3+2c^2}}\right)$ being small, where Φ (u) denotes the cumulative normal distribution function. Not least the second of these assumptions is critical, since it implies that γ, i.e. the true c-value in a given expenditure group, must not be higher than about 0.5. For $\gamma = \frac{\sigma}{\xi} = 0.5$, Φ (u) will fluctuate around $\Phi\left(-\frac{6}{\sqrt{3+2\cdot0{,}5^2}}\right) \simeq$ 0.0006, where $u = \frac{3}{\gamma\sqrt{3+2c^2}}$. For $\gamma = 0.6$, Φ (u) will fluctuate around 0.005. For γ higher than 0.6, Φ (u) will grow steeply.

If now γ is assumed equal to the observed average of the c-values from all groups of three, the test hypothesis that the observed c- values are distributed around the true value as indicated by the distribution function (IV, 8) above can be tested. By grouping the observed c-values in suitable intervals and calculating the expected number in the same intervals according to the theoretical distribution function shown above (formula (IV, 8)), the hypothesis can be tested by means of a χ^2 – test.

Before starting these calculations it is necessary to ascertain whether the assumptions under which the distribution function (IV, 8) was derived can be considered fulfilled in the present case. As mentioned, the assumptions of formula (IV, 8) and (IV,9) implied that γ, the "true" value of c should not be higher than approx. 0.5. A glance at the observed average c-values, cf. table IV,2, page 45, will show that this assumption in several cases *cannot* be considered fulfilled. What then? Is the approximation in formula (IV, 8) above nevertheless satisfactory or must the attempt to test the hypothesis be abandoned in those cases where $\bar{c} > 0.5$? This problem has been investigated experimentally. By means of random sampling numbers were formed distributions of c-values with given γ and then it was tested whether the theoretical c-distribution (IV, 8) differs systematically from the experimental c-distributions.

In the present case c-distributions were constructed from 100 groups of normally distributed random sampling numbers each group consisting of three numbers. For each group an estimate of σ was calculated by means of two of the three numbers; the third one is then taken as an independent estimate of η. By choosing a suitable mean of the random sampling numbers a series of c-quantities with given γ was produced. In the present case c-distributions were formed with $\gamma = 0.25$, 0.33, 0.50, 0.67 and 1.0. These c-distributions with known γ-values were then compared with the distributions calculated on the basis of the theoretical distribution (IV, 9) to ascertain the degree of approximation.

It turned out that the distribution formulas (IV, 8) and (IV, 9) produced c-distributions which did not differ significantly from the empirically derived "true" c-distributions even for $\gamma = 0.67$. However, it should be mentioned that this result is based on only one series of 100 groups, so that it cannot without hesitation be considered generally valid.

When γ tends towards 1.0 (IV, 8) and (IV, 9) is clearly useless.

Table IV,2. Average coefficient of variation, separately for 13

	Income	Dwelling	Fuel & ight	Food	Tobacco	Clothing
The capital:						
Higher salaried employees.....	0.0100558	0.4118768	0.3580842	0.1916989	0.6973217	0.4142853
Lower salaried employees.....	0.0099754	0.4138525	0.5104255	0.2391395	0.8289576	0.4674581
Skilled workers.....	0.0105403	0.4640940	0.3941377	0.1949627	0.5843378	0.4060097
Unskilled workers.....	0.0118760	0.4802885	0.4158627	0.2140957	0.6281060	0.5241140
Provincial towns:						
Higher salaried employees.....	0.0229228	0.4123087	0.4247304	0.2288049	0.6666245	0.4061404
Lower salaried employees.....	0.0105639	0.4859840	0.5399429	0.2534217	0.7225977	0.4221963
Skilled workers.....	0.0148521	0.4074703	0.4089206	0.1767807	0.6510627	0.4185785
Unskilled workers.....	0.0115769	0.4168361	0.3582310	0.2310122	0.6795800	0.4349383
Rural districts:						
Lower salaried employees.....	0.0085254	0.5753355	0.5261609	0.3213999	0.7005913	0.5041757
Skilled workees.....	0.0149660	0.4184816	0.3557065	0.1971511	0.6123814	0.4990967
Unskilled workers.....	0.0086862	0.4513609	0.3595431	0.2094953	0.6084371	0.4006761
Agricultural workers.....	0.0138114	0.5993484	0.3452973	0.2153365	0.6443781	0.4770866

The validity of the theoretical c-distribution formula for practically all items having thus been substantiated, the χ^2-test for the postulated variance assumption can now be carried out in the way mentioned above. These test calculations were carried out for all expenditure items separately for each of the 12 social groups into which the materail has been divided.

Table (IV,3) shows the result of these calculations. The table indicates the calculated χ^2-values; in brackets after each χ^2-value has been given the number of degrees of freedom. All values which are outside the interval

$$\chi^2_{.025} < \chi^2 < \chi^2_{.975}$$

have been italicized. It will be seen that most of χ^2-values fall within this interval, but the table shows that the items of durable goods and transport display many significant χ^2-values, which seems to indicate that the c-values for these items cannot be considered distributed at random with a constant true value.

Also among the other expenditure items are there some significant χ^2-values (tobacco, sports, holidays and hobbies), especially in the group of lower salaried employees.

In this group special factors make themselves felt as regards the distribution by household type which causes a higher variation in the amounts of expenditure on the various commodity groups. The many households consisting of single, often relatively young, employees, have in many cases special arrangements as regards their consumption of food and dwelling, and this again leads to an anomalous behaviour as regards their expenditure on other items.

expenditure items within each of 12 groups of wage and salary earners.

Footwear	Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.4112018	0.4458214	0.7144320	0.3626326	0.4883780	0.4814214	0.7731124	0.3964075
0.4372635	0.4506974	0.8814987	0.3819749	0.5080054	0.5579195	0.6946542	0.4351082
0.3462304	0.4120135	0.7127083	0.3624174	0.4516408	0.4951017	0.7926875	0.3205971
0.4440553	0.4946532	0.8143076	0.4150490	0.5411231	0.6219904	0.8325174	0.4192661
0.3602831	0.4769174	0.8262957	0.3476057	0.5117822	0.5397854	0.9513031	0.2363746
0.4233208	0.5308037	0.8837792	0.3897127	0.5188425	0.5658513	0.8252526	0.3484479
0.3699763	0.4177406	0.7241689	0.3894987	0.4751481	0.5430097	0.8953278	0.3066853
0.3959437	0.4723487	0.8089104	0.3510550	0.4778457	0.5694717	0.8622860	0.3109550
0.4252238	0.5500041	0.8916780	0.4078307	0.5945628	0.6114558	0.9503679	0.3585170
0.4358140	0.4724081	0.7867449	0.3860195	0.4983964	0.6142276	0.8669539	0.3510981
0.4227025	0.4618598	0.7643399	0.3981474	0.5260356	0.631437	0.8663685	0.2987965
0.4169857	0.4591317	0.7869866	0.3807334	0.5176211	0.6789559	0.7583866	0.4023374

As mentioned above, page 39, it was deemed necessary, before starting the main computation programme, to reject the households in which the expenditures on food and dwelling were near zero. 29 households out of a total of 39 households rejected belonged to the group of "lower employees and public servants", and of these 29 households, 25 belonged to the above-mentioned household type of one person. The χ^2-values in the table were calculated before the 39 households were rejected.

IVd. Calculation of Estimates of Parameters.

1. Four linear functions.

Maximum-likelihood estimates of the parameters of the four linear relations can now be calculated in a simple manner, assuming that the above-mentioned variance assumptions are valid. As regards the type of function $\log y = f(x) + \varepsilon$, in which $V\{y|x\}$ is assumed constant, maximum—likelihood estimates of the parameters can be obtained by means of a simple, unweighted least squares estimation[14]). For the other type of function $y = f(x)\ (1 + \varepsilon)$ the maximum-likelihood estimate can be obtained by means of an iterative calculation. As mentioned above page 41, it is a prerequisite for obtaining the efficient estimate of the parameters that the observations (x, y) should be weighted by the reciprocal value of the variance $V\{y|x\}$.

[14]) Cf., e.g., A. Hald, (8) § 18,3, p. 528.

Table IV,3. χ^2-test for constancy

Groups of wage and salary earners	Expenditure				
	Dwelling	Fuel & light	Food	Tobacco	Clothing
The capital:					
Higher salaried employees	5,5 (6)	2.4 (5)	3.7 (2)	*20.2* (10)	6.9 (6)
Lower salaried employees	10.2 (7)	*17.6* (9)	7.6 (3)	*74.3* (12)	14.8 (9)
Skilled workers	6.2 (6)	9.4 (4)	3.4 (2)	11.5 (7)	9.1 (4)
Unskilled workers	5.0 (6)	*13.7* (5)	2.8 (2)	8.3 (8)	3.8 (7)
Provincial towns:					
Higher salaried employees	5.0 (4)	2.9 (4)	1.4 (2)	*20.6* (8)	7.2 (4)
Lower salaried employees	13.9 (7)	*16.2* (8)	*18.4* (3)	*41.9* (10)	3.9 (6)
Skilled workers	2.8 (3)	0.4 (3)	1.5 (1)	8.3 (5)	4.1 (4)
Unskilled workers	5.3 (4)	5.4 (5)	*6.0* (2)	*24.3* (8)	4.3 (5)
Rural districts:					
Lower salaried employees	*20.8* (9)	*28.3* (7)	*45.3* (5)	*30.7* (10)	*27.9* (7)
Skilled workers	*10.9* (4)	3.4 (3)	2.2 (2)	*13.3* (6)	*12.1* (5)
Unskilled workers	1.8 (6)	5.1 (5)	1.2 (2)	*25.2* (9)	4.4 (6)
Agricultural workers	9.9 (6)	7.1 (3)	*6.2* (2)	*13.6* (6)	5.0 (5)

Significant values are italized. Figures in brackets are degrees of freedom.

As it is now assumed that $V\{y \mid x\} = \sigma^2 \cdot \eta^2 \cong \sigma^2 \cdot [f(x)]^2$ this will mean that the weight is $\frac{1}{\sigma^2 [f(x)]^2}$ or since σ^2 is constant, simply $w = \frac{1}{[f(x)]^2}$

Now, however, this weight depends on the parameters which are to be estimated and therefore it is necessary to proceed step by step by means of an iterative process. The initial values for the parameters α and β are calculated by a simple, unweighted regression (which yields unbiased, but not efficient estimates) and on this basis the values of f (x) and thus of w for the first stage of the iteration are calculated; thereafter these values of w are used at the next stage of the iteration, which consists in a weighted regression analysis[15]). This stage gives new estimates of α and β, which are used to compute new values for f (x) and thus for w, which again are used in the next stage, etc. The iteration process is carried on until the changes in the estimates a and b of α and β become sufficiently small (in terms of s_a and s_b), a situation which will often occur very quickly since the calculated initial values are not very far off the mark.

2. The log-normal distribution function.

The computational procedure adopted in deriving the maximum-likelihood estimates for the three parameters α, β and $\varkappa$ of the function $\eta = \varkappa \Phi (\alpha + \beta \log v)$ has been dealt

[15]) Cf. A. Hald, (8) § 18,6, p. 552.

of coefficients of variation.

groups

Footwear	Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscription etc.
8.7 (6)	*23.6* (7)	*34.5* (10)	8.7 (6)	9.9 (7)	10.9 (7)	*55.8* (10)	*14,4* (6)
18.1 (8)	15.2 (8)	*100.0* (11)	*14.2* (6)	*23.0* (9)	*44.9* (11)	*23.5* (11)	*20.9* (8)
6.6 (5)	8.9 (4)	*20.1* (8)	8.4 (5)	2.3 (5)	12.5 (6)	7.8 (7)	0,7 (4)
8.8 (5)	8.3 (6)	*40.5* (10)	4.2 (5)	8.7 (7)	11.3 (8)	*40.7* (10)	*15.7* (5)
7.0 (5)	10.9 (6)	*34.7* (8)	5.8 (5)	4.0 (6)	*16.5* (6)	*17.2* (7)	5.2 (4)
11.8 (6)	7.1 (8)	*52.7* (11)	7.6 (6)	10.5 (7)	*32.8* (9)	*53.7* (11)	*13.9* (5)
0.9 (3)	2.2 (4)	*14.7* (5)	6.3 (3)	5.8 (5)	5.3 (5)	*24.8* (5)	5.1 (3)
4.1 (4)	7.5 (5)	*35.5* (8)	5.0 (5)	12.4 (6)	*24.7* (6)	*52.9* (8)	5.7 (4)
16.0 (6)	*16.5* (8)	*57.5* (11)	9.2 (6)	27.4 (9)	*37.5* (9)	*84.3* (11)	7.9 (5)
2.3 (4)	*14.1* (5)	*15.5* (5)	4.2 (3)	5.9 (5)	*30.3* (6)	*26.0* (5)	2.3 (3)
6.1 (4)	1.9 (6)	*44.0* (10)	3.8 (6)	12.5 (7)	*48.2* (9)	*59.3* (10)	9.5 (3)
4.1 (4)	4.9 (5)	*15.9* (5)	4.7 (3)	4.5 (5)	*21.9* (6)	*15.6* (6)	3.6 (4)

with by Aitchison and Brown[16]). Inserting for η and v the observations y and x and assuming also in this case that $V\{y|x\} = \sigma^2 \eta^2$ the function can be logarithmically transformed into the computionally more convenient form

(IV, 10) $$\log y = \log \varkappa + \log \Phi (\alpha + \beta \log x) + \varepsilon.$$

Also here the calculations must be carried out by means of iteration, but in this case, unlike that of functions (3) and (4), it is difficult to achieve convergence as it is not possible to find good initial values for the three parameters in any simple way. Aitchison and Brown suggest that one should guess at an initial value for $\varkappa$, k_0 say. By plotting $\frac{y}{k_0}$ against log x on probability paper one should obtain a straight line ($\Phi (\alpha + \beta \log x)$ representing the cumulated log-normal distribution). If the value for k_0 has been fixed wrongly the curve depicted will not be a straight line, and new k_0 values should then be guessed until according to a graphical inspection the curve in the diagram seems to be a straight line. Initial values of α and β are then read from the diagram, after which the iteration can be commenced. As the computations include estimation of parameters separately for 12 social groups and 13 expenditure items, the work in connection with this graphic "targeting" would become of quite considerable dimensions; moreover, examples which have been worked out seem to show that the shape of the curve on probability paper was almost unaffected by large variations of k_0 The variances of these estimates

[16]) Cf. J. Aitchison and J. A. C. Brown, (1) p. 82.

of initial parameter values are thus very big and it was therefore deemed desirable to work out a method of estimation by which the initial values could be computed mechanically.

As initial value for k war chosen y_{max} = the highest average value observed for y in the groups of three households into which the basic material had been grouped.

Then initial values for α and β were calculated by linear regression since (IV, 5) implies that $u = \alpha + \beta \log x$, where $\Phi(u) = \frac{y}{\varkappa}$.

As a result of the method of calculation adopted the whole computation programme for function (IV, 5) became "automatic". Naturally, there was no guarantee that the iteration would always converge; there was no possibility of ensuring in advance that the initial parameter estimates a_0, b_0 and k_0 would fall within the region of convergence[17]). It turned out in fact that in some cases (19 out of 156) the iteration process diverged. As will be shown later in this chapter it also turned out that a fixed value of the parameter β had to be chosen to ensure workability of the estimation procedure.

All estimates of the parameters have been shown in appendix A; extracts of the results are shown and commented upon in chapter V.

IVe. Tests for Goodness of Fit.

1. The tests used.

One of the purposes of the present analysis was, as already mentioned, to find that one of the chosen relations which according to the available observations would show—for each expenditure item—the best goodness of fit. On the basis of such an investigation it would be possible to conclude that among the five given types of Engel curves, one type gives the best fit if we consider the i'th expenditure item; in the case of the j'th expenditure item it may be another function type which gives the best fit, and so on. To be able to draw such a conclusion one must test the goodness of fit of the five functions. These tests consist in various comparisons of the calculated function values, f (x), with the observed values of household expenditures y. The function which passes most of these tests can then be said to give the best description of the relationship between v and η from the point of view of the available observations x and y.

In the present analysis the following tests have been used in evaluating the chosen functions:

1) Test for number of runs above and below the curve and test for length of run.
2) Durbin and Watson's d-test[18]).
3) F-test for the ratio between the variance in the distribution of deviations from the curve and the variance within groups,
4) χ^2-test for normality of residuals.

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[17]) Cf. J. Aitchison and J. A. C. Brown (1) p. 75.
[18]) Cf. Durbin and Watson: (4).

Moreover, the coefficient of correlation, R, between observed and calculated expenditures was computed to give a rough indication of closeness of fit; it should also be mentioned that the estimate of the standard deviation, s_b, of the parameter estimate b makes it possible by means of a t-test to test in a simple manner the hypothesis $\beta = 0$ against the alternative hypothesis $\beta \neq 0$.

In the following a brief description of the various tests will be given.

2. *Test for number of runs and for length of run and the d-test.*

If a given function expresses the true relationship between v and η the observed deviations from this relationship shown by the observations x and y are of a purely random nature. In that case the number of runs of residuals with the same sign, runs below and above the curve, will follow a distribution [19]) which is approximately normal when both the number of positive residuals, P, and that of negative residuals, Q, exceed 10, and in which mean value and standard deviation depend solely on the number of observations. Given the number of observations, therefore, significance limits for runs above and below the curve can be estimated. Similarly, limits of significance can be derived for the longest run [20]). If the upper limit of significance is exceeded by the test for the number of runs (which is analogous with the lower limit of significance being exceeded by the test for the longest run), this means that the residuals change signs "too often"; this may be caused by a negative correlation between two successive observations. Since such a hypothesis is not relevant for the present survey, moderate transgressions of the upper limit of significance are not considered important. On the other hand, transgressions of the lower limit of significance (or for the second test, the occurrence of too long a run) must be considered more important because this may mean that the calculated curve deviates systematically from the observations over greater or smaller parts of the range of variation.

These tests give the same result whether the residuals in question are large or small; the tests respond only to their signs. Durbin and Watson's[21]) d-test has been designed so as to cover both the sign and the size of the residuals. The test is based on the quantity d, which is defined as $d = \sum_k (t_k - t_{k-1})^2 / \Sigma t_k^2$, where $t_k = y_k - f(x_k)$. A high d-value means frequent changes of signs, and the transgression of the upper limit of significance is thus evidence in favour of a hypothesis of negative correlation between successive observations, a hypothesis which, as already mentioned, is not considered relevant in this case. A low d-value, on the other hand, indicates too few changes of signs, and the transgression of the lower limit of significance will therefore tend to substantiate that the model in question does not express the true functional relationship but deviates systematically from it. The limit of significance is given as a zone; d-values above and below that zone give clear evidence, whereas d-values within the zone do not allow of any universal conclusion.

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[19]) Cf. A. Hald (8), p. 346 and Prais and Houthakker (10), p. 53.
[20]) Cf. A. Hald (8), table 13.5, p. 348.
[21]) Durbin and Watson (4).

The tests for runs and the d-test will, of course, point in the same direction since they aim at the same alternative hypothesis.

3. The F-test.

The F-test which compares the variance in the distribution of the residuals, $y - f(x)$, y being the average in the groups of three observations, with the average variance within the groups, is suitable as a test of different alternative hypotheses although in this case, too, only one limit of significance (the upper one) is relevant.

The test hypothesis is here again that the chosen model $\eta = f(\nu)$ expresses the true relationship between y and x and that the residuals, $y - f(x)$, are everywhere distributed with mean value 0 and variance $\sigma^2 = V\{y|x\}$. If the test hypothesis is correct, the estimate, s_2^2, of the variance of the residuals will have the same true value as the estimate, s_1^2, of the variance within groups, and the ratio between the two variances $F = \frac{s_2^2}{s_1^2}$ will follow a F-distribution.

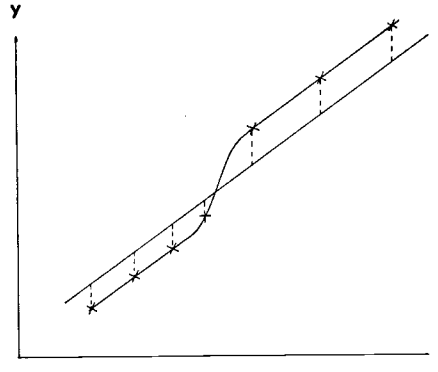

Figure IV, 3a. Type of systematic deviations which will be revealed by the run tests, and may be not by other tests.

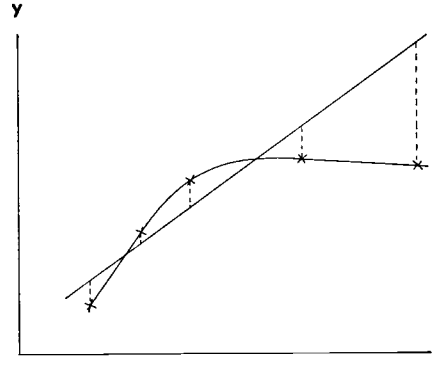

Figure IV, 3b. Type of systematic deviations which will be revealed by the F-test, but may be not by the run tests.

Significant F-values can now be cited in support of several alternative hypotheses. Firstly, the occurrence of the type of systematic deviations which is tested directly through run tests and the d-test will also manifest itself in significant F-values. However, the two types of tests do not measure the deviations from the hypothesis in the same way; confer the example below[22]). The run tests may reveal a systematic tendency in the deviations of the observations from the curve—even if the individual deviations are very small as illustrated in figure IV,3a, where the true "relationship" has been plotted together with the chosen function. It is not certain that the F-test will be able to reveal such small systematic deviations. Conversely, it is possible that the run tests will not reveal the type of deviation between the observations and the chosen function which has been illustrated in figure IV,3b, whereas it is likely that this pattern of deviations will lead to significant results of the F-test.

However, if it is assumed that this type of alternative hypothesis is not relevant, significant F-values can, secondly, substantiate hypotheses which say something of the distribution of the stochastic element, ε. If the hypothesis of constant residual variance cannot be upheld then the ratio between s_2^2, and s_1^2 will not follow a F-distribution, and significant F-values can then be taken as an expression of the fact that the assumptions of applying this test have not been fulfilled.

It is obvious that the F-test cannot be used without qualification in the case of the function types with untransformed expenditure, y, as dependent variable since it appeared from the analysis made that $V\{y|x\}$ was not constant; in that case this variance was expressed as a simple function of the level of expenditure namely $V\{y|x\} = \sigma^2 \cdot \eta^2 \simeq \sigma^2 [f(x)]^2$.

In estimating the parameters this variance assumption was taken into account, and it is therefore necessary to do the same thing here so that in the calculation of s_2^2 and s_1^2 the observations are weighted by their reciprocal variance, i.e., the same weight as was used in the parameter estimation $w = \frac{1}{[f(x)]^2}$[23]).

Thus significantly high F-values may be taken to indicate that the chosen variance assumption $V\{y|x\} = \sigma^2 \cdot \eta^2$ has not been correct, but even then, there remains the alternative hypothesis that the chosen function deviates systematically from the "true" one, the hypothesis shown in figure IV, 3b.

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[22]) Cf. S. J. Prais and H. S. Houthakker (10) p. 52.

[23]) As regards the actual calculation of s_2^2 and s_1^2 it should be mentioned that whereas s_2^2 can naturally always be taken direct from the regression analysis, the matter is a little more difficult as regards the estimation of σ_1^2. The estimate s_1^2 cannot be calculated direct in those cases where log y is the dependent variable as a number of individual observations are zero. However, it holds good, with good approximation, that $s_1^2 = s_{1(\log y)}^2 \simeq M^2 . \overline{c^2}$ where $\overline{c^2}$ is the average square of coefficient of variation in the distribution of y-values and $M = 0.4343$. The approximation is satisfactory if $\overline{c} < 0.3$, which is not always the case in our material.

In cases where the untransformed y-values appear as dependent variable it would be possible to form estimates of the inner variance s_1^2 direct on the basis of individual observations. But this does not become necessary since we have an estimate of the coefficient of variation which is also an estimate of σ_1^2 cp. (IV, 6).

4. The χ^2-test.

To test the hypothesis that the residuals are normally distributed the χ^2-test has been used. The observed deviations are grouped, and by comparing this grouped distribution of deviations with a normal distribution with the same mean value (0) and variance is it possible to calculate a χ^2-quantity[24]). Also in this case it will, of course, be necessary to insert the variance assumption used in the parameter estimation. Significantly high χ^2-values support the alternative hypothesis that the deviations of the observations from the function are not normally distributed. Assuming that the tests referred to above have given insignificant results, it has, prior to the χ^2-test, been possible to substantiate the following hypothesis: The relationship suggested by the observations does not deviate systematically from the proposed functional relationship (test for number of runs and size of longest run, d-test and F-test), and the deviations of the observations from this function have everywhere a variance which is of the same magnitude as the variance within groups (F-test). A significant χ^2-value will then indicate that the residuals are not normally distributed.

This alternative hypothesis can be further specified in the present case. For if it is true—as the test calculations seem to show—that the residuals are normally distributed in the case of the functions where the dependent variable is a logarithmic transformation of the expenditure, then the deviations from the function in the cases where the dependent variable is the untransformed value of expenditure will be log-normally distributed. And this is true even if one uses the weighted calculation method in the parameter estimation. Use of weights in the calculation influences the magnitude of the residuals, but not the *form* of their distribution. One can therefore—with good support in the other results of the test calculations—advance the assertion that significant χ^2-values support the alternative hypothesis that the residuals are log-normally distributed[25]).

5. The coefficient of correlation.

A comparison of the calculated values of the coefficient of correlation for the different functions gives an impression of which of the five functions has the closest fit for each expenditure item in each group of wage and salary earners. However, such a direct comparison will only be possible if the residuals are at the same level, i.e., if the variance assumption used in the parameter estimation, $V\{y|x\} = \sigma^2 [f(x)]^2$, is also used here as a basis for assigning weights. In the following chapter the results of this calculation as well as of all the test calculations referred to above will be shown.

IV. f. Planning the Computation Programme and Carrying Out The Computations.

After specifying the five functional relationships and the procedure to be used in their estimation the practical part of the analysis can be started. This part comprises working out a detailed computation programme and the corresponding code for feeding it

[24]) Chapter V, p. 60.
[25]) Chapter V, p. 64.

into DASK[26]) and (at length) computation and printing of parameter estimates and their standard errors and of test results—according to the tests referred to above.

It will be understood from what has been mentioned above that the computation programme is rather comprehensive. For each of the twelve groups of wage and salary earners into which the basic material has been divided, parameter estimates and their standard errors are to be calculated separately for five Engel functions for a total of 13 expenditure items. This gives a total of $12 \times 5 \times 13 = 780$ sets of calculations; the same number of tests have to be made. Coding the programme, therefore, was bound to require a great amount of work, and the fact that part of the computation programme (especially the part concerning the log-normal distribution and the regression analysis with the above-mentioned special variance assumptions and some of the test calculations) had not previously been performed on the DASK rendered the coding even more difficult.

In planning the computation programme it was, of course, necessary to consider how the individual operations were to be performed on the DASK, so that the computation programme could as far as possible be adapted to the capacity of that electronic computer. During the greater part of the analysis a very useful contact was established with the division concerned at the Danish Institute of Computing Machinery.

In the present investigation it had been attempted to guard against "unforeseen" difficulties by working out in advance, at the consumer survey section of The Statistical Departement, examples of all the computing operations which were to be performed according to the computation programme.

In the course of this preliminary work several sources of error were traced, and several corrections had to be made in the computation programme and in the input tape—but nevertheless the performance of the computation programme on the DASK presented several unpleasant surprises, two of which deserve to be mentioned because they seem to be of a certain theoretical interest.

The code for the computation programme was made so flexible that the computation process could be stopped at all "vital" points and any necessary corrections be made without re-running the whole programme. As a control measure which could be expected to be very effective an inspection was introduced after all computations had been run for the first of the twelve groups of wage and salary earners. Hereby it was expected that the weak spots which might have excaped the attention during the calculations of the examples mentioned above would be revealed.

This inspection of the results of the computations for the first group of wage and salary earners showed that as regards function type (IV, 5) $\log \eta = \log \varkappa + \log \Phi (\alpha + \beta \log \nu)$ the computation programme did not work in five cases out of the thirteen expenditure items comprised by the programme because the iterative process for the calculation of estimates of $\varkappa$, α and β did not converge[27]). This made essential changes in the programme necessary, see below. For the other four functions the programme performance seemed fully satisfactory. Thanks to the flexibility of the code worked out for the computation programme the computations could be continued for these four functions, where the

[26]) i. e. DAnsk Sekvens Kalkulator.

[27]) Cf. J. Aitchison and J. A. C. Brown (1) p. 82, and above p. 47.

results for the first group of wage and salary earners had been found satisfactory, while the corrections to the programme for the fifth function type were considered. But in the course of the continued run of the accepted programme for the four linear functions it proved impossible in several cases as regards, functions (IV, 3) and (IV, 4), to obtain convergence in the estimation of the parameters.

The reason for the lack of convergence in the case of function (IV, 5), must be found in the fact that the variance $V\{y|x\}$ in the distribution of the observed expenditure values is so big that the functional relationship between x and y can be satisfactorily described by means of two parameters. Or in other words: With the given variance in the distribution of the observations one of the three parameters can be selected arbitrarily within a wide interval, and the other two parameters can be estimated conditioned by this arbitrarily selected parameter value without this causing any appreciable rise in the unexplained variance of y. The iterative procedure for determining the three parameter estimates becomes highly unstable, and in several cases convergence will consequently not be obtained. And equally regrettable: in the cases where the iteration process did converge the standard deviations of the parameter estimates were so great that the estimates had to be considered almost useless, cf. table IV,4, which shows the result of the computations for eight expenditure items in the group of higher public servants and salaried employees in the capital.

The table emphatically demonstrates that the results obtained are not very useful; the standard deviation of the estimates, apart from the food item, are of the same order as the estimates themselves.

The "solution" chosen to this problem consisted in arbitrarily fixing in advance a convenient value of the parameter β, namely unity; it should be added that unity does not significantly deviate from any of the calculated β-values in the three-parameter calculation, cf. table IV,4. This solution was also chosen by Aitchison and Brown in their analysis of British household budgets[28]). However, it does not appear from their report whether they had previously experienced just as disappointing results in the three parameter estimation as was the case in the present analysis.

The reason for the cases of lacking convergence which occurred in the iterative calculation of parameter estimates in functions

(IV, 3) $$\eta = \alpha + \beta\,(\log v - \overline{\log v})$$

and

(IV, 4) $$\eta = \alpha + \beta\left(\frac{1}{v} - \frac{\overline{1}}{v}\right)$$

was to be found in an unfortunate property of the estimation procedure adopted. As mentioned above, p. 44, it was found that it applied to the functions in which the untransformed value y was the dependent variable that $V\{y|x\} = \sigma^2 \cdot \eta^2$ for which reason it was decided to carry through the regression analysis with $\frac{1}{[f(x)]^2}$ as weights; the test calculations were carried through in accordance with the same principle in order to

[28]) Cf. J. Aitchison and J. A. C. Brown (1) p. 130.

Table IV,4. Parameter estimates in the three-parameter case of the function $\log \eta = \log \varkappa + \log [\Phi (\alpha + \beta \log \nu)]$. Higher public servants and salaried employees in the Capital.

Expenditure item	k	s_k	a	s_a	b	s_b
Dwelling			convergence not obtained			
Fuel and light	7600	63000	−4.796	1.1	0.793	1.4
Food	2900	950	−6.192	2.0	1.62	0.64
Tobacco	6700	820	−7.517	5.3	1.87	1.7
Clothing	3200	5600	−6.431	2.6	1.44	1.0
Foot wear	230	220	−5.084	4.8	1.34	1.6
Washing and cleaning	380	320	−7.414	3.3	1.84	1.1
Durables			convergence not obtained			
Personal hygiene	1500	4800	−5.460	2.2	1.10	1.1
Books, newspapers etc.			convergence not obtained			
Sports, holidays, hobbies	13000	30000	−7.834	2.3	1.63	0.93
Transport (incl. own car)			convergence not obtained			
Union fees, subscriptions etc.	660	2100	−4.861	3.0	1.03	1.4

obtain everywhere as efficient estimators as practically possible. If, however f (x) assumes very low values, in the extreme case zero, the weight factor for the value or values in question will completely dominate the calculation, and the iteration process, which was mentioned on p. 46, will become quite unstable. If the initial parameter estimates or one of the subsequent estimates in the iteration process results in such low values of f (x), there will be a risk that the iteration will stop. The reason why the group of wage and salary earners which was computed first, viz. higher public servants and salaried employees, passed through without any stop as the only one of all the groups, is that the x-values in this group are rather large so that no f (x) values came close to zero.

The correction which was made in the computation programme to enable calculations of parameter estimates to be made in the 41 cases (out of a total of 143) in the other 11 groups of wage and salary earners in which the iteration process did not converge consisted in rejecting the special variance assumption and estimating on the assumption of constant variance, i.e. applying the estimation procedure from the function types in which the logarithmically transformed expenditure, log y, is the dependent variable. The parameter values and test values thus estimated are not efficient, but this estimation procedure were preferred rather than rejecting observations or omitting estimation[29]).

[29]) As mentioned p. 40, Prais and Houthakker, in their analysis, have everywhere used this estimation procedure.

Chapter V.

MAIN RESULTS.

Va. Introductory remarks.

In this chapter some of the main results of the Engel curve analysis will be discussed. In the next chapter some results of certain further calculations will be put forward, but as already mentioned the main object of this inquiry has been the Engel curve analysis.

In the appendix is shown, separately for each of the twelve groups of wage and salary earners, parameter estimates and test results for five Engel functions (I,1) to (I,5) of the thirteen expenditure items.

However, it may perhaps be natural to try to boil down the somewhat overwhelming abundance of figures in these tables.[1]) How can the result of the analysis be summed up?

In doing so the point of departure will be taken in the description of the object of the analysis which was given in chapter IV, p. 31, where the object was characterized by the following two steps:

1) calculation of parameter estimates in the selected models and

2) testing these models by various tests for goodness of fit.

It will first be examined whether the tests for goodness of fit point in the same direction or, in other words, whether it is possible to classify the selected Engel functions on this basis. Then follows an interpretation of the calculated parameter values.

The following tests were used (cf. p. 48 above):

1) The coefficient of correlation between calculated and observed values (no proper test, but the size of the coefficient of correlation can be taken as a measure of the "closeness of fit" of the relations proposed.[2])

2) Test for number of runs.

3) Test for longest run (where a run is defined as a series of positive or negative deviations between calculated and observed values).

4) The d-test, in which both the signs and the numerical values of the deviations enter.

5) The F-test, the ratio of the variance within groups and the variance of the residuals.

6) The χ^2-test for the normality of the distribution of the residuals.

The proper tests fall into three categories. 1°. The χ^2-test is concerned with the form of the distribution of the deviations between the calculated and the observed values, the test hypothesis being that these deviations are normally distributed. 2°. The variance-

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[1]) More specifically 5 (models) × 12 (groups of wage and salary earners) × 13 (expenditure items) = 780 less 19 cases in which the estimation procedure failed (model (I,5)) = 761 sets of parameter estimates and corresponding test results.

[2]) Cf. Prais & Houthakker, (10), p. 95.

ratio test, the F-test, compares the deviations of the observed group averages from the calculated function values with the variation within the groups. The test hypothesis is that the corresponding variances are equal, and a significant F-value is interpreted as an indication that the calculated Engel function deviates systematically from the "true" Engel curve. 3°. The tests for number of runs and length of runs and the d-test, measure systematic tendencies in the signs of the deviations. The test hypothesis states that there is no such systematic tendency, and that the signs of successive deviations change at random. In the following the result of these tests will be examined separately for each test.

However, it may be disclosed already here that the double-logarithmic function clearly stands out as the one of the five selected functions which gives the best fit for almost all expenditure items. A considerable part of the following interpretation of the results will therefore be based on the estimated parameters of this function.

Vb. Examination of test results.

1. Coefficient of correlation, R, between calculated and observed values.

Table V,1 shows the calculated coefficients of correlation between the observed and calculated expenditures.

The R-values have been calculated by one of the following formulae:

$$(V,1) \qquad R_1 = \frac{\sum_j^N (\log y_j - \overline{\log y})\,(\log Y_j - \overline{\log Y})}{\sqrt{\sum_j^N (\log y_j - \overline{\log y})^2 \cdot \sum_j^N (\log Y_j - \overline{\log Y})^2}}$$

$$(V,2) \qquad R_2 = \frac{\sum_j^N (y_j - \bar{y})\,(Y_j - \bar{Y})\,w_j}{\sqrt{\sum_j^N (y_j - \bar{y})^2 w_j \cdot \sum_j^N (Y_j - \bar{Y})^2 w_j}}$$

where N is the number of groups of three observations in the given social group, $Y_j = f(x_j)$ for the models with untransformed dependent variable and $\log Y_j = f(x_j)$ for the models with logarithmically transformed dependent variable; $w_j = \frac{1}{[f(x_j)]^2}$.

Formula (V,1) was used in the case of the Engel functions in which log y is the dependent variable and formula (V,2) in the case of the other functions, in which the untransformed y values appear as dependent variables.[3])

[3]) For estimation purposes the function $\eta = \varkappa\Phi\,(\alpha + \beta \log \nu)$ was logarithmically transformed into the form $\log \eta = \log \varkappa + \log \Phi\,(\alpha + \beta \log \nu)$ and all test calculations, accordingly, were based on the deviations of logarithmically transformed expenditures. The R-values in table V,1, however are based on formula (V,2).

Table V,1. Correlation coefficients (R × 100)

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	79	81	79	80	83	80	81	68	77	81	80	70
Fuel & light	76	49	57	34	69	51	36	60	57	45	76	78
Food	82	84	94	91	89	88	86	89	85	92	94	88
Tobacco	53	51	72	72	57	60	73	80	65	70	82	71
Clothing	80	84	84	80	84	86	83	76	86	82	84	83
Footwear	54	70	70	69	56	69	79	67	81	69	64	66
Washing & cleaning	76	77	72	75	75	78	75	71	77	78	82	67
Durables excl. vehicles	36	46	67	56	54	55	64	72	58	52	52	54
Personal hygiene	82	84	77	78	83	80	85	88	86	76	87	81
Books, newspapers etc.	81	74	76	75	76	81	76	84	70	74	80	75
Sports, holidays, hobbies	90	84	91	84	90	89	91	85	85	83	86	77
Transport incl. own car	41	56	72	70	62	64	66	70	65	73	76	51
Union fees, subscriptions etc.	69	66	90	85	85	81	88	90	81	88	93	80
	(2) $\log y = a + b \left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$											
Dwelling	75	78	76	78	82	79	80	64	74	82	77	65
Fuel & light	74	46	62	41	68	49	45	54	61	57	79	74
Food	83	84	92	87	87	86	84	86	83	88	91	89
Tobacco	53	54	69	66	56	59	71	78	68	67	78	67
Clothing	79	82	86	78	82	85	83	76	81	81	79	83
Footwear	54	67	72	68	55	68	79	69	77	68	61	66
Washing & cleaning	77	77	66	67	69	75	71	68	69	74	77	54
Durables excl. vehicles	40	47	65	58	51	56	65	73	60	52	57	58
Personal hygiene	80	87	78	80	81	80	86	86	82	73	83	80
Books, newspapers etc.	76	74	73	71	73	77	76	83	68	73	79	80
Sports, holidays, hobbies	89	82	88	83	88	85	92	83	81	77	83	70
Transport incl. own car	46	56	69	67	59	64	64	63	60	71	67	41
Union fees, subscriptions etc.	68	68	87	85	84	79	87	83	77	82	90	79
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	73	76	79	79	87	84	79	63	74	81	77	63
Fuel & light	77	57	66	57	74	62	56	52	77	63	82	72
Food	84	86	93	90	88	89	85	88	86	90	93	90
Tobacco	62	67	72	73	69	70	73	84	81	67	68	71
Clothing	79	84	87	85	85	84	82	87	83	83	79	80
Footwear	58	69	70	74	58	72	80	72	79	70	68	67
Washing & cleaning	77	76	70	74	74	82	73	73	72	73	78	53
Durables excl. vehicles	46	58	63	72	51	47	74	82	76	21	66	66
Personal hygiene	79	84	78	86	84	76	86	90	84	78	86	82
Books, newspapers etc.	66	75	73	78	80	42	75	91	68	69	82	90
Sports, holidays, hobbies	85	45	84	85	75	74	91	78	77	41	81	71
Transport incl. own car	46	47	71	70	65	64	62	55	45	73	16	37
Union fees, subscriptions etc.	67	72	88	88	86	81	89	82	79	82	90	83

between observed and calculated expenditures.

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(4) $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$											
Dwelling	70	67	76	78	85	81	73	50	66	79	67	64
Fuel & light	73	53	69	53	69	56	60	42	73	66	80	71
Food	81	83	89	84	79	83	80	79	79	84	87	87
Tobacco	62	72	67	60	63	67	69	78	74	64	73	66
Clothing	74	68	84	83	80	80	78	86	76	77	69	72
Footwear	57	66	73	75	60	72	78	79	71	71	66	64
Washing & cleaning	75	72	65	67	70	76	69	71	66	65	73	46
Durables excl. vehicles	47	62	60	71	48	52	73	77	76	42	68	66
Personal hygiene	75	78	79	88	79	73	85	84	79	73	80	76
Books, newspapers etc.	56	70	68	70	76	41	73	85	67	66	75	88
Sports, holidays, hobbies	79	69	77	81	69	65	84	71	74	50	52	64
Transport incl. own car	54	42	67	66	60	58	24	52	46	65	45	29
Union fees, subscriptions etc.	63	67	81	86	83	74	84	78	86	72	88	78
	(5) $\log y = \log k + \log \Phi\ (a + \log x)$											
Dwelling	72	78	78	79	83	81	80	65	76	27	75	59
Fuel & light	76	56	64	55	73	62	53	53	74	59	80	71
Food	84	85	94	–	88	89	85	89	86	–	94	90
Tobacco	62	65	72	–	68	68	70	79	76	66	47	70
Clothing	79	–	84	82	–	84	82	76	61	–	82	82
Footwear	58	69	69	73	58	71	79	68	81	68	68	67
Washing & cleaning	77	76	71	76	72	79	71	69	73	76	79	52
Durables excl. vehicles	43	50	66	68	48	46	–	74	58	59	59	60
Personal hygiene	79	83	76	81	82	76	84	88	86	78	86	83
Books, newspapers etc.	70	75	73	79	72	79	74	–	71	21	82	84
Sports, holidays, hobbies	64	55	67	–	–	65	89	–	–	56	58	–
Transport incl. own car	34	43	42	66	55	–	–	–	30	–	–	34
Union fees, subscriptions etc.	67	72	49	61	84	82	89	62	80	86	–	82

*) 1. Higher public servants and salaried employees. The capital. 2. Lower public servants and salaried employees. The capital. 3. Skilled workers. The capital. 4. Unskilled workers. The capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10. Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

When considering the R-values given in table V,1 it must be borne in mind that the R-values from the two formulae cannot be compared directly. Whether one of the formulae generally leads to systematically higher or lower R-values than the other one is, however, very difficult to determine. According to an unpublished paper by Theil, which is referred to in Prais and Houthakker[4]), the logarithmic form seems to result in higher R-values than does the use of untransformed y observations, but Theil's calculations do not aim at weighted R-values calculated by means of formula (V,2), and his conclusions do not, therefore, apply to our case. Since the "transformation" effect seems to be moderate even when unweighted calculations are used, any systematic differences in the R-values caused by this transformation effect will be disregarded in the following.

Going through the table item by item it will be found that none of the five Engel functions stands out as the best in all cases, but on the other hand it is noteworthy that the double-logarithmic function more frequently than any of the other functions has the highest R-value. Counting for each of the 13 categories of expenditures the number of social groups (out of a total of 12) in which this function has the highest R-value, it ranks first in 6 categories and tied first in another 3.

It must be emphasized, however, that, considered in isolation, the R-values shown are not a suitable criterion for deciding which of the five functions offers the best description of the observations.

For one thing, the above-mentioned reservations regarding comparisons between the R-values of the different types of functions must be taken into account, and for another it must again be emphasized that the R-test is no proper test, since it is not possible to set up test hypotheses as regards closeness of fit, which may be accepted or rejected at a given significance level for R.

2. The χ^2-*test.*

By grouping the differences, t, between the observed and calculated expenditures into k groups of size $\frac{1}{3}\, s_t$, where s_t^2 is the variance in the distribution of these differences or residuals, the following grouped distribution will appear:

Interval	*Number of residuals*
$t < -2\, s_t$	n_1
$-2\, s_t < t < -1\frac{2}{3}\, s_t$	n_2
.	.
.	.
.	.
.	.
$t > 2\, s_t$	n_k

[4]) Cf. J. Prais and H. S. Houthakker (10), p. 96.

This distribution is then compared with a similarly grouped, normal distribution with the same mean and variance and with the same number of elements as the empirical distribution, $L = \sum_{j}^{k} n_j$.

For each group in the distribution of the residuals is calculated the difference $(n_j - L\ \Theta_j)$ between number of elements in the empirical and in the theoretical, normal distribution, Θ_j denoting the expected frequency in the j'the group. The quantity

$$\sum_{j}^{k} (n_j - L\Theta_j)^2 \Big/ L\Theta_j$$

will then be approximately χ^2-distributed with k-m-1 degrees of freedom if the test hypotesis concerning the normality of the residuals is correct; m is the number of parameters in the given Engel function, and k is the number of groups after it has been ensured, through a suitable merging of too small groups, that everywhere

$$L\ \Theta_j > 5$$

The χ^2-values have been shown in table V,2.

It holds good for all expenditure items, with the exception of the expenditure on tobacco, that the functions in which log y is the dependent variable, show the fewest significant χ^2-values.

In the case of several expenditure items there is only one social group out of twelve which has significant χ^2-values for these two functions.

It thus seems evident that this test points to one of the logarithmically transformed Engel functions as being the best—which of them must be left open until further evidence can be put forward as they do almost equally well.

In the case of the types of function in which the untransformed value, y, appears as the dependent variable it does not seem possible, however, to accept the hypothesis that t is normally distributed. It has been taken into account, in connection with the parameter estimation and subsequent tests for these two functions, that the variance of y (for given x) increases with the value of y. According to the investigations made this relationship could be described with good approximation by the formula

$$V\{y \mid x\} = \sigma^2 [f(x)]^2 \cong s_t^2 [f(x)]^2,$$

wherefore the tests have been based on the quantity:

$$t = \frac{f(x) - y}{f(x)}$$

Hereby was obtained that the variance in the distribution of t could be considered constant and independent of x. On the other hand, as the χ^2-tests show, the distributions obtained are evidently not normal.

It will be found, however, that the results achieved correspond closely to what was to be expected from the discussion on this subject in chapter IV, p. 52. It was concluded

Table V,2.

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	9.9	5.2	4.5	4.1	5.4	9.4	7.0	4.6	5.0	0.6	3.8	6.6
Fuel & light	6.3	25.5	10.8	8.0	3.8	15.0	6.5	3.1	23.4	2.3	17.7	8.6
Food	8.9	10.2	1.4	8.5	7.1	5.8	3.9	2.8	2.8	9.4	9.0	5.8
Tobacco	21.5	30.4	6.1	14.6	9.0	32.0	5.8	4.9	11.1	5.9	11.7	1.6
Clothing	8.4	8.5	8.7	13.3	6.4	6.1	2.1	6.3	5.5	3.0	3.6	3.2
Footwear	10.0	9.4	9.8	7.3	5.0	10.9	2.8	1.6	6.7	8.6	8.9	2.4
Washing & cleaning	12.4	13.8	5.0	9.0	3.8	5.6	0.7	7.8	3.7	1.1	9.0	8.8
Durables excl. vehicles	3.9	8.2	12.8	9.7	14.6	12.6	2.2	3.2	6.8	3.7	7.3	1.3
Personal hygiene	5.1	9.1	6.6	5.0	6.8	7.0	3.7	7.0	14.9	11.5	3.8	5.6
Books, newspapers etc.	10.6	9.9	0.9	3.4	7.4	12.6	4.3	2.8	8.3	1.5	5.2	6.1
Sports, holidays, hobbies	6.0	3.9	4.5	3.3	10.2	8.5	5.0	14.0	4.6	7.1	5.2	1.8
Transport incl. own car	25.7	40.3	3.8	5.1	6.7	7.1	0.5	4.6	5.7	4.9	4.0	9.7
Union fees, subscriptions etc.	3.3	10.2	5.0	8.0	4.1	6.4	13.0	4.9	8.1	6.6	10.6	3.5
95% significance level	14.1	16.9	11.1	14.1	11.1	14.1	7.8	11.1	14.1	7.8	14.1	7.8
Degrees of freedom	7	9	5	7	5	7	3	5	7	3	7	3
	(2) $\log y = a + b \left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$											
Dwelling	5.9	4.8	3.3	9.9	4.6	3.9	5.3	3.2	7.7	4.1	7.4	2.6
Fuel & light	7.4	16.7	4.5	13.7	6.0	9.6	9.6	3.2	20.7	2.9	8.2	4.7
Food	8.8	10.9	0.9	7.3	14.0	4.3	0.9	1.8	2.4	2.2	2.9	1.8
Tobacco	12.9	38.8	1.1	14.6	10.6	18.9	6.4	9.7	13.4	3.7	10.6	0.6
Clothing	9.2	3.2	6.6	19.7	5.4	7.7	3.2	9.4	4.5	6.2	1.5	6.3
Footwear	6.5	5.8	3.6	7.0	3.0	15.5	5.4	1.9	9.0	3.7	11.7	2.9
Washing & cleaning	8.6	7.8	5.0	9.8	13.5	5.8	1.2	1.4	3.5	3.2	10.5	1.7
Durables excl. vehicles	11.5	9.1	5.5	15.0	10.6	17.6	0.1	3.0	2.9	2.6	7.8	1.1
Personal hygiene	6.6	7.0	8.4	8.8	4.5	10.4	2.7	2.9	6.2	10.6	14.1	5.3
Books, newspapers etc.	11.6	6.7	3.0	9.0	6.7	15.2	4.1	3.3	8.1	1.3	8.8	3.3
Sports, holidays, hobbies	4.6	5.0	4.0	2.2	3.0	2.5	0.4	4.2	6.7	2.3	4.9	6.6
Transport incl. own car	16.9	34.0	5.1	7.6	11.8	8.7	1.2	3.4	5.5	2.0	4.5	8.1
Union fees, subscriptions etc.	6.9	8.2	4.2	10.2	11.9	7.0	7.8	3.1	10.8	2.2	9.4	3.4
95% significance level	14.1	16.9	11.1	14.1	11.1	14.1	7.8	11.1	14.1	7.8	14.1	7.8
Degrees of freedom	7	9	5	7	5	7	3	5	7	3	7	3
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	17.2	18.9	2.7	12.9	12.6	13.5	2.5	12.9	9.5	5.4	11.3	4.9
Fuel & light	14.8	22.0	8.0	8.8	3.6	3.8	6.9	12.0	8.1	3.3	17.7	20.2
Food	13.1	10.7	7.1	3.5	12.5	4.0	1.4	1.5	8.9	3.4	5.9	0.8
Tobacco	3.6	11.6	6.9	10.7	6.5	6.0	6.9	3.8	12.5	5.4	–	3.2
Clothing	4.3	13.2	2.4	9.0	7.1	11.9	2.6	9.0	19.4	0.5	15.2	2.1
Footwear	8.6	13.8	18.9	2.2	3.1	21.5	2.7	4.7	13.9	4.0	5.1	8.5
Washing & cleaning	10.4	25.1	13.5	14.7	8.0	14.3	1.3	11.1	14.0	7.0	31.4	3.2
Durables excl. vehicles	39.6	60.0	3.9	5.4	31.9	91.1	9.3	10.4	38.8	–	26.2	2.7
Personal hygiene	17.7	36.9	1.8	13.9	13.8	36.9	4.8	7.9	18.6	4.5	27.4	3.6

χ^2-test.

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
Books, newspapers etc.....	50.5	19.7	8.1	18.2	16.8	–	11.0	3.9	43.2	4.8	13.9	4.0
Sports, holidays, hobbies...	8.6	–	14.2	9.7	–	–	2.8	–	–	–	35.7	29.5
Transport incl. own car....	80.6	229.8	44.3	60.7	64.5	100.5	7.8	52.5	–	4.1	–	34.4
Union fees, subscriptions etc.	8.6	14.2	2.7	11.7	8.3	8.5	5.4	1.8	11.5	1.5	12.7	3.2
95% significance level.....	14.1	16.9	11.1	14.1	11.1	14.1	7.8	11.1	14.1	7.8	14.1	7.8
Degrees of freedom.....	7	9	5	7	5	7	3	5	7	3	7	3
	(4) $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$											
Dwelling.....	27.8	33.4	6.8	–	4.8	14.7	8.2	–	14.1	8.4	–	3.3
Fuel & light.....	25.0	34.8	9.6	10.9	1.2	12.4	10.3	11.8	14.7	3.3	20.7	3.2
Food.....	8.0	10.1	1.7	9.7	33.4	9.0	3.1	4.6	14.8	5.9	33.7	8.3
Tobacco.....	15.0	–	12.8	–	11.9	12.2	5.5	18.3	–	3.9	–	2.9
Clothing.....	7.6	–	1.0	9.4	9.9	19.5	1.1	8.0	47.1	8.2	–	–
Footwear.....	5.8	14.9	13.3	8.3	10.7	27.3	1.3	5.8	22.1	3.8	3.6	7.0
Washing & cleaning.....	7.6	29.6	16.9	16.7	17.9	37.7	5.5	31.9	36.8	19.3	42.1	10.0
Durables excl. vehicles.....	42.1	–	–	9.8	32.7	98.4	11.8	19.6	47.0	52.0	–	5.1
Personal hygiene.....	35.7	54.5	6.9	8.6	12.4	42.7	8.1	12.2	–	6.4	30.6	9.3
Books, newspapers etc.....	68.4	–	13.7	32.6	25.1	–	9.2	6.6	–	10.0	28.1	2.4
Sports, holidays, hobbies...	35.1	–	20.7	16.8	–	–	13.6	25.2	–	–	–	45.4
Transport incl. own car....	86.4	–	56.7	77.4	47.2	–	–	88.7	–	5.5	–	44.3
Union fees, subscriptions etc.	23.1	31.5	3.3	–	23.4	18.4	10.3	–	–	11.0	–	13.1
95% significance level.....	14.1	16.9	11.1	14.1	11.1	14.1	7.8	11.1	14.1	7.8	14.1	7.8
Degrees of freedom.....	7	9	5	7	5	7	3	5	7	3	7	3
	(5) $\log y = \log k + \log \Phi\ (a + \log x)$											
Dwelling.....	6.0	6.6	7.5	7.9	2.5	6.5	3.5	4.5	2.8	25.2	4.2	2.9
Fuel & light.....	6.3	20.8	8.4	8.8	4.1	15.0	2.3	4.1	20.9	1.4	14.5	10.6
Food.....	13.7	9.4	2.4	–	9.0	10.7	0.6	4.8	8.9	–	14.8	3.6
Tobacco.....	19.0	32.7	4.9	–	8.8	25.5	5.6	8.5	11.0	2.8	14.0	0.1
Clothing.....	12.3	–	4.4	12.5	–	8.4	1.5	5.2	34.5	–	4.2	3.1
Footwear.....	13.2	10.1	9.4	9.1	2.0	14.2	5.5	1.8	4.9	4.2	9.1	4.0
Washing & cleaning.....	9.1	12.4	6.1	11.6	5.8	9.6	0.5	7.4	8.8	2.5	8.1	4.9
Durables excl. vehicles.....	5.9	8.9	4.8	10.4	13.0	13.5	–	2.2	7.9	3.1	7.9	1.9
Personal hygiene.....	8.7	8.2	7.2	2.7	8.4	7.1	3.4	1.9	13.8	5.9	5.0	13.7
Books, newspapers etc.....	9.4	8.4	2.3	3.6	9.8	11.8	7.8	–	8.9	23.2	11.2	6.6
Sports, holidays, hobbies...	19.6	16.4	6.3	–	–	8.0	3.7	–	–	8.8	11.3	–
Transport incl. own car....	29.3	39.3	3.6	6.0	8.8	–	–	–	3.7	–	–	10.3
Union fees, subscriptions etc.	4.4	12.0	29.4	23.4	2.1	10.5	7.9	34.5	11.2	2.3	–	3.0
95% significance level.....	14.1	16.9	11.1	14.1	11.1	14.1	7.8	11.1	14.1	7.8	14.1	7.8
Degrees of freedom.....	7	9	5	7	5	7	3	5	7	3	7	3

*) 1. Higher public servants and salaried employees. The Capital. 2. Lower public servants and salaried employees. The Capital. 3. Skilled workers. The Capital. 4. Unskilled workers. The Capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10. Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

there that the logarithmically transformed dependent variables, log y, were normally distributed, and the untransformed values, y, consequently followed the log-normal distribution; a graphic presentation of these two cases has been given in fig. V,1a and V,1b, where the "true" Engel curves have also been drawn.

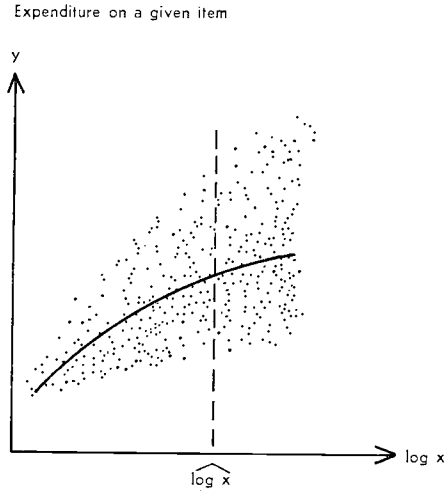

Fig. V, 1a

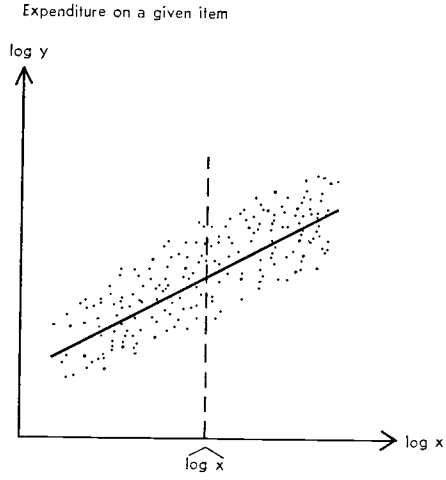

Fig. V, 1b

The distributions of residuals from the Engel curve for a given value of x can be illustrated as shown in fig. V,2a and V,2b.

The distribution of residuals according to fig. V,1b is normal and independent of the chosen value of x. The distribution according to V,1a is log-normal and the variance in the distribution, $V\{y \mid x\}$, increases proportionally to $[f(x)]^2$. The correction made in the tests consisted, as mentioned, in a division of all $[f(x)-y]$ by $f(x)$. Thereby it is achieved that the variance in the corrected distribution of residuals becomes independent of x, but the *distribution form* of the deviations is not changed.

We are thus in the situation of having set up an explicit alternative hypothesis which may be assumed to hold good for the functions for which the test hypothesis was rejected.

3. The F-test.

The variance-ratio test has been calculated as the ratio of the variance of the deviations of the group averages from the calculated values to the variance within groups, $F \cong \frac{s_2^2}{s_1^2}$, say.

The number of degrees of freedom for the two independent variance estimates are L—2 for s_2^2, where L is the number of group averages, and $\sum_{j=1}^{L} (n_j - 1) = 2\ L$ for s_1^2,

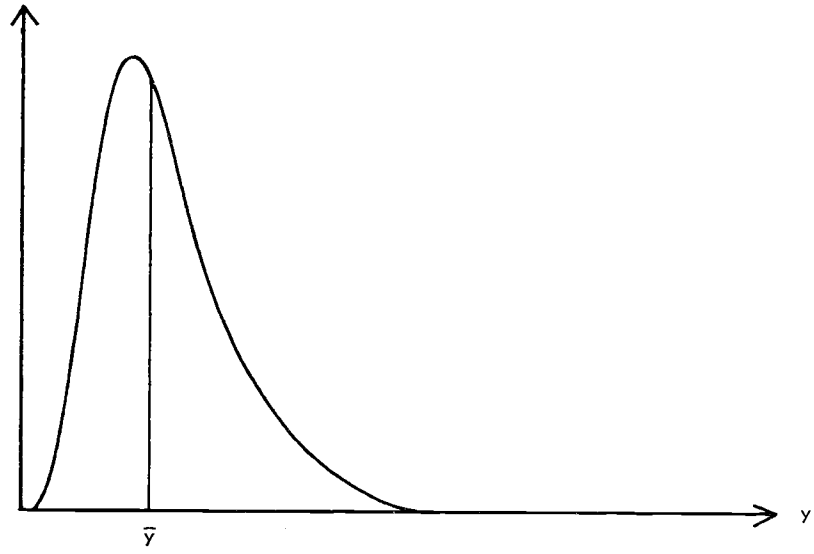

Fig. V, 2a Frequency of expenditure for given income

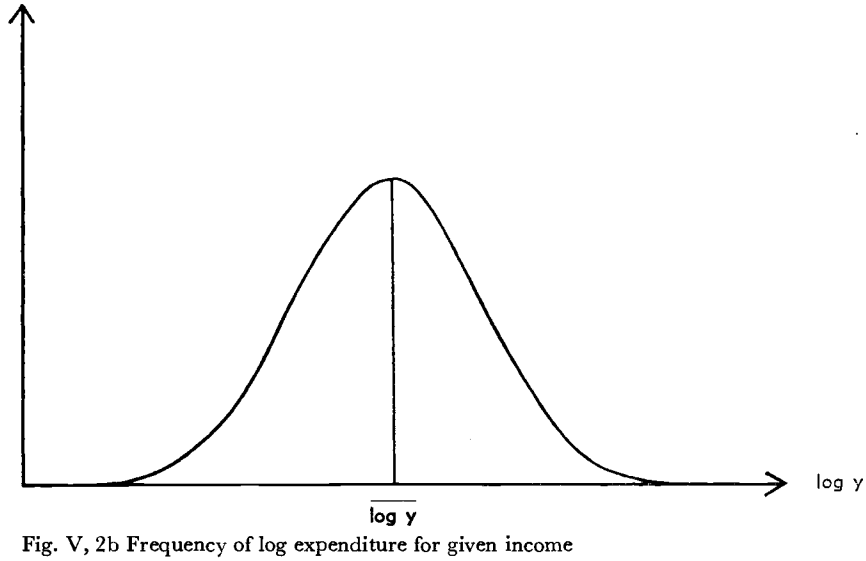

Fig. V, 2b Frequency of log expenditure for given income

Table V,3. F-test for linearity (ratio between

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	1.45	1.24	1.05	1.14	0.73	1.09	0.83	1.38	0.92	0.95	1.31	1.31
Fuel & light	1.30	1.31	0.78	1.92	0.96	1.00	1.21	1.12	1.25	1.30	1.04	1.36
Food	1.59	1.19	0.67	1.02	0.78	1.20	1.67	0.83	1.12	1.17	0.85	1.21
Tobacco	1.57	1.43	1.27	1.32	1.45	1.56	1.07	0.86	1.60	0.81	1.22	1.56
Clothing	1.20	1.14	1.23	1.06	1.07	1.10	1.25	1.84	0.95	0.99	1.47	1.54
Footwear	1.19	0.99	0.96	0.92	1.34	1.10	0.79	1.46	0.79	0.89	1.25	0.87
Washing & cleaning	1.10	1.02	1.27	1.11	1.29	1.22	1.52	1.21	1.08	0.99	0.91	2.07
Durables excl. vehicles	2.16	1.89	1.76	1.80	2.10	1.97	2.88	1.33	1.85	2.41	1.75	1.39
Personal hygiene	1.05	1.37	1.25	1.30	0.89	1.47	0.68	1.01	0.94	1.48	0.94	0.94
Books, newspapers etc.	0.97	1.46	0.91	1.39	1.48	1.14	1.04	0.90	1.37	1.20	0.96	1.54
Sports, holidays, hobbies	0.91	1.20	0.86	1.14	0.95	1.28	0.87	1.20	1.55	1.51	1.23	1.54
Transport incl. own car	2.84	2.50	2.04	1.36	2.97	2.24	1.92	1.85	2.05	1.91	1.54	2.20
Union fees, subscriptions etc.	1.17	1.29	0.77	1.28	0.95	1.50	0.66	0.91	1.38	1.05	0.79	1.27
95% significance level	1.31	1.26	1.36	1.41	1.40	1.31	1.48	1.40	1.32	1.48	1.34	1.47
f_1	110	152	81	66	68	109	49	68	100	49	91	51
f_2	224	308	166	136	140	222	102	140	204	102	186	106
	(2) $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$											
Dwelling	1.69	1.43	1.16	1.21	0.76	1.15	0.89	1.55	1.02	0.91	1.51	1.47
Fuel & light	1.37	1.36	0.70	1.81	0.99	1.04	1.10	1.25	1.18	1.11	0.93	1.58
Food	1.53	1.18	0.87	1.48	0.93	1.40	1.86	1.03	1.22	1.66	1.20	1.17
Tobacco	1.56	1.38	1.38	1.54	1.48	1.60	1.15	0.94	1.51	0.87	1.43	1.74
Clothing	1.26	1.26	1.14	1.13	1.16	1.23	1.29	1.82	1.32	1.05	1.85	1.55
Footwear	1.19	1.07	0.90	0.96	1.36	1.13	0.82	1.42	0.95	0.92	1.33	0.88
Washing & cleaning	1.09	1.04	1.47	1.38	1.53	1.38	1.71	1.29	1.38	1.13	1.13	2.65
Durables excl. vehicles	2.08	1.88	1.86	1.73	2.19	1.92	2.78	1.30	1.80	2.38	1.61	1.31
Personal hygiene	1.14	1.37	1.18	1.22	1.00	1.49	0.63	1.10	1.18	1.64	1.20	0.95
Books, newspapers etc.	1.21	1.45	1.01	1.59	1.65	1.39	1.03	0.95	1.47	1.21	1.01	1.25
Sports, holidays, hobbies	0.98	1.35	1.16	1.21	1.09	1.63	0.85	1.34	1.92	1.99	1.53	1.91
Transport incl. own car	2.70	2.50	2.20	1.47	3.15	2.25	1.99	2.18	2.30	2.03	2.02	2.47
Union fees, subscriptions etc.	1.20	1.24	0.98	1.32	1.06	1.60	0.75	1.47	1.69	1.47	1.13	1.33
95% significance level	1.31	1.26	1.36	1.41	1.40	1.31	1.48	1.40	1.32	1.48	1.34	1.47
f_1	110	152	81	66	68	169	49	68	100	49	91	51
f_2	224	308	166	136	140	222	102	140	204	102	186	106
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	1.63	1.61	1.03	1.30	0.64	1.07	0.87	1.65	1.04	1.02	1.58	1.63
Fuel & light	1.18	1.11	0.68	1.18	0.84	0.75	0.87	1.40	0.74	1.03	0.91	1.72
Food	1.38	1.10	0.75	1.23	0.92	1.21	1.81	0.94	1.15	1.35	0.94	1.09
Tobacco	0.96	0.83	1.29	1.26	1.00	1.10	1.12	0.89	1.21	0.98	–	1.72
Clothing	1.11	1.25	1.09	0.95	1.07	1.46	1.24	1.74	1.39	0.84	2.02	1.78
Footwear	1.07	1.00	1.03	0.81	1.32	1.09	0.76	1.38	0.94	0.78	1.02	0.91
Washing & cleaning	1.00	1.10	1.43	1.19	1.61	1.33	1.73	1.72	1.47	1.37	1.21	3.24
Durables excl. vehicles	2.16	1.96	1.71	1.24	2.75	2.60	2.57	1.33	1.96	–	1.77	1.24
Personal hygiene	1.21	1.66	1.23	1.21	0.99	2.09	0.66	1.22	1.36	1.34	1.17	1.00
Books, newspapers etc.	1.77	1.42	1.12	1.64	1.74	–	1.29	0.88	2.38	1.39	1.14	1.15

variances "around" the regression and variances within groups).

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
Sports, holidays, hobbies.....	1.10	–	1.62	1.39	–	–	1.19	–	–	–	2.53	3.10
Transport incl. own car.....	4.14	5.34	2.50	2.24	3.03	3.72	2.09	4.39	–	1.96	–	3.49
Union fees, subscriptions etc...	1.26	1.16	0.84	1.33	1.05	1.60	0.61	1.40	1.76	1.38	1.22	1.28
95% significance level.....	1.31	1.26	1.36	1.41	1.40	1.31	1.48	1.40	1.32	1.48	1.34	1.47
f_1...	110	152	81	66	68	169	49	68	100	49	91	51
f_2...	224	308	166	136	140	222	102	140	204	102	186	106
	(4) $y = a + b\left(\frac{1}{x} - \frac{1}{\bar{x}}\right)$											
Dwelling.....	2.07	2.39	1.37	–	0.95	1.18	1.20	–	1.47	1.26	–	1.83
Fuel & light.....	1.55	1.28	0.67	1.32	1.12	1.83	0.85	1.70	1.00	1.02	1.20	2.02
Food.....	1.81	1.43	1.42	2.33	1.71	1.18	2.53	1.73	1.79	2.60	2.22	1.60
Tobacco.....	1.08	–	1.73	–	1.36	1.57	1.53	1.41	–	1.22	–	2.25
Clothing.....	1.48	–	1.44	1.34	1.67	1.16	1.73	2.38	2.28	1.29	–	–
Footwear.....	1.15	1.15	1.04	0.91	1.41	1.76	0.90	1.50	1.42	0.85	1.21	1.00
Washing & cleaning.....	1.21	1.38	1.96	1.69	2.42	0.88	2.20	2.48	2.15	2.20	1.82	4.53
Durables excl. vehicles.....	2.41	–	–	1.45	3.01	1.69	3.21	1.86	2.14	6.03	–	1.31
Personal hygiene.....	1.60	2.36	1.30	1.39	1.48	1.41	0.79	2.21	–	1.99	2.09	1.43
Books, newspapers etc.....	3.13	–	1.44	2.51	2.40	2.02	1.59	1.44	–	1.63	1.70	1.28
Sports, holidays, hobbies.....	1.99	–	2.86	2.01	–	1.78	2.50	2.84	–	–	–	4.99
Transport incl. own car.....	3.73	–	3.40	2.96	3.34	1.80	–	6.38	–	3.10	–	4.34
Union fees, subscriptions etc...	1.51	1.45	1.44	–	1.67	1.60	1.01	–	–	2.61	–	1.90
95% significance level.....	1.31	1.26	1.36	1.41	1.40	1.31	1.48	1.40	1.32	1.48	1.34	1.47
f_1...	110	152	81	66	68	169	49	68	100	49	91	51
f_2...	224	308	166	136	140	222	102	140	204	102	186	106
	(5) $\log y = \log k + \log \Phi\,(a + \log x)$											
Dwelling.....	1.45	1.24	1.04	1.11	0.75	1.07	0.80	1.38	0.91	8.07	1.31	1.29
Fuel & light.....	1.29	1.32	0.74	1.85	0.95	1.00	1.14	1.12	1.21	1.21	0.97	1.35
Food.....	1.47	1.13	0.65	–	0.76	1.16	1.61	0.80	1.07	–	0.84	1.11
Tobacco.....	1.54	1.40	1.27	–	1.43	1.54	1.05	0.85	1.55	0.79	3.83	1.54
Clothing.....	1.16	–	1.16	1.04	–	1.08	1.20	1.79	7.35	–	1.49	1.49
Footwear.....	1.17	0.98	0.91	0.90	1.33	1.09	0.77	1.42	0.79	0.87	1.24	0.85
Washing & cleaning.....	1.06	1.00	1.29	1.15	1.31	1.21	1.52	1.20	1.10	0.99	0.91	2.14
Durables excl. vehicles.....	2.11	1.86	1.73	1.75	2.07	1.94	–	1.30	1.82	2.33	1.70	1.33
Personal hygiene.....	1.03	1.32	1.19	1.25	0.89	1.41	0.63	0.98	0.93	1.44	0.94	0.90
Books, newspapers etc.....	0.99	1.42	0.91	1.38	1.47	1.14	1.02	–	1.36	8.37	0.94	1.39
Sports, holidays, hobbies.....	3.48	3.42	2.86	–	–	2.89	0.82	–	–	2.58	2.52	–
Transport incl. own car.....	2.79	2.47	2.82	1.34	2.91	–	–	–	2.64	–	–	2.21
Union fees, subscriptions etc...	1.15	1.26	1.78	8.14	0.93	1.45	0.64	20.7	1.38	1.06	–	1.24
95% significance level.....	1.31	1.26	1.36	1.41	1.40	1.31	1.48	1.40	1.32	1.48	1.34	1.47
f_1...	110	152	81	66	68	169	49	68	100	49	91	51
f_2...	224	308	166	136	140	222	102	140	204	102	186	106

*) 1. Higher public servants and salaried employees. The Capital. 2. Lower public servants and salaried employees. The Capital. 3. Skilled workers. The Capital. 4. Unskilled workers. The Capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10. Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

Table V,4. N-test

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	49 *46,3*	76 *65,5*	36 *26,6*	38 *33.2*	35 *27.3*	48 *46.0*	24 *18.9*	34 *27.5*	44 *41.9*	25 *19.4*	44 *37.9*	21 *20.3*
Fuel & light	63 *46.3*	67 *65.4*	33 *26.3*	38 *32.9*	39 *27.3*	63 *45.2*	25 *19.3*	32 *27.3*	42 *40.4*	19 *19.4*	39 *37.9*	27 *20.1*
Food	63 *46.5*	73 *65.5*	35 *26.8*	40 *32.9*	36 *27.6*	48 *45.8*	28 *19.4*	32 *27.6*	42 *41.9*	29 *18.9*	46 *37.9*	27 *20.1*
Tobacco	47 *45.8*	70 *61.7*	37 *26.7*	50 *33.4*	43 *27.3*	54 *44.7*	18 *19.3*	43 *27.2*	47 *41.7*	21 *18.7*	49 *37.8*	26 *20.1*
Clothing	48 *46.1*	81 *65.6*	40 *26.5*	46 *32.6*	36 *27.7*	60 *45.9*	30 *19.3*	35 *27.5*	55 *41.9*	22 *19.3*	46 *37.7*	28 *20.3*
Footwear	58 *46.2*	66 *65.6*	33 *26.7*	43 *32.9*	34 *27.7*	57 *46.0*	29 *19.4*	45 *27.7*	51 *41.8*	28 *19.1*	47 *37.6*	22 *20.3*
Washing & cleaning	45 *46.3*	81 *65.2*	37 *26.8*	33 *33.4*	36 *27.5*	45 *46.0*	21 *19.4*	35 *27.6*	48 *41.9*	30 *19.4*	46 *37.6*	23 *20.3*
Durables excl. vehicles	59 *46.5*	81 *65.6*	36 *26.3*	49 *33.2*	39 *26.9*	47 *46.0*	23 *19.3*	33 *27.6*	50 *41.8*	23 *19.4*	45 *37.9*	30 *20.3*
Personal hygiene	57 *46.4*	95 *65.4*	35 *26.8*	41 *33.4*	37 *27.6*	51 *45.7*	21 *19.1*	33 *27.5*	64 *41.6*	21 *18.6*	51 *37.9*	32 *19.8*
Books, newspapers etc.	61 *45.9*	70 *65.4*	34 *26.7*	40 *33.4*	36 *27.3*	59 *45.9*	29 *19.4*	35 *27.6*	45 *41.8*	28 *19.4*	47 *37.9*	31 *20.3*
Sports, holidays, hobbies	55 *46.4*	76 *65.6*	34 *26.7*	49 *33.2*	41 *27.6*	62 *45.6*	28 *19.3*	36 *27.3*	58 *41.9*	29 *19.3*	51 *37.9*	22 *20.2*
Transport incl. own car	49 *46.1*	80 *62.9*	36 *26.8*	51 *33.2*	39 *27.5*	45 *45.7*	23 *19.4*	39 *27.6*	50 *41.9*	30 *19.4*	49 *37.9*	25 *20,3*
Union fees, subscriptions etc.	58 *46.5*	72 *64.9*	36 *26.5*	31 *32.9*	35 *27.7*	60 *46.0*	32 *18.2*	34 *27.5*	51 *41.8*	20 *19.3*	36 *37.9*	22 *19.8*
	(2) $\log y = a + b \left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$											
Dwelling	49 *46.3*	69 *65.6*	35 *26.8*	39 *33.2*	37 *27.5*	48 *46.0*	28 *19.4*	30 *27.6*	45 *41.7*	25 *19.3*	35 *37.9*	21 *20.1*
Fuel & light	57 *46.3*	67 *65.5*	33 *26.5*	42 *32.4*	37 *27.3*	61 *45.4*	26 *19.1*	28 *27.3*	43 *40.7*	20 *19.4*	40 *37.9*	19 *20.1*
Food	52 *46.5*	70 *65.1*	31 *26.8*	33 *33.3*	28 *27.2*	53 *46.0*	28 *19.4*	29 *27.7*	43 *41.9*	25 *19.4*	35 *37.9*	29 *20.2*
Tobacco	51 *45.5*	72 *61.3*	37 *26.7*	43 *33.4*	42 *27.2*	55 *43.7*	19 *19.3*	41 *26.9*	55 *41.4*	25 *18.9*	51 *37.8*	25 *20,3*
Clothing	48 *45.8*	77 *65.6*	33 *26.8*	43 *32.9*	33 *27.3*	55 *45.8*	28 *19.4*	36 *27.3*	39 *41.9*	25 *18.9*	45 *37.9*	29 *20.3*
Footwear	62 *46.1*	70 *65.6*	34 *26.8*	42 *32.9*	33 *27.7*	58 *46.0*	28 *19.4*	45 *27.7*	49 *41.9*	28 *19.1*	47 *37.4*	23 *20.1*
Washing & cleaning	44 *46.2*	80 *64.9*	33 *26.7*	33 *33.4*	35 *27.3*	43 *46.0*	25 *19.4*	33 *27.5*	43 *41.7*	30 *19.3*	39 *37.6*	23 *20.3*
Durables excl. vehicles	62 *46.3*	82 *65.6*	35 *26.5*	48 *32.9*	39 *27.2*	57 *46.0*	26 *19.4*	34 *27.7*	50 *41.9*	23 *19.3*	44 *37.9*	35 *20.3*
Personal hygiene	55 *46.4*	87 *65.6*	37 *26.7*	44 *33.4*	29 *27.7*	54 *45.8*	19 *19.4*	34 *27.6*	43 *41.6*	22 *18.9*	40 *37.7*	24 *20.1*
Books, newspapers etc.	51 *45.9*	72 *65.6*	33 *26.7*	35 *33.4*	35 *27.5*	51 *45.8*	25 *19.3*	31 *27.7*	37 *41.6*	26 *19.4*	40 *37.8*	28 *20.3*
Sports, holidays, hobbies	49 *46.5*	65 *65.5*	29 *26.8*	45 *33.4*	31 *27.6*	41 *46.0*	26 *19.4*	37 *27.6*	49 *41.9*	25 *19.1*	45 *37.9*	24 *20.3*
Transport incl. own car	54 *46.2*	82 *63.5*	34 *26.6*	43 *33.1*	40 *27.6*	50 *45.8*	23 *19.4*	33 *27.7*	49 *41.9*	29 *19.1*	39 *37.6*	23 *20.2*
Union fees, subscriptions etc.	61 *46.3*	78 *65.1*	33 *26.7*	30 *32.9*	28 *26.9*	51 *45.8*	29 *18.6*	25 *27.7*	51 *41.9*	21 *19.4*	37 *37.8*	25 *20.1*
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	45 *45.5*	70 *64.3*	37 *26.7*	37 *32.9*	39 *27.7*	52 *44.7*	26 *19.4*	36 *26.6*	43 *41.2*	23 *19.4*	35 *37.0*	23 *19.1*
Fuel & light	57 *46.1*	65 *64.3*	31 *26.6*	42 *33.3*	35 *27.7*	63 *46.0*	24 *19.4*	30 *26.6*	47 *41.9*	20 *19.4*	44 *36.4*	21 *17.8*
Food	56 *46.4*	76 *65.6*	33 *26.8*	37 *33.4*	32 *27.2*	53 *46.0*	28 *19.3*	29 *27.5*	42 *41.6*	26 *19.4*	43 *37.7*	31 *20.3*
Tobacco	55 *46.3*	74 *65.5*	37 *26.5*	49 *32.9*	38 *27.6*	61 *46.0*	23 *18.6*	41 *27.5*	52 *41.0*	23 *18.3*	39 *37.0*	25 *19.8*
Clothing	58 *46.2*	73 *64.8*	33 *26.8*	41 *32.9*	33 *27.7*	51 *44.7*	28 *19.1*	34 *26.6*	29 *41.0*	23 *19.4*	49 *37.6*	27 *20.0*
Footwear	60 *46.5*	70 *64.8*	35 *26.0*	47 *33.4*	32 *27.3*	60 *45.6*	31 *19.1*	45 *27.6*	49 *41.8*	28 *19.3*	49 *37.9*	22 *19.1*
Washing & cleaning	*48 46.3*	78 *65.5*	31 *25.7*	33 *31.8*	35 *26.9*	49 *44.7*	23 *19.3*	33 *26.9*	41 *41.0*	26 *18.2*	35 *34.8*	23 *20.0*
Durables excl. vehicles	64 *44.4*	80 *61.3*	35 *26.3*	48 *33.2*	29 *25.5*	35 *35.0*	25 *18.2*	31 *27.3*	44 *38.4*	17 *16.9*	42 *36.0*	31 *19.5*
Personal hygiene	51 *45.8*	84 *63.2*	34 *26.7*	39 *32.9*	35 *27.3*	52 *43.4*	21 *19.1*	32 *27.5*	37 *39.3*	22 *19.3*	44 *37.4*	26 *20.5*
Books, newspapers etc.	53 *43.6*	74 *64.5*	33 *25.7*	37 *33.1*	35 *26.6*	45 *44.7*	26 *18.6*	35 *27.3*	35 *39.3*	24 *18.6*	42 *37.4*	28 *19.8*
Sports, holidays, hobbies	51 *45.8*	63 *64.5*	25 *26.5*	43 *32.6*	37 *26.9*	37 *42.0*	21 *19.3*	29 *26.3*	39 *40.1*	13 *16.9*	31 *36.4*	18 *16.6*
Transport incl. own car	43 *40.1*	66 *52.3*	31 *25.4*	33 *27.7*	34 *25.9*	40 *37.2*	17 *18.2*	27 *24.6*	37 *35.0*	23 *19.4*	17 *23.1*	21 *16.7*
Union fees, subscriptions etc.	57 *46.1*	72 *65.6*	31 *26.8*	28 *33.3*	28 *26.6*	53 *45.0*	31 *18.9*	25 *27.6*	51 *41.2*	19 *19.3*	35 *37.2*	25 *20.5*

or number of runs.*)

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(4) $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{\bar{x}}\right)$											
Dwelling	43 *45.3*	55 *63.2*	27 *26.5*	37 *32.4*	27 *27.5*	39 *44.7*	24 *18.2*	28 *25.1*	35 *40.7*	17 *18.2*	31 *37.0*	23 *19.5*
Fuel & light	49 *44.0*	61 *63.5*	36 *26.6*	36 *33.3*	33 *27.5*	63 *45.0*	24 *19.4*	21 *26.9*	33 *41.0*	24 *19.1*	40 *35.7*	17 *19.8*
Food	50 *45.8*	60 *65.4*	19 *26.8*	19 *33.3*	20 *23.4*	35 *45.2*	21 *18.6*	27 *27.5*	33 *41.0*	17 *19.4*	27 *35.4*	23 *19.5*
Tobacco	61 *45.9*	72 *65.4*	31 *25.4*	37 *31.8*	30 *25.9*	49 *44.7*	23 *19.1*	31 *26.3*	53 *40.7*	25 *18.0*	39 *35.4*	21 *19.5*
Clothing	49 *46.2*	61 *63.5*	29 *26.8*	33 *33.4*	25 *27.2*	43 *43.7*	21 *19.3*	31 *26.6*	23 *39.7*	19 *18.9*	37 *33.8*	23 *18.8*
Footwear	58 *46.5*	65 *64.9*	34 *26.3*	39 *33.4*	35 *27.6*	55 *45.0*	29 *19.3*	37 *26.6*	43 *41.0*	25 *19.4*	45 *37.9*	21 *19.5*
Washing & cleaning	46 *46.2*	61 *64.8*	31 *26.0*	29 *31.4*	29 *25.5*	35 *42.5*	19 *18.2*	32 *26.3*	37 *39.3*	17 *16.9*	31 *34.3*	21 *19.1*
Durables excl. vehicles	62 *43.6*	71 *61.7*	31 *25.0*	42 *32.9*	27 *25.1*	36 *37.2*	23 *17.8*	21 *26.9*	41 *37.9*	15 *16.3*	42 *35.4*	33 *19.5*
Personal hygiene	37 *43.2*	57 *59.9*	35 *26.6*	35 *32.6*	27 *26.9*	39 *42.0*	17 *19.3*	21 *27.2*	33 *38.9*	21 *19.4*	31 *37.0*	16 *19.1*
Books, newspapers etc.	49 *43.6*	74 *62.4*	25 *24.6*	37 *32.4*	21 *25.9*	31 *37.2*	23 *19.1*	27 *26.9*	35 *36.3*	24 *19.1*	35 *37.0*	27 *19.8*
Sports, holidays, hobbies	39 *44.7*	55 *61.7*	15 *26.3*	31 *33.2*	33 *26.3*	33 *38.0*	19 *18.2*	27 *25.1*	33 *35.7*	15 *16.3*	27 *30.7*	17 *17.3*
Transport incl. own car	45 *41.2*	58 *51.5*	29 *25.0*	29 *27.7*	28 *24.6*	36 *35.0*	17 *15.7*	23 *25.1*	27 *31.4*	21 *18.9*	19 *24.1*	17 *16.0*
Union fees, subscriptions etc.	51 *46.1*	74 *65.1*	23 *26.6*	26 *33.2*	29 *25.9*	47 *45.2*	27 *19.4*	21 *26.6*	39 *40.1*	15 *18.2*	29 *35.7*	23 *19.1*
	(5) $\log y = \log k + \log \Phi\,(a + \log x)$											
Dwelling	53 *46.1*	78 *65.6*	37 *26.5*	38 *33.2*	34 *27.3*	48 *46.0*	26 *19.1*	32 *27.5*	44 *41.9*	11 *18.6*	44 *37.9*	21 *20.3*
Fuel & light	61 *46.1*	67 *65.1*	33 *26.5*	38 *33.1*	37 *27.5*	65 *45.0*	25 *19.3*	32 *27.3*	42 *40.4*	19 *19.4*	41 *37.7*	27 *20.1*
Food	63 *46.4*	75 *65.4*	34 *26.8*	– –	34 *27.7*	53 *46.0*	28 *19.4*	34 *27.5*	44 *41.9*	– –	46 *37.8*	29 *20.3*
Tobacco	49 *45.9*	70 *62.1*	37 *26.7*	– –	43 *27.2*	54 *44.1*	18 *19.3*	44 *26.9*	51 *41.4*	25 *19.0*	33 *37.9*	28 *20.3*
Clothing	50 *46.3*	– –	40 *26.5*	48 *32.9*	– –	60 *45.9*	30 *19.3*	38 *27.5*	31 *40.1*	– –	46 *37.8*	28 *20.2*
Footwear	60 *46.2*	66 *65.6*	33 *26.7*	41 *32.9*	34 *27.7*	58 *46.0*	29 *19.4*	45 *27.7*	49 *41.9*	28 *19.1*	47 *37.4*	22 *20.3*
Washing & cleaning	46 *46.2*	82 *65.1*	37 *26.8*	31 *33.2*	36 *27.6*	46 *46.0*	21 *19.4*	35 *27.6*	47 *41.9*	30 *19.4*	48 *37.7*	23 *20.3*
Durables excl. vehicles	61 *46.5*	81 *65.6*	36 *26.3*	49 *33.2*	39 *27.2*	47 *46.0*	– –	33 *27.7*	52 *41.6*	23 *19.4*	45 *37.9*	30 *20.2*
Personal hygiene	55 *46.4*	94 *65.5*	36 *26.7*	41 *33.4*	39 *27.7*	49 *46.0*	23 *19.4*	33 *27.6*	62 *41.6*	21 *18.6*	47 *37.9*	32 *19.8*
Books, newspapers etc.	59 *45.9*	70 *65.5*	34 *26.7*	38 *33.4*	36 *27.3*	55 *46.0*	29 *19.4*	– –	42 *41.8*	15 *19.4*	49 *37.9*	31 *20.3*
Sports, holidays, hobbies	33 *46.1*	51 *65.6*	29 *26.8*	– – –	– – –	45 *46.0*	28 *19.4*	– – –	– –	27 *19.4*	33 *37.8*	– –
Transport incl. own car	51 *46.2*	82 *62.8*	37 *26.8*	51 *33.2*	39 *27.5*	– – –	– – –	– –	42 *41.9*	– – –	– –	25 *20.3*
Union fees, subscriptions etc.	63 *46.5*	76 *64.3*	15 *26.6*	25 *32.9*	35 *27.6*	62 *46.0*	34 *18.6*	19 *27.5*	53 *41.8*	22 *19.4*	– –	24 *20.1*

*) The italicized figures denotes the lower 5 per cent significance level. 1. Higher public servants and salaried employees. The Capital. 2. Lower public servants and salaried employees. The Capital. 3. Skilled workers. The Capital. 4. Unskilled workers. The Capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10 Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

where $n_j = 3$ is the number of observations in the j'th group. s_2^2 has been calculated direct on the basis of [log y — f(x)] and $\left(\frac{y - f(x)}{f(x)}\right)$, respectively for the two types of functions.

As regards s_1^2 it has not been possible to use the individual observations in those cases where log y was the dependent variable since several observations of y were zero. This zero-observation problem, which was apparently solved by the grouping of the observations, cf. the discussion in chapter IV, p. 36, thus crops up again here in a new form. However, for moderate values of the average coefficient of variation $\overline{c^2} = \frac{1}{L}\sum \frac{s_{y_j}^2}{\bar{y}_j^2}$ s_1^2, may be found with good approximation as $s_1^2{}_{(\log y)} \cong M^2 \cdot \overline{c^2}$, where $M = 0.4343$.

This approximation is not very good in those cases where $\bar{c} > 0.5$, which must be borne in mind when the F-tests are examined below. For the three items *durable goods*, *transport* and *sports, holidays and hobbies* several of the calculated c-values are very high, and the F-test in the case of these items must be considered dubious as regards the two functions in which log y is the dependent variable.

As regards the functions in which y is the dependent variable, s_1^2 has everywhere been considered equal to $\overline{c^2}$, since

$$s_1^2{}_{(y)} = \frac{\sum_{j=1}^{L} \frac{1}{(n_j - 1)} \sum_{k=1}^{n_j} \frac{(y_{jk} - \bar{y}_j)^2}{\bar{y}_j^2}}{L} = \frac{1}{L}\sum_{j=1}^{L} \frac{s_j^2}{\bar{y}_j^2} = \overline{c^2}$$

The F-values thus calculated have been shown in table V,3.

Can any conclusions be drawn from the F-test as regards the determination of the "best" algebraic formulation(s) of the Engel curve? Does the F-test point in the same direction as the χ^2-test and as the more dubious evidence from the correlation coefficients, i.e. to one of those functions in which the dependent variable is the logarithmically transformed expenditure, log y?

As mentioned above there are several reservations to be made. For expenditure items where $\bar{c} > 0.5$ the F-test fades away as regards functions (I,1), (I,2), and (I,5). As regards functions (I,3) and (I,4), parameter estimation has failed in some cases, cf. chapter IV, p. 54, and, accordingly, no testing is possible. These cases coincide with the invalidation due to high $\bar{c}$-values of the F-test performed on functions (I,1) and (I,2). Despite these substantial reservations concerning the results shown in the table, it nevertheless seems justified to draw the general conclusion that the F-test confirms the conclusion of the χ^2-test to the effect that the logarithmic functions pass the tests more easily than the functions in which the expenditure enters untransformed.

For all expenditure items (except footwear) there are significant F-values for all five types of functions in one ore more of the twelve social groups, but in the case of functions (I,1) and (I,2) frequently only one of the social groups gives significance. For the double-logarithmic function (I,1) the items of *dwelling* and *footwear* and *fuel and lighting* thus show

only one significant F-value, *food, house-cleaning* and *washing*, two significant values, and *clothing, personal hygiene, sports, holidays and hobbies,* and *subscriptions, etc.* three significant values. The semi-logarithmic function (I,2) displays somewhat poorer results. For the remaining functions the number of significant results are much higher.

4. The test for number of runs and for the longest run; the d-test.

The last category of tests for goodness of fit tests the hypothesis that the observations are distributed at random around the Engel curve determined by the calculated parameter estimates.

The two runs test consist of a simple count of the number of changes of signs (test for number of runs, here called N-test) and of the number of elements in the longest run (test for longest run, here called l-test). A run is accordingly defined as a series of successive deviations with the same sign, cf. e.g. A. Hald, (8), p. 342, and Prais and Houthakker, (10), pp. 53–55. If the number of positive and negative deviations, P and Q, respectively are greater than about ten, D is approximately normally distributed

with mean $$M\{D\} \simeq 1 + \frac{2PQ}{N}$$

and variance $$V\{D\} \simeq \frac{2PQ(2PQ - N)}{N^2(N-1)}$$

where D is number of runs and N the number of observations.

If the test hypothesis is rejected in favour of an alternative hypothesis because the calculated Engel curve "misses the mark" in a greater or smaller area of the field of observation, then the number of runs will be too small.

The limit of significance can be chosen as

$$M\{D\} - 2\sqrt{V\{D\}}$$

In table V,4 the number of runs, D, and the limit of significance thus found has been shown.

The test for the longest run, the l-test, which is not, of course, unrelated to the N-test, is derived from the knowledge of the distribution function for the number of runs of a given length.

In table V,6 all the longest runs have been shown, and for each set of calculations has been given the 5 per cent significance limit.

A glance at table V,4 and table V,5 will show how the results of the two tests of runs correspond so that they should rightly be considered as one test. The conclusion of this combined test points in the same direction as the previous tests: among the five relations tested the two in which the dependent variable is a logarithmic transformation of the expenditure performs better than the other three functions, and as indicated also by the F-test, the double-logarithmic function seems to do best.

The final test, the d-test, is based on the following quantity, cf. Prais and Houthakker (10), page 53

$$d = \Sigma (t_k - t_{k-1})^2 \Big/ \Sigma t_k^2$$

Table V,5. l-test for

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	9	8	4	5	6	7	6	6	10	7	5	6
Fuel & light	7	7	4	7	5	9	5	7	9	10	10	6
Food	8	7	4	5	8	6	5	13	11	6	6	7
Tobacco	7	9	5	6	4	6	6	5	8	6	6	8
Clothing	7	9	5	6	4	6	4	7	12	5	6	5
Footwear	10	9	6	7	5	6	6	6	5	5	8	5
Washing & cleaning	9	6	5	7	5	10	7	7	7	4	9	8
Durables excl. vehicles	10	5	5	7	7	7	5	10	6	9	6	5
Personal hygiene	11	5	6	6	5	9	6	5	7	7	8	6
Books, newspapers etc.	7	8	6	6	6	6	5	5	6	4	6	4
Sports, holidays, hobbies	6	5	6	4	7	6	8	7	5	5	6	7
Transport incl. own car	10	7	4	4	6	8	6	7	8	5	9	6
Union fees, subscriptions etc.	6	9	7	9	7	6	5	8	6	6	6	6
95% significance level	11	12	10	10	10	11	9	10	11	9	10	9
	(2) $\log y = a + b \left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$											
Dwelling	9	11	6	6	6	7	4	6	8	5	11	6
Fuel & light	7	7	4	7	5	9	5	10	9	10	14	14
Food	8	8	6	11	8	9	7	9	9	6	9	5
Tobacco	7	9	5	6	4	6	6	5	6	5	8	6
Clothing	8	9	6	5	6	6	5	7	15	4	7	4
Footwear	10	9	6	6	5	6	6	6	10	5	8	6
Washing & cleaning	12	6	4	7	7	10	7	7	7	4	9	6
Durables excl. vehicles	8	6	5	7	7	7	4	10	5	9	7	4
Personal hygiene	11	6	5	6	5	6	6	5	8	5	10	7
Books, newspapers etc.	11	8	11	7	6	8	4	6	7	4	6	6
Sports, holidays, hobbies	6	15	13	6	8	8	6	5	12	7	6	7
Transport incl. own car	9	6	5	7	6	8	6	7	9	5	10	8
Union fees, subscriptions etc.	6	6	6	10	8	12	6	7	7	6	6	4
95% significance level	11	12	10	10	10	11	9	10	11	9	10	9
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	11	18	6	6	6	7	7	6	8	7	11	7
Fuel & light	10	10	4	7	5	8	5	10	9	10	14	19
Food	8	8	6	8	8	9	7	9	9	6	6	5
Tobacco	6	9	6	6	5	7	6	6	6	8	8	6
Clothing	7	9	6	6	6	7	5	9	15	4	8	7
Footwear	10	11	8	5	5	6	6	5	10	5	5	6
Washing & cleaning	12	6	9	7	7	10	7	6	7	4	9	8
Durables excl. vehicles	8	6	5	6	8	13	6	10	11	9	7	4
Personal hygiene	12	10	5	6	5	10	6	5	15	5	8	7
Books, newspapers etc.	9	8	11	7	6	9	4	6	12	8	7	8
Sports, holidays, hobbies	7	14	14	8	9	13	8	12	16	16	14	7
Transport incl. own car	14	11	7	12	12	9	10	11	14	9	20	9
Union fees, subscriptions etc.	10	9	6	11	8	12	5	8	7	6	6	4
95% significance level	11	12	10	10	10	11	9	10	11	9	10	9

the longest run.

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(4) $y = a + b\left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$											
Dwelling	11	21	11	6	12	11	7	7	14	12	11	9
Fuel & light	10	11	4	10	8	11	6	16	19	9	15	19
Food	8	20	13	17	26	21	16	10	23	13	17	10
Tobacco	6	9	9	10	10	11	6	8	8	9	10	10
Clothing	12	17	7	10	13	18	7	11	24	9	9	7
Footwear	10	16	8	7	5	5	6	6	14	6	9	6
Washing & cleaning	12	15	9	15	13	17	7	10	10	7	13	8
Durables excl. vehicles	8	9	8	9	13	13	7	11	11	11	7	4
Personal hygiene	15	31	6	9	10	18	7	17	15	6	12	19
Books, newspapers etc.	10	8	11	7	11	17	5	10	13	8	14	8
Sports, holidays, hobbies	11	14	20	11	9	15	8	10	15	16	14	7
Transport incl. own car	14	13	7	14	13	9	10	11	14	12	22	12
Union fees, subscriptions etc.	10	8	15	11	8	16	6	14	14	15	15	8
95% significance level	11	12	10	10	10	11	9	10	11	9	10	9
	(5) $\log y = \log k + \log \Phi (a + \log x)$											
Dwelling	9	8	4	5	6	7	4	6	10	24	5	6
Fuel & light	7	7	4	7	5	9	5	7	9	10	11	6
Food	8	7	6	–	8	7	5	9	10	–	6	5
Tobacco	7	9	5	–	4	6	6	5	8	5	18	4
Clothing	7	–	5	5	–	6	4	7	17	–	6	5
Footwear	10	9	6	7	5	6	6	6	9	5	8	5
Washing & cleaning	9	6	5	10	5	10	7	7	7	4	9	8
Durables excl. vehicles	6	5	5	7	7	7	–	10	5	9	6	5
Personal hygiene	11	5	6	6	5	5	6	5	7	7	8	6
Books, newspapers etc.	7	8	6	7	6	6	5	–	6	14	6	4
Sports, holidays, hobbies	21	23	13	–	–	12	8	–	–	7	19	–
Transport incl. own car	9	7	5	4	6	–	–	–	11	–	–	6
Union fees, subscriptions etc.	6	9	17	18	7	5	5	20	6	6	–	4
95% significance level	11	12	10	10	10	11	9	10	11	9	10	9

*) 1. Higher public servants and salaried employees. The Capital. 2. Lower public servants and salaried employees. The Capital. 3. Skilled workers. The Capital. 4. Unskilled workers. The Capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10. Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

Table V,6. d-test for size and

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(1) $\log y = a + b (\log x - \overline{\log x})$											
Dwelling	2.24	1.76	2.03	1.83	2.15	1.77	2.34	1.77	1.82	1.65	1.91	1.57
Fuel & light	2.03	1.97	1.86	1.43	2.26	2.20	1.42	1.64	1.59	1.43	1.54	1.95
Food	1.85	2.06	2.11	1.76	1.97	1.90	2.46	1.80	1.57	2.03	1.74	1.58
Tobacco	1.86	1.91	1.70	2.06	2.35	2.14	1.57	2.44	2.04	2.12	2.28	2.26
Clothing	1.69	2.12	2.04	2.08	1.94	2.08	2.44	2.32	2.21	1.95	2.43	2.05
Footwear	2.07	1.91	1.94	2.30	1.86	2.05	2.10	2.11	2.19	1.94	2.17	1.83
Washing & cleaning	1.65	1.84	1.69	1.89	1.56	1.68	1.74	1.90	1.79	2.30	1.93	1.43
Durables excl. vehicles	2.21	2.07	2.07	1.95	2.22	1.84	2.20	1.99	1.92	1.50	1.76	2.33
Personal hygiene	1.84	2.27	2.06	1.83	1.97	1.81	1.69	1.62	2.36	1.47	1.96	1.78
Books, newspapers etc.	2.04	1.91	2.05	1.88	2.00	1.80	2.14	2.06	1.85	1.55	1.79	1.52
Sports, holidays, hobbies	2.14	1.87	2.26	1.97	2.15	2.15	1.90	2.28	2.34	2.37	2.02	1.34
Transport incl. own car	1.98	1.96	2.34	2.54	2.41	1.87	1.86	1.79	1.97	2.23	1.85	1.83
Union fees, subscriptions etc.	2.10	1.85	2.04	1.59	2.13	2.18	2.64	1.57	2.21	1.87	1.86	1.85
	(2) $\log y = a + b \left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$											
Dwelling	1.89	1.52	1.84	1.75	2.04	1.69	2.14	1.58	1.66	1.72	1.66	1.40
Fuel & light	1.94	1.90	2.07	1.52	2.22	2.13	1.54	1.49	1.69	1.67	1.71	1.67
Food	1.81	2.03	1.62	1.23	1.72	1.65	2.18	1.47	1.45	1.32	1.23	1.65
Tobacco	1.87	1.98	1.58	1.77	2.29	2.09	1.50	2.24	2.18	1.95	1.95	2.02
Clothing	1.59	1.90	2.23	1.94	1.80	1.88	2.36	2.27	1.58	1.84	1.91	2.04
Footwear	2.06	1.76	2.06	2.19	1.83	1.99	2.05	2.10	1.85	1.86	2.03	1.83
Washing & cleaning	1.60	1.77	1.48	1.53	1.32	1.48	1.55	1.72	1.40	1.96	1.55	1.15
Durables excl. vehicles	2.29	2.08	1.97	2.02	2.13	1.87	2.27	1.97	1.97	1.56	1.90	2.50
Personal hygiene	1.70	2.23	2.18	1.91	1.76	1.79	1.80	1.43	1.89	1.31	1.49	1.72
Books, newspapers etc.	1.72	1.91	1.86	1.64	1.78	1.50	2.13	1.89	1.75	1.52	1.69	1.90
Sports, holidays, hobbies	1.96	1.64	1.69	1.84	1.86	1.70	1.90	2.08	1.91	1.84	1.60	1.07
Transport incl. own car	2.09	1.95	2.18	2.32	2.28	1.85	1.82	1.57	1.76	2.11	1.42	1.66
Union fees, subscriptions etc.	2.05	1.90	1.63	1.52	1.88	2.06	2.35	1.06	1.82	1.31	1.34	1.75
	(3) $y = a + b (\log x - \overline{\log x})$											
Dwelling	1.95	1.51	1.88	1.63	2.12	1.66	2.16	1.71	1.60	1.70	1.67	1.60
Fuel & light	2.03	1.88	1.95	1.91	2.22	2.12	1.53	1.53	1.60	1.66	1.69	1.82
Food	1.94	2.11	1.88	1.44	1.90	1.83	2.29	1.61	1.57	1.60	1.49	1.68
Tobacco	1.75	1.81	1.62	1.80	2.32	1.98	1.39	2.03	2.08	2.08	2.23	2.02
Clothing	1.59	1.79	2.16	1.92	1.78	1.77	2.18	2.21	1.46	1.71	1.65	1.90
Footwear	2.12	1.86	2.10	2.20	1.83	2.00	2.12	2.04	1.96	1.90	2.08	1.88
Washing & cleaning	1.63	1.76	1.33	1.58	1.24	1.31	1.64	1.78	1.42	1.94	1.58	1.17
Durables excl. vehicles	2.26	2.15	1.56	2.26	2.31	1.77	2.14	1.74	1.94	2.54	1.97	2.23
Personal hygiene	1.70	2.16	2.19	1.87	1.92	1.78	1.83	1.31	1.79	1.24	1.51	1.73
Books, newspapers etc.	1.57	1.87	1.82	1.36	1.89	2.07	2.11	1.82	1.84	1.53	1.64	1.99
Sports, holidays, hobbies	1.50	1.98	1.00	1.46	2.29	2.02	1.12	1.95	1.91	2.35	0.97	0.76
Transport incl. own car	2.20	1.95	1.87	2.12	2.12	1.86	1.34	1.25	2.18	1.45	1.62	1.67
Union fees, subscriptions etc.	2.05	1.84	1.56	1.37	2.00	2.09	2.48	1.05	1.95	1.22	1.29	1.81

direction of deviations from the regression.

	Groups of wage and salary earners*)											
	1	2	3	4	5	6	7	8	9	10	11	12
	(4) $y = a + b\left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$											
Dwelling	1.43	1.18	1.53	1.77	1.50	1.18	1.66	1.57	1.22	1.31	1.73	1.39
Fuel & light	1.61	1.75	2.02	1.86	1.90	1.83	1.64	1.37	1.41	1.82	1.35	1.47
Food	1.50	1.68	1.02	0.82	1.27	1.18	1.71	1.00	1.08	0.81	0.70	1.20
Tobacco	1.64	2.20	1.32	1.91	1.89	1.57	1.18	1.35	2.14	1.81	1.37	1.65
Clothing	1.22	1.91	1.67	1.47	1.13	1.16	1.63	1.86	0.91	1.19	2.31	1.94
Footwear	2.03	1.61	2.06	1.92	1.74	1.76	1.88	1.94	1.41	1.70	1.78	1.73
Washing & cleaning	1.34	1.39	1.01	1.18	0.89	0.88	1.31	1.49	0.99	1.51	1.07	1.00
Durables excl. vehicles	2.22	2.07	2.10	2.02	2.16	1.69	2.02	1.50	1.82	1.17	1.78	2.12
Personal hygiene	1.35	1.67	1.99	1.62	1.35	1.41	1.58	0.79	1.45	0.85	0.90	1.37
Books, newspapers etc.	1.16	2.35	1.55	0.98	1.34	2.02	1.83	1.13	2.01	1.35	1.28	1.85
Sports, holidays, hobbies	0.81	1.99	0.57	1.05	1.73	1.78	0.53	1.36	1.23	2.19	1.38	0.49
Transport incl. own car	2.22	1.66	1.49	1.84	1.98	1.80	2.24	1.10	1.78	0.91	2.27	1.47
Union fees, subscriptions etc.	1.86	1.56	0.87	1.86	1.38	1.60	1.67	1.94	1.54	0.72	1.66	1.44
	(5) $\log y = \log k + \log \Phi\ (a + \log x)$											
Dwelling	2.21	1.78	2.01	1.87	2.22	1.83	2.45	1.80	1.90	0.29	1.92	1.56
Fuel & light	2.05	1.96	1.95	1.48	2.28	2.21	1.47	1.82	1.63	1.51	1.64	1.94
Food	1.93	2.13	2.15	–	2.09	1.97	2.48	1.88	1.65	–	1.74	1.69
Tobacco	1.87	1.94	1.71	–	2.35	2.15	1.57	2.45	2.09	2.10	0.75	2.25
Clothing	1.74	–	2.13	2.11	–	2.13	2.49	2.57	0.30	–	2.38	2.15
Footwear	2.09	1.90	2.10	2.33	1.86	2.10	2.17	2.29	2.20	1.96	2.18	1.89
Washing & cleaning	1.69	1.86	1.64	1.84	1.53	1.67	1.72	1.96	1.72	2.29	1.88	1.37
Durables excl. vehicles	2.24	2.08	2.11	1.98	2.22	1.96	–	2.05	2.05	1.52	1.80	2.37
Personal hygiene	1.86	2.32	2.12	2.06	1.98	1.87	1.82	1.69	2.36	1.44	1.95	1.83
Books, newspapers etc.	2.11	1.95	2.06	1.85	2.00	1.80	2.19	–	1.86	0.27	1.82	1.69
Sports, holidays, hobbies	0.59	0.71	0.67	–	–	0.96	2.29	–	–	1.46	0.98	–
Transport incl. own car	2.02	1.97	1.68	2.55	2.41	–	–	–	1.53	–	–	1.88
Union fees, subscriptions etc.	2.12	1.90	0.10	0.27	2.17	2.24	2.65	0.09	2.22	1.83	–	1.86

*) 1. Higher public servants and salaried employees. The Capital. 2. Lower public servants and salaried employees The Capital. 3. Skilled workers. The Capital. 4. Unskilled workers. The Capital. 5. Higher public servants and salaried employees. Provincial towns. 6. Lower public servants and salaried employees. Provincial towns. 7. Skilled workers. Provincial towns. 8. Unskilled workers. Provincial towns. 9. Lower public servants and salaried employees. Rural districts. 10. Skilled workers. Rural districts. 11. Unskilled workers. Rural districts. 12. Agricultural workers. Rural districts.

Table V,7. Number of significant test results among 12 groups of wage and salary earners. Significance level 95% (χ^2, F^2, l) and 5% (N, d.)

	$\log y = a + b(\log x - \overline{\log x})$					$\log y = a + b\left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$					$y = a + b(\log x - \overline{\log x})$					$y = a + b\left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$					$\log y = \log k + \log \Phi\,(a + \log x)$				
	χ^2	F	N	l	d	χ^2	F	N	l	d	χ^2	F	N	l	d	χ^2	F	N	l	d	χ^2	F	N	l	d
Dwelling	0	1	0	0	0	0	5	1	1	2	5	5	2	3	2	6[3]	6[3]	8	9	8	1	2	1	1	2
Fuel & light	5	1	3	2	5	2	3	4	4	2	5	2	4	4	1	6	4	4	5	4	5	2	2	2	5
Food	1	2	1	2	1	1	5	2	1	5	1	3	2	0	3	4	12	9	11	10	1[2]	2[2]	0[2]	0[2]	1[2]
Tobacco	4	6	1	0	0	3	9	1	0	1	0[1]	1[1]	0	0	1	3[4]	5[4]	2	4	6	3[1]	7[1]	2[1]	1[1]	2[1]
Clothing	1	3	0	0	0	1	4	2	1	2	2	5	2	1	2	3[3]	6[3]	7	8	6	1[3]	4[3]	1[3]	1[3]	1[3]
Footwear	1	0	2	0	0	1	0	0	0	0	3	0	0	0	0	2	4	1	2	2	1	1	0	0	0
Washing & cleaning	1	2	2	0	1	1	6	3	2	8	5	7	3	1	8	10	11	8	7	11	0	2	0	0	3
Durables excl. vehicles	1	10	0	2	0	2	10	0	2	0	7[1]	9[1]	2	4	1	7[3]	8[3]	6	5	2	1[1]	9[1]	0[1]	0[1]	1[1]
Personal hygiene	2	3	0	1	0	2	3	1	2	3	6	3	1	2	3	8[1]	7[1]	9	8	8	1	2	0	0	1
Books, newspapers etc.	0	4	0	0	0	1	5	2	2	1	6[1]	5[1]	3	2	2	6[3]	8[3]	6	6	7	2[1]	4[1]	1[1]	1[1]	1[1]
Sports, holidays, hobbies	1	3	0	0	1	0	6	3	3	3	3[6]	3[6]	5	7	6	6[6]	6[6]	10	10	8	2[5]	6[5]	5[5]	5[5]	6[5]
Transport incl. own car	3	11	1	0	0	4	12	0	1	1	8[2]	10[2]	8	9	3	6[5]	7[5]	10	10	4	3[5]	6[5]	0[5]	0[5]	1[5]
Union fees, subscriptions etc.	1	3	1	0	0	1	3	3	2	4	1	3	5	2	5	7[4]	7[4]	6	7	7	3[1]	5[1]	3	3	3[1]

[1] only 11 test results. [2] only 10 test results. [3] only 9 test results. [4] only 8 test results. [5] only 7 test results. [6] only 6 test results.

where t_k is the deviation of the observed from the calculated expenditure on a given expenditure item for the k'th group of observations, where the observations are arranged by increasing values of income.

As in the χ^2-test it is always the weighted residuals, which are used in the tests for the two relations in which the untransformed value of the expenditure, y, is the dependent variable.

In their article[5]) Durbin and Watson have examined the distribution function for d and have calculated significance zones for this quantity under alternative assumptions as regards number of observations (L) and number of parameters in the function on the basis of which the residuals have been calculated (in this case 2). Durbin and Watson's tables do not allow of any precise delimitation of the level of significance since d-values *within* the calculated significance zones do not permit any conclusion as regards rejection or acceptance of the test hypothesis.

It will be seen from table V,6 and table V,7 that the d-test permits a more precise conclusion than the run tests. While both function (I,1) and (I,2) pass the N- and l-tests fairly well, the double-logarithmic function getting on the whole the best marks, the d-test reveals the difference between these two functions more clearly.

In a number of cases the semi-logarithmic function gives d-values which are clearly beyond the significance zone presumably because the size of the residuals in the first and in the last run is in certain cases larger than permissible—even where the *number* of elements in these runs (as determined by the shifts of sign) may not be significant.

5. Summary of test results.

In table V,7 a summary of the tests has been given. For each item of expenditure the number of significant test results among the twelve social groups has been counted separately for each of the five Engel functions. Bearing in mind the reservations mentioned above as regards the validity of the different tests, this summary clearly emphasizes the conclusion which has gradually emerged in the course of the discussion of the individual tests. The double-logarithmic Engel function gives the best goodness of fit among the five functions tested. This does not, of course, mean that the "true" Engel curve function have thus been found, but the selection of the double-logarithmic function as the "best" may, nevertheless, justify a further analysis of the result of the parameter estimation for this function.

Vc. Analysis of estimates of the parameters.

1. Regression analysis versus two-way cross-tabulation.

Table V,8 shows estimates of the standard deviation in the distribution of log y for all 13 expenditure items, separately for each of the 12 social groups. To make it possible to assess the effect of the introduction of the disposable income x as explanatory variable, estimates of the standard deviation in the distribution of the residuals from the calculated

[5]) Cf. Durbin and Watson (4).

double-logarithmic Engel function have been shown too. It will be seen that the unexplained part of the variation in expenditures, is reduced by 10 to 60 per cent as one goes from the simple mean value description to the Engel function. The table shows that the gain is fairly constant from one social group to another for the same expenditure item—whereas there are great variations among the expenditure items. The size of the gain depends partly on the slope of the Engel curve and partly on the size of the variance within groups. If this variance is small, the gain from the regression analysis will, *ceteris paribus,* be relatively great, and if the regression line is steep, the gain will, *ceteris paribus*, also be great.

The food group has a small variance, and even if the slope of the regression line is moderate a considerable gain is nevertheless achieved through the regression. The item sports, holidays, hobbies etc., has a relatively high variance, but since the regression lines are rather steep, the gain is also in this case considerable. Expenditures on fuel, light and footwear rise slowly with income and the variance is substantial; the regression gain is insignificant. This is also the case of the item of durable goods, where the extremely high variance almost completely counteracts the effect of the fairly steep regression line.

Another measure of this regression gain is obtained by calculating the ratio of the estimates of the slopes to their estimated standard errors. This is at the same time a test for the hypothesis $\beta = 0$, since this hypothesis can be tested by a t-test. The quantity $t = \frac{b - 0}{s_b}$ follows the t-distribution with N—2 degrees of freedom, where N is the number of group averages included in the calculation of b. The t-values thus calculated show that the hypothesis $\beta = 0$, i.e. that the slope of the regression line is zero, cannot be accepted in one single case.

It thus seems justified to conclude that the description of the consumption behaviour of the household has gained considerably in precision by the inclusion of the disposable household income as explanatory variable.

By arranging the observations of expenditures in cross-tables where each household is placed in a cell according to its disposable income, it is often attempted to include disposable income as an explanatory variable. The frequent use of this type of tables in publications dealing with household-surveys is often explained by the wish to present the material in a clear manner without adopting a definite hypothesis concerning the *form* of the relationship between the two variable expenditure and income.

The method used here for the description of the expenditure-income relationships, however, has obvious advantages over this frequently used grouping method. As shown by Amundsen[6]), information is lost to a considerable extent when the basic material is split up into the many cells of such a table since only the observations of the individual cell is used in the calculation of the average expenditure figure of this cell.

The parameter estimates have thus made it possible to give a more precise description of the observations than the usual description by averages—be they overall averages or "cell averages" in a cross table.

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[6]) Amundsen (2).

Table V,8. Gain of regression. Standard errors in the distribution of expenditures and in the distribution of deviations from the double logarithmic Engel function. $\log y = a + b (\log x - \overline{\log x})$.

Group of wage and salary earners		Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear	Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscription
The capital														
Higher public servants	$s_{\log y}$	0.23	0.18	0.12	0.29	0.21	0.15	0.20	0.31	0.19	0.24	0.30	0.40	0.17
and salaried employees	$s_{\log y \mid x}$ ...	0.14	0.12	0.069	0.25	0.13	0.13	0.13	0.29	0.11	0.14	0.13	0.36	0.13
Lower public servants	$s_{\log y}$	0.22	0.20	0.12	0.32	0.25	0.17	0.22	0.36	0.23	0.25	0.31	0.37	0.19
and salaried employees	$s_{\log y \mid x}$ ...	0.13	0.17	0.067	0.27	0.14	0.12	0.13	0.32	0.12	0.17	0.17	0.31	0.14
Skilled workers	$s_{\log y}$	0.22	0.14	0.14	0.25	0.24	0.14	0.19	0.35	0.17	0.20	0.32	0.43	0.20
	$s_{\log y \mid x}$ ...	0.13	0.12	0.050	0.18	0.13	0.10	0.14	0.26	0.11	0.13	0.13	0.30	0.086
Unskilled workers	$s_{\log y}$	0.23	0.18	0.15	0.29	0.26	0.17	0.21	0.35	0.21	0.28	0.34	0.38	0.25
	$s_{\log y \mid x}$ ..	0.14	0.17	0.062	0.20	0.16	0.13	0.14	0.29	0.13	0.18	0.19	0.27	0.13
Provincial towns.														
Higher public servants	$s_{\log y}$	0.19	0.16	0.12	0.27	0.22	0.14	0.22	0.37	0.18	0.27	0.33	0.54	0.17
and salaried employees	$s_{\log y \mid x}$ ..	0.11	0.12	0.056	0.22	0.12	0.11	0.15	0.32	0.097	0.17	0.14	0.43	0.093
Lower public servants	$s_{\log y}$	0.23	0.18	0.15	0.32	0.25	0.17	0.27	0.41	0.23	0.29	0.38	0.46	0.21
and salaried employees	$s_{\log y \mid x}$ ..	0.14	0.16	0.072	0.25	0.13	0.13	0.17	0.34	0.14	0.17	0.18	0.35	0.12
Skilled workers	$s_{\log y}$	0.17	0.14	0.13	0.27	0.25	0.16	0.22	0.44	0.17	0.21	0.34	0.34	0.17
	$s_{\log y \mid x}$ ..	0.10	0.14	0.067	0.19	0.14	0.096	0.15	0.34	0.090	0.14	0.14	0.34	0.079
Unskilled workers.....	$s_{\log y}$	0.20	0.14	0.13	0.28	0.25	0.18	0.21	0.36	0.21	0.24	0.34	0.44	0.19
	$s_{\log y \mid x}$ ..	0.14	0.11	0.060	0.17	0.17	0.13	0.15	0.25	0.10	0.13	0.18	0.32	0.086
Rural districts														
Lower public servants	$s_{\log y}$	0.22	0.19	0.14	0.33	0.26	0.18	0.25	0.39	0.23	0.27	0.38	0.48	0.20
and salaried employees	$s_{\log y \mid x}$ ..	0.14	0.16	0.074	0.25	0.13	0.11	0.16	0.32	0.12	0.19	0.20	0.36	0.12
Skilled workers	$s_{\log y}$	0.21	0.13	0.13	0.23	0.23	0.17	0.21	0.39	0.20	0.22	0.36	0.50	0.20
	$s_{\log y \mid x}$ ..	0.12	0.12	0.052	0.17	0.13	0.12	0.13	0.33	0.13	0.15	0.20	0.35	0.096
Unskilled workers	$s_{\log y}$	0.25	0.18	0.15	0.32	0.25	0.16	0.23	0.32	0.21	0.25	0.38	0.45	0.21
	$s_{\log y \mid x}$ ..	0.15	0.12	0.052	0.19	0.14	0.12	0.13	0.27	0.10	0.14	0.19	0.29	0.076
Agricultural workers	$s_{\log y}$	0.27	0.19	0.14	0.31	0.29	0.14	0.25	0.31	0.18	0.29	0.37	0.36	0.21
	$s_{\log y \mid x}$ ..	0.19	0.12	0.068	0.22	0.17	0.11	0.19	0.26	0.11	0.19	0.24	0.31	0.13

2. Interpretation of main results.

The next stage of the analysis, tackles the central problem: How can the parameter estimates be interpreted on the basis of economic theory?

Also in this connection it is the double-logarithmic Engel function which will be selected for treatment; primarily because this function emerged as the best among the five types tested for goodness of fit, but also because the parameter estimate b of the slope β is at the same time an estimate of the income elasticity in the demand for a given expenditure item.

The estimate a of the parameter α indicates the average value of the logarithmically transformed expenditure observations. This estimate, together with $\overline{\log x}$, the average value of the transformed income observations, determines the coordinates of the centre of gravity, the mean, of the observations and can accordingly be interpreted as an estimate of the level of expenditures within the social group in question.

With the modifications which result from the use of transformations other than the logarithmic one, this interpretation can be extended to cover all four linear regression models: the estimate a in conjunction with the average transformed or untransformed income observations indicates the *level* of the expenditure in the social group in question. In the case of the cumulative log-normal distribution function, the situation is different.

The estimates k and a in this function, $\log y = \log k + \log \Phi (a + \log x)$, can here be interpreted as regulators of the unit of measurement in terms of which the expenditure and the disposable income are to be measured. It is postulated that one and the same Engel curve can describe the relationship between the disposable income and any expenditure item, although for any given expenditure item an adjustment must be made of the two units of measurement on the x- and y-axis determined by the values of the parameters α and $\varkappa$[7]). The estimate k may be interpreted as an estimate of the saturation expenditure, $\varkappa$, on the given item for the given social group, i.e. the total expenditure which households of that group would spend on that item, if the income tended towards infinity.

Also the functions

$$\log \eta = \alpha + \beta (v^{-1} - \overline{v^{-1}})$$

and

$$\eta = \alpha + \beta (v^{-1} - \overline{v^{-1}})$$

have a saturation expenditure, namely

$$\text{antilog } (\alpha - \beta \overline{v^{-1}})$$

and

$$\alpha - \beta \overline{v^{-1}}$$

respectively.

The estimates of these two expressions and of $\varkappa$ are widely different; this is only a reflection of the fact that the different Engel functions deviate considerably from one another as soon as we move outside the range of the observation cf. fig. V,3; however,

[7]) Cf. Aitchison and Brown (1), p. 131.

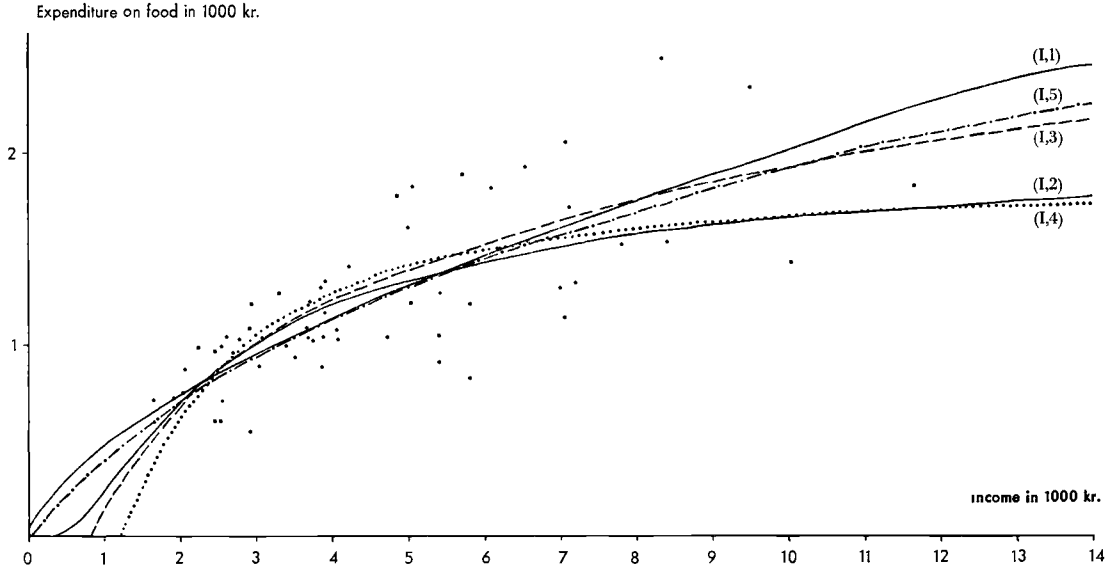

Fig. V, 3. Five Engelfunctions. Income and expenditure on food. Skilled workers in the provincial towns.

what determines the suitability of an Engel function in the description of the data is primarily the goodness of fit of this function and not, for instance, whether such a conceptually vague quantity as the saturation expenditure deviates more or less from some preconceived ideas about it.

The tables of results in appendix A, pp. 126–173, show that the expenditure level varies systematically from one social group to another for all expenditure items, as was in fact to be expected since the social grouping is at the same time to a high degree a grouping by income. Since the expenditure is rising with rising income for all 13 expenditure items, the parameter estimates a, which illustrate the level of expenditures, therefore show the highest values for the social groups of higher public servants and salaried employees and the lowest for the groups of unskilled workers and farm workers.

3. Interpretation of the estimates of the slope of the regression line.

However, it is of greater interest to examine the parameter estimate b or the two parameter estimates in conjunction, i.e. the whole Engel curve.

It will then be natural to examine first whether the division into twelve groups of wage and salary earners has been appropriate, or in other words, whether the twelve Engel curves for a given expenditure item which are estimated separately for each of the twelve groups of wage and salary earners, are significantly different.

The reason for dividing the observations into these twelve groups was an assumption that differences in geographical and social grouping would be reflected in cha-

racteristic differences in consumption behaviour. To the extent that this geographical and social grouping is at the same time a grouping by income levels, this will naturally influence the level of the consumption expenditure as shown by the estimate a. But the question is whether this grouping is anything more than a grouping by income. May we consider the twelve Engel curves as being generated by the same consumption process, i.e. be considered estimates of the same Engel curve?

This problem can be examined by comparing the twelve regression lines for each expenditure item, a comparison which, like the calculation of the parameter estimates, is a standard feature of the regression analysis[8]).

Such a comparison has been made in the case of the double-logarithmic function for all 13 expenditure items.

First, it is examined whether the estimates of the slope b_1, b_2, ... b_{12} calculated for a given expenditure item can be considered as estimates of the same "true" slope β, and if this hypothesis can be upheld, it is examined whether the parallel Engel curves can be considered as estimates of one single Engel curve. The former test is a test for the parallelism of the Engel curves, and the latter a test for their identity.

The test for the parallelism of the Engel curves is performed as an F-test, in which a variance calculated on the basis of the variation among the 12 estimated b-values is compared with an expression of the inner variance:

$$F_{f_2,\, f_1} \simeq \frac{{s_2}^2}{{s_1}^2}; \quad \left[f_1 = \sum_1^{12} (n_k - 1) \text{ and } f_2 = 12 - 1\right]$$

where

$${s_2}^2 = \frac{1}{11} \sum_1^{12} (b_k - \bar{b})^2 \, (\log x_k - \overline{\log x_k})^2$$

and

$${s_1}^2 = \frac{\sum_1^{12} (n_k - 2) \; {s^2}_{\log y_k \,|\, x}}{\sum_1^{12} (n_k - 2)}$$

In these relations $\log x_k$ and $\log y_k$ are the coordinates of the mean of the observations of the k'th group of wage and salary earners; n_k is the number of observations in this group.

The average slope $\bar{b}$ for a given expenditure item has been calculated as a weighted average of the twelve individual slopes [9])

$$\bar{b} = \frac{\sum_1^{12} b_k \sum (\log x_k - \overline{\log x_k})^2}{\sum_1^{12} \sum (\log x_k - \overline{\log x_k})^2}$$

[8]) Cf. for instance, A. Hald (8), pp. 579–584.

[9]) Cf. A. Hald (8), p. 580.

If the hypothesis is correct (concerning the parallelism of the Engel curves) it will be true that $\overline{b}$ is normally distributed around β with the variance

$$\sigma^2_{\overline{b}} = \frac{\sigma^2_{\log y \mid x}}{\sum_{1}^{12} \Sigma (\log x_k - \overline{\log x_k})^2}$$

It is this property of $\overline{b}$ which is utilized in forming the estimate s_2^2.

The F-tests appear from table (V,9).

Table V,9. F-test for parallelism of Engel curves.

Dwelling	1.32
Fuel and light	4.22
Food	3.46
Tobacco	2.38
Clothing	1.72
Footwear	2.40
Washing and cleaning	1.06
Durables	3.72
Personal hygiene	2.89
Books, newspapers etc.	1.45
Sports, holidays, etc.	1.30
Transport	6.09
Union fees etc.	1.89
$F_{.95}$	1.89

and the 12 × 13 calculated slopes b have been shown in table V,10.

Table V,9 shows that in 6 out of 13 cases the hypothesis concerning the parallelism of the Engel curves cannot be rejected, whereas it must be rejected in the 7 remaining cases.

Bearing in mind that the estimate b of the slope in the double-logarithmic Engel curve is also an estimate of the income elasticity of the expenditure on a given item, it seems to be a reasonable *a priori* hypothesis that β varies from the higher to the lower social groups because these groups are at different income levels. If y is observed over a sufficiently wide income interval, the income elasticity, i.e. the relative increase in the expenditure in proportion to a given relative increase in income, must be expected to be decreasing with increasing income.

Actually it is rather strange that the double logarithmic function, according to which the income elasticity is assumed to be constant, should, as far as can be seen from the tests made, turn out to be the "best" of the five types of functions *within* each of the twelve social groups, since each social group after all spans an income interval of several thousand kroner. But if we go further and cover the whole scale from agricultural labourers and unskilled workers to higher public servants and salaried employees, a hypothesis of constant income elasticity seems to be contrary to all sensible *a priori* assumptions.

Nevertheless, table V,9 shows, as mentioned, that for the six expenditure items: *dwelling, clothing, washing and cleaning, books and newspapers, etc., sport and holidays,* and finally *union fees, etc.,* such a hypothesis of common slope, i.e. constant income elasticity, cannot be rejected.

It will not be attempted here to explain—or rather to explain away—this phenomenon. As will be remembered, the purpose of the present inquiry has been laid down as an attempt to *describe* the observations of incomes and expenditures, since an attempt to explain the consumption behaviour of the households must for the time being be considered unduly ambitious[10]).

It should be mentioned, however, that the very rough grouping of the almost endless number of goods and services into only 13 items is undoubtedly one of the decisive causes of the stability found in the income elasticity between social groups. If, instead, sharply defined individual commodities and services had been considered, lounge suits of a particular quality, flats of a given size and quality, etc. the income elasticity of demand for these goods and services would undoubtedly have been falling with rising disposable income.

However, the six expenditure items with constant income elasticity are not such heterogenous items in which have been included many different types of goods and services. The items dwelling, washing and cleaning, clothing, and partly the item sport and holidays, etc. correspond to rather well defined parts of the budget of any household, and it is actually very interesting that the income elasticity for these items is so stable as shown by table V,9. The need for shelter, clothing, for entertainment, etc. naturally makes itself felt at all income levels, but the interesting thing is that at any place in the income scale the same relative increase in the expenditure is produced by a given relative rise in income. Not least in the expenditure on the item sport, holidays, etc. does the income elasticity seem to be remarkably constant at a very high level around 1.5. Of course the goods and services demanded—restaurants, theatres, cinemas, holiday trips, hobbies and sport—vary widely over the different income classes, social groups and age groups, but for all groups there seems to be a very long, still unfulfilled list of demand in this field.

For the seven items for which the hypothesis of the parallelism of the regression lines had to be rejected table V,10 confirms that as a general rule this is precisely due to the fact that the income elasticity is falling as the income level increases, cf. the items of food, tobacco and footwear. However, this is not the whole explanation—indeed, in two cases the explanation seems to be the opposite, namely that the income elasticity rises with the income, cf. the items of *fuel and lighting,* and *transport* (incl. expenditure on motor vehicles), where b in several cases rises as one moves from a lower social group to a higher one within the same geographical area. In the case of these seven items there is also another interesting phenomenon which emerges clearly, viz. the significant influence of the social grouping on the income elasticity. If, e.g., one takes the large item of *food,* table V,10 shows that the wage-earning groups in the capital have a considerably higher income elasticity in their demand for food than the groups of salaried em-

[10]) Cf. E. Jørgensen (12).

ployees, 0.69 and 0.70 respectively compared with 0.52 and 0.53. There is also a marked difference in the level of b in the case of *footwear* as we move from wage-earners to salaried employees.

The item of *personal hygiene* also exhibits significant differences in the b-values for the two social groups, but here the groups of salaried employees are at the highest level. The breakdown into social groups, and particularly the distinction between salaried employees and manual workers, thus seems to correspond to a real difference in behaviour in the case of several important items of consumption. The geographical breakdown, on the other hand, seems to be justifiable on the basis of existing differences in expenditure behaviour only as far as the items of *dwelling* and *fuel and lighting* are concerned.

4. Are the Engel curves for different social groups identical?

For six expenditure items the hypothesis of parallel regression lines for the twelve social groups could not be rejected. In these cases it was subsequently examined whether these parallel curves could be considered as identical (test for identity). This identity test is performed in two stages; at the first stage it is examined, by means of an ordinary F-test for linearity, whether the twelve mean points (log x_k, a_k) can be considered as being on a straight line—which, of course, they must if the test hypothesis is correct. If this

Table V,10. Calculated income elasticities for 13 expenditure items for each of 12 groups of wage and salary earners.

	The capital				Provincial towns				Rural districts			
	1	2	3	4	1	2	3	4	2	3	4	5
Dwelling	0.96	0.93	0.87	0.94	0.80	0.86	0.75	0.70	0.84	0.93	0.98	0.96
Fuel & light	0.73	0.50	0.40	0.31	0.57	0.44	0.28	0.43	0.55	0.32	0.64	0.76
Food	0.52	0.53	0.69	0.70	0.55	0.64	0.60	0.62	0.58	0.65	0.67	0.65
Tobacco	0.80	0.84	0.93	1.07	0.76	0.90	1.07	1.17	1.06	0.93	1.28	1.13
Clothing	0.89	1.12	1.02	1.05	0.91	1.02	1.10	1.01	1.12	1.02	0.99	1.24
Footwear	0.43	0.62	0.50	0.61	0.38	0.57	0.67	0.63	0.71	0.62	0.50	0.49
Washing & cleaning	0.80	0.85	0.70	0.81	0.82	0.98	0.90	0.77	0.94	0.88	0.89	0.87
Durables excl. vehicles	0.57	0.89	1.21	0.98	1.01	1.04	1.50	1.37	1.10	1.07	0.79	0.85
Personal hygiene	0.81	1.00	0.68	0.83	0.73	0.87	0.77	0.97	0.95	0.81	0.87	0.73
Books, newspapers etc.	1.02	0.95	0.77	1.05	1.02	1.11	0.86	1.04	0.93	0.86	0.91	1.10
Sports, holidays, hobbies	1.39	1.37	1.51	1.46	1.46	1.56	1.68	1.54	1.59	1.61	1.57	1.43
Transport incl. own car	0.86	1.09	1.56	1.34	1.68	1.39	1.58	1.62	1.53	1.96	1.66	0.92
Union fees, subscriptions etc.	0.63	0.66	0.90	1.10	0.76	0.79	0.80	0.91	0.82	0.94	0.94	0.88
$\overline{\log x}$	3.81	3.75	3.71	3.67	3.75	3.66	3.58	3.53	3.49	3.49	3.47	3.36

1. Higher public servants and salaried employees. 2. Lower public servants and salaried employees. 3. Skilled workers 4. Unskilled workers. 5. Agricultural workers.

proves to be the case, it is finally examined, by means of a t-test, whether the slope $\hat{b}$ of the line formed by the twelve mean points is identical with the weighted average of the twelve individual slopes.

It turns out that none of the six expenditure items pass this test for identity. The item of *sport, holidays, etc.* passes the first stage of the test (concerning the linearity of the twelve mean points), but shows significance for the second stage of the test; the other five items show significance already for the linearity test, see fig. V,4a and fig. V,4b, where the twelve mean points have been plotted for the items of books, newspapers, etc. and sport, holidays, etc. together with the twelve individual Engel functions.

Now, what does this result mean? The immediate interpretation is, of course, that we are here confronted with the "layer effect" described by Wold[11]) and commented on page 25 above. The twelve social groups have the same income elasticity for the six expenditure items, but there is a difference in the level of the actual expenditure among the social groups. This may be due to differences in environment, in upbringing and in habits of life, or it may be due to differences in the accessibility of the goods in question, for instance, owing to differences in distance from places where the goods are available. Thus restaurants, cinemas and other forms of entertainment are more easily available in the towns, cf. the instance of this mentioned on page 26.

If this theory of the layer effect holds good, it may be concluded that the subdivision of the material into geographical and—particularly—social groups corresponds to a real difference in consumption behaviour not only for the seven items with different income elasticities, but also for the six items where the twelve social groups could be considered as having the same income elasticity; in the case of the latter items the existence of the layer effect should then be the explanation of the difference in the expenditure level from social group to social group[12]).

If this interpretation of the results is accepted, the conclusion must be that by subdivision of the data into relevant groups it is possible to derive estimates of the income-expenditure relationships which are less biased than those relationships which could be derived for the total sample

If this subdivision had not been undertaken, the income elasticities for the two items of *books, newspapers, etc.* and *sport, holidays, etc.*, to mention two examples, would have been considerably higher than the average of the elasticities of the twelve subgroups (viz. 1.28 against 0.98 and 2.00 against 1.50), cf. fig. V,4a and fig. V,4b, on page 87.

5. An important reservation.

As regards this interpretation of the results it is, however, necessary to make an important reservation. All the results analysed so far are derived from linear regression analyses. In chapter III and IV the assumptions of the inquiry was discussed and it was found that this form of analysis was a suitable analytical tool if due regard is paid to problems

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[11]) Cf. Wold (19), p. 68.

[12]) Such layer effects may, of course, also be imagined to exist for the seven items for which the Engel curves of the individual social groups are not parallel.

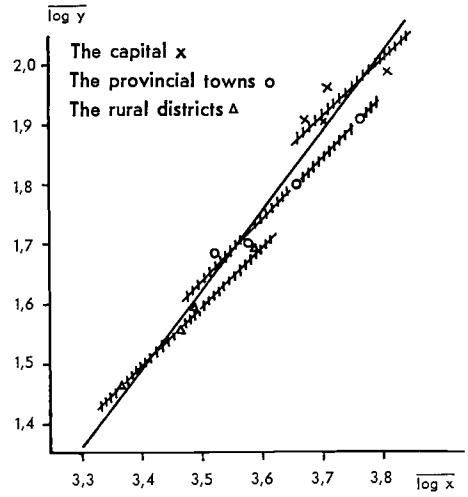

Fig. V, 4a. Mean points for the twelve Engel curves for expenditures on books, newspapers etc. For each of the three parts of the country the capital (×), the provincial towns (○) and the rural districts (△) the four Engel curves may be considered identical. The average Engel curve for whole country deviates significantly.

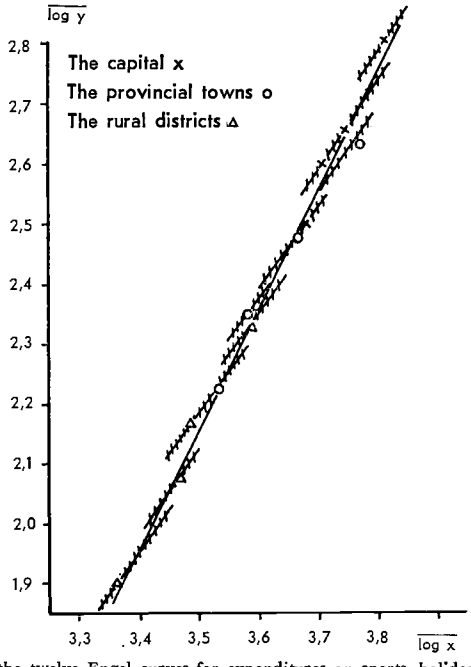

Fig. V, 4b. Mean points for the twelve Engel curves for expenditures on sports, holidays etc. In three cases only one Engel curve may be considered identical to another one. The average Engel curve for the whole country deviates significantly.

concerning zero observations and variance assumptions. However, it will probably be useful to point out that when we choose a given method, we also choose, to some extent, the results. If, for instance, the independent variable of the regression analysis, the disposable income per person (or transformations hereof), cannot be considered fully independent in relation to the dependent variables, there will be bias in the estimates.

Now, considering again fig. V,4b, which shows the Engel curves of the twelve social groups with corresponding mean points for the expenditure item of sport, holidays, etc., it may very well be imagined that the line through the twelve mean points—and not the twelve single Engel curves deviating systematically from this mean point regression line—represented the "true" relationship between log x and log y. It is worth noting in this connection that the weighted average of the b for the twelve social groups was appreciable lower than the estimate of the slope of the regression line through the twelve mean points in the case of five out of the six expenditure items that had passed the test for parallelism[13]); i.e. displayed the same type of bias as may exist for sports, holidays etc.

On the whole, we are led to conclude that the immediate interpretation of the results of the calculations, namely that the subdivision into special groups seems to correspond to real differences in expenditure behaviour is upheld. This is so especially in the case of the expenditure items where the Engel curves of the social groups showed significant differences both in slope and level; but it must be borne in mind that purely technical factors—here the choice of the regression technique as analytical tool—can exercise some influence which would involve modifications of the conclusions drawn.

6. Conclusions.

If the results for the double-logarithmic Engel function are to be summarized in a single table, the average income elasticity can be shown for each expenditure item. It is true that it was found above that these social groups differed systematically as regards their expenditures, but this applied primarily to the *level* of the calculated Engel curves and *not* to their *slope*. In the case of the six items for which the calculated Engel curves could be considered parallel the calculation of such averages is natural, and although the elasticities differ significantly for the remaining seven items it is nevertheless characteristic that this difference between expenditure items within each social group is more pronounced than the difference between the individual social groups for the same expenditure item, so that also here it does make sense to calculate an average b-value. In table V,11 have been shown the 13 average values for each of the 12 income elasticities calculated as a weighted average of the twelve b-values for each item, the weights being the sum of the squared deviations from the mean income, cf. above p. 82.

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[13]) The item of union fees, etc. is influenced by the great expenditures of the wage-earning groups on union fees, so that the line through the mean points of the twelve social groups for this item will have less slope than the average of the slopes of the twelve individual lines.

Table V,11. Average income elasticities for 13 expenditure items.

	Expenditure item	Average income elasticity
1	Fuel & light	0.51
2	Footwear	0.56
3	Food	0.61
4	Union fees, subscriptions etc.	0.82
5	Personal hygiene	0.86
6	Washing & cleaning	0.86
7	Dwelling	0.89
8	Books, newspapers etc.	0.98
9	Tobacco	0.98
10	Durables excl. vehicles	0.99
11	Clothing	1.04
12	Transport incl. own car	1.39
13	Sports, holoidays, hobbies	1.50

In the table the $\bar{b}$-values have been arranged by order of magnitude, and it will be seen how the slopes of the Engel curves, i.e. the income elasticities, of the 13 expenditure items fall into three clearly distinguishable groups: 3 items which could be called necessities ranging from 0.51 to 0.61; 8 items which may be labelled neutral goods range from 0.82 to 1.04; and 2 items belonging in the category of luxury goods with 1.39 and 1.50[14]). Reverting to table V,10, where all b-values have been shown, it will be seen that this ordering by size of average income elasticities comes very close to the ordering by size within each of the 12 social groups, so that stability in the income elasticity of the main groups of expenditure items seems to be a general feature.

In the discussion of the usefulness of the Engel curve analysis in the description of the relationship between x and y, it was found that some expenditure items were not "explained" much more adequately by the inclusion of the disposable income as an explanatory variable—in particular the items of durable goods and transport (incl. transport by own motor vehicle). Now it is found that the estimated parameter values for these items show wide fluctuations of a random nature from social group to social group. The estimate b range from 0.86 to 1.96 for the item of transport and from 0.57 to 1.50 for durable goods.

However, the remaining items seem to show such a high degree of stability that the calculated average income elasticities should be of value also in a wider context, e.g. in the description of the expenditures of the whole population or groups of the population on these items[15]).

[14]) Cf. E. Jørgensen (12).

[15]) Cf. E. Jørgensen (12), where it has been attempted to utilize the results in such a wider context.

Chapter VI.

FURTHER ANALYSES. THE CONCEPT OF UNIT CONSUMERS, MULTIPLE REGRESSION ANALYSES, ETC.

VIa. The unit-consumer concept.

The two variables of the Engel function the dependent variable y, i.e. the expenditure on a given item, and the explanatory variable x, i.e. the disposable income, have been defined (p. 23, chapter III) as expenditure and income *per person* in the individual households. The argument in favour of adopting this definition of x and y was, of course, that differences in the size of households (number of persons per household) are reflected very clearly in the consumption behaviour of the households. When x and y are measured as income and expenditure per person, most of the effects of this source of variation in the income-expenditure relationships will be eliminated, particularly in the case of such main items as food, clothing and footwear depending primarily on the number of persons in the household. As far as items such as dwelling, durable goods, sports, holidays and hobbies are concerned, it may be doubtful how much the unexplained part of the variation in y according to the Engel curve adopted will be reduced.

It is natural to raise the more general question: Is it possible to set up a model for the Engel curve in which x and y are specified in such a way that the effect from differences not alone in size of household but also in the *type of persons* will be eliminated? Or less ambitiously: Can x and y be specified in a way which provides a better approximation to this ideal than the specification used in this analysis (income and expenditure per person)? This is the approach adopted by Prais and Houthakker in their attempt to calculate unit-consumer scales separately for each expenditure item, where the scale indicates, for each type of person, the weight at which the person in question is to be included in the specification of x and y for the individual households.

In a household consisting of a man, aged 47, a wife aged 43, a girl of 11 and a boy of 8, the specification of x and y according to the method adopted in this inquiry would simply consist in dividing the total disposable income of the household and its total expenditure on the given commodity group by the number of persons in the household. The unit-consumer scale, as set up by Prais and Houthakker, indicates for each commodity or commodity group how these four persons are to be measured to arrive at the divisor which gives the desired specification of x and y. The idea is thus that a standard measure is

introduced, so that for the household mentioned the value on the income scale may be e.g. 1.9 units and on the scale for expenditure on food 3.2 units, etc., the unit chosen being the average income and average food expenditure, respectively, of one adult male. Prais and Houthakker suggest a method for calculating estimates of such scales[1]), which may be briefly described as follows:

By means of the tests the best Engel function is selected. This function is now assumed to give the best description of the relationship between income and expenditure (on a given commodity in a given population group).

It it is now imagined that all persons in a household are converted into income units (unit e.g. = average income for one married man between 30 and 40 years of age) and consumption units (average consumption for one married man between 30 and 40 years of age), the Engel curve chosen would then apply to the relationship between income per income unit and consumption per consumption unit. If one distinguishes among t types of persons, the following relationship will apply

$$\text{(VI, 1)} \qquad \frac{y}{\sum_{i}^{t} k_i \cdot n_i} = f\left(\frac{x}{\sum_{i}^{t} k_{oi} \cdot n_i}\right)$$

where n_i is the number of persons in the household of type i, k_i is this type of person's value on the consumption unit scale for the given expenditure item, and k_{oi} this type person's value on the income unit scale. Denoting $\frac{x}{\sum_{i}^{t} k_{oi} \cdot n_i}$ by m

(VI, 1) can be formulated in the following way:

$$\text{(VI, 2)} \qquad \frac{y}{f(m)} = k_1 \cdot n_1 + k_2 \cdot n_2 + \cdots + k_t \cdot n_t \quad .$$

(VI, 2) is a multiple regression equation, and by ordinary regression analysis $k_1, k_2 \ldots, k_t$ may be determined if y/f (m) is known. It will be seen from the above that the method is based on an assumption that the Engel function originally selected is the correct one, also after the observed values have been converted into consumption and income units, and also on an assumption that the effects from the "scale values" of the t types of persons enter linearly, since otherwise it will be extremely difficult to solve (VI, 1).

It is easy to point to defects in this approach: the requirement of *a priori* knowledge of the "best" type of function and, be it noted, the best one *after* the consumption unit adjustment, the requirement that the contributions of the individual types of persons to the total income of a given household and total expenditure on a given commodity group enter linearly, etc. And it is difficult to see how these defects could be overcome[2]). But *if* such scales could be determined, it would not only be possible to reduce the residual variance, but also to have scales by which it would be possible to answer such questions as: How much extra expenditure for a household on a given item would be caused by a ten-year-old boy? etc.

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[1]) Cf. Houthakker, H. S. and Prais, J. S. (10), p. 133.
[2]) Cf. Forsyth. (6).

Such a tool would be highly relevant in the design of social welfare policy and taxation.

But even if it may, on the face of it seem extremely interesting to obtain replies to such very general questions as the one mentioned above, it seems that questions of this type are too general; they cannot be answered satisfactorily since the consumer scale values of given types of persons depend very much on their income level and on the household type to which they belong. And if one tries to include these two factors in the consumer scale calculations, these calculations would, for one thing, become enormously complicated and for another the result of the calculations would be very difficult to interpret.

These considerations naturally lead up to an attempt to illustrate the influence of the household type in another way. It seems evident that household type and income level will have to be taken into account if the objective—achieving realistic descriptions—is to be fulfilled.

It seems as if this objective could be more satisfactorily fulfilled by calculating income-expenditure relationships separately for the different household types.

In that case one must abandon the idea of a general model describing the observations. The method suggested is more primitive and moderate in its approach, but through careful comparison between the Engel curves of different household types, it will probably be possible to achieve a more realistic description. This "method" of treating the influence of the household type corresponds completely to the method used in treating the residence and social status effect, i.e., separate calculations for each subgroup and comparison of the results. However, the method presupposes that there is a sufficient number of observations for an adequate description of each of the subgroups to be given. In the present study the material has been divided into 12 groups taking into account differences in residence and social status. A further breakdown of each of these 12 groups into a large number of subgroups according to household type would not leave a sufficient number of observations in each subgroup. It would therefore be necessary to abandon the original grouping and this in turn would necessitate a correction for the observed differences among the 12 residential and social groups. Such comprehensive correction and regrouping have been outside the scope of the present study, and therefore these calculations have not been made.

In order to get some idea of the influence of the household type, tables VI,1a to VI,1n have been set up. The tables show for the thirteen expenditure items included in the survey and for savings the average expenditure per person for certain income brackets for all social groups as a whole, separately for different household types. In the calculation of averages for the whole country of the expenditures of the 12 groups of wage and salary earners the shares of the individual groups in the total population of wage and salary earners have been used as weights. In brackets after each expenditure average has been shown the number of observations on the basis of which the average has been calculated.

In interpreting the tables the weaknesses of such a tabular description must naturally be borne in mind, confer the remarks on this subject in chapter V, p. 78.

Thus the number of observations in many of the cells of the table is so small that the averages are subject to so great inaccuracy that their usefulness is rather limited.

Despite the weaknesses of the table, it is still possible to draw some important con-

Table VI, 1a. Average expenditure per person on dwelling in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	360 (1)	290	509 (6)	560 (51)	820 (69)	950 (49)	1715 (10)
2	Single woman	361 (4)	336 (25)	645 (42)	734 (99)	961 (69)	1129 (44)	1410 (8)
3	Couples without children	203 (4)	319 (84)	431 (233)	564 (172)	754 (99)	1042 (45)	1075 (12)
4	Couples with 1 child	143 (9)	297 (314)	431 (251)	518 (61)	685 (7)	1176 (4)	
5	Couples with 2 children	172 (43)	261 (438)	386 (144)	534 (16)	737 (3)	305 (2)	
6	Couples with 3 children	124 (58)	234 (146)	356 (34)	428 (3)	278 (11)		
7	Couples with 4 or more children	116 (72)	199 (40)					
8	Single man with 1 or more children	216 (2)	109 (2)	356 (5)	690 (3)	525 (2)	160 (1)	
9	Single woman with 1 or more children	195 (7)	343 (36)	420 (33)	440 (7)	515 (3)	1364 (1)	
10	Other types	150 (18)	233 (88)	415 (49)	434 (12)	1076 (5)	918 (1)	

Table VI,1b. Average expenditure per person on fuel and light in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	5 (1)	123 (5)	200 (52)	197 (51)	215 (68)	270 (49)	612 (10)
2	Single woman	423 (3)	162 (25)	273 (42)	295 (99)	359 (69)	469 (44)	548 (8)
3	Couples without children	235 (4)	289 (84)	347 (234)	340 (172)	384 (99)	456 (45)	530 (2)
4	Couples with 1 child	207 (9)	223 (314)	246 (251)	279 (62)	310 (7)	471 (4)	
5	Couples with 2 children	170 (43)	187 (438)	222 (144)	279 (16)	237 (3)	220 (2)	
6	Couples with 3 children	145 (58)	171 (146)	190 (34)	185 (3)	214 (1)		
7	Couples with 4 or more children	121 (72)	148 (40)					
8	Single man with 1 or more children	93 (2)	207 (2)	188 (5)	432 (3)	278 (2)	313 (1)	
9	Single woman with 1 or more children	160 (7)	233 (36)	259 (33)	343 (71)	243 (3)	630 (1)	
10	Other types	132 (18)	188 (88)	281 (49)	325 (12)	508 (5)	634 (1)	

Table VI,1c. Average expenditure per person on food in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man		720 (6)	1392 (52)	1944 (51)	2136 (69)	2515 (50)	2310 (10)
2 Single woman	647 (5)	674 (25)	1201 (42)	1687 (99)	1750 (69)	1882 (44)	2027 (8)
3 Couples without children	1056 (4)	1208 (84)	1537 (234)	1711 (172)	1894 (99)	2053 (45)	1743 (2)
4 Couples with 1 child	799 (9)	1050 (324)	1272 (251)	1502 (67)	1588 (7)	1455 (4)	
5 Couples with 2 children	722 (43)	940 (438)	1122 (144)	1322 (16)	1214 (3)	1560 (2)	
6 Couples with 3 children	672 (58)	896 (146)	1156 (34)	1518 (3)	1174 (1)		
7 Couples with 4 or more children	599 (72)	849 (40)					
8 Single man with 1 or more children	839 (2)	1048 (2)	1622 (5)	2014 (3)	2039 (2)	2100 (1)	
9 Single woman with 1 or more children	631 (7)	997 (36)	1368 (33)	1773 (7)	1366 (3)	1724 (1)	
10 Other types	723 (18)	919 (88)	1292 (49)	1585 (12)	1353 (5)	2840 (1)	

Table VI,1d. Average expenditure per person on tobacco in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man	91 (1)	362 (7)	414 (52)	472 (50)	646 (68)	802 (49)	672 (10)
2 Single woman	228 (8)	98 (25)	220 (42)	335 (99)	315 (68)	300 (44)	319 (8)
3 Couples without children	116 (4)	188 (84)	272 (234)	405 (172)	411 (99)	452 (44)	357 (1)
4 Couples with 1 child	148 (9)	173 (314)	258 (251)	326 (62)	286 (7)	298 (4)	
5 Couples with 2 children	78 (43)	150 (438)	212 (144)	263 (16)	311 (3)	264 (2)	
6 Couples with 3 children	87 (58)	137 (146)	206 (34)	405 (3)	364 (1)		
7 Couples with 4 or more children	64 (71)	144 (40)					
8 Single man with 1 or more children	28 (2)	431 (2)	254 (4)	24 (2)	453 (2)	430 (1)	
9 Single woman with 1 or more children	18 (7)	121 (36)	195 (32)	299 (7)	263 (3)	314 (1)	
10 Other types	64 (18)	131 (88)	253 (49)	440 (12)	471 (5)	900 (1)	

Table VI,1e. Average expenditure per person on clothing in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man.....	131 (1)	453 (7)	433(52)	530 (51)	657 (69)	1005 (50)	1267 (10)
2	Single woman.....	211 (11)	457 (25)	530 (42)	760 (99)	959 (69)	1152 (44)	1240 (8)
3	Couples without children.....	274 (4)	215 (84)	403 (234)	572 (172)	753 (99)	937 (45)	2489 (2)
4	Couples with 1 child..	80 (9)	258 (314)	437 (251)	569 (62)	863 (7)	926 (4)	
5	Couples with 2 children	136 (43)	259 (438)	464 (144)	827 (16)	592 (3)	336 (2)	
6	Couples with 3 children	171 (58)	244 (146)	446 (34)	581 (3)	1064 (1)		
7	Couples with 4 or more children.....	124 (72)	297 (40)					
8	Single man with 1 or more children.....	94 (2)	355 (2)	411 (5)	574 (3)	1167 (2)	680 (1)	
9	Single woman with 1 or more children.....	103 (7)	322 (36)	473 (33)	539 (7)	1052 (3)	636 (1)	
10	Other types.....	123 (18)	251 (88)	359 (49)	578 (12)	551 (5)	971 (1)	

Table VI,1f. Average expenditure per person on footwear in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man.....	35 (1)	81 (7)	87 (52)	118 (51)	125 (69)	151 (50)	144 (10)
2	Single woman.....	85 (7)	117 (25)	125 (42)	159 (99)	184 (69)	193 (44)	202 (8)
3	Couples without children.....	38 (4)	48 (84)	87 (234)	111 (172)	136 (99)	156 (45)	259 (2)
4	Couples with 1 child..	36 (9)	68 (314)	97 (251)	127 (62)	109 (7)	104 (4)	
5	Couples with 2 children	43 (43)	74 (438)	107 (144)	165 (16)	144 (3)	111 (2)	
6	Couples with 3 children	52 (58)	73 (146)	118 (34)	104 (3)	110 (1)		
7	Couples with 4 or more children.....	41 (72)	76 (40)					
8	Single man with 1 or more children.....	52 (2)	94 (2)	81 (5)	158 (3)	227 (2)	136 (1)	
9	Single woman with 1 or more children...	58 (7)	104 (36)	133 (33)	117 (7)	167 (3)	175 (1)	
10	Other types.....	41 (18)	60 (88)	78 (49)	115 (12)	118 (5)	178 (1)	

Table VI,1g. Average expenditure per person on washing and cleaning in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man.....	(1)	107 (7)	150 (52)	180 (51)	213 (69)	297 (48)	247 (10)
2 Single woman.....	24 (6)	38 (25)	92 (42)	147 (99)	165 (69)	199 (44)	207 (8)
3 Couples without children.....	44 (4)	60 (84)	88 (234)	115 (172)	154 (99)	199 (45)	176 (2)
4 Couples with 1 child..	40 (9)	63 (314)	96 (251)	114 (62)	84 (7)	103 (4)	
5 Couples with 2 children	34 (43)	59 (438)	81 (144)	120 (16)	99 (3)	81 (2)	
6 Couples with 3 children	36 (58)	53 (146)	79 (34)	41 (3)	47 (1)		
7 Couples with 4 or more children.....	32 (72)	49 (40)					
8 Single man with 1 or more children.....	31 (2)	86 (2)	133 (5)	123 (3)	135 (2)	65 (1)	
9 Single woman with 1 or more children.....	59 (7)	74 (35)	101 (33)	124 (7)	95 (3)	256 (1)	
10 Other types.....	29 (18)	53 (88)	80 (49)	150 (12)	176 (5)	89 (1)	

Table VI,1h. Average expenditure per person on durables excl. vehicles in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man.....		53 (7)	75 (48)	219 (51)	268 (67)	548 (50)	1179 (10)
2 Single woman.....	22 (9)	99 (25)	335 (42)	406 (99)	682 (69)	653 (44)	344 (8)
3 Couples without children.....	82 (4)	140 (84)	343 (234)	599 (172)	511 (99)	592 (45)	504 (2)
4 Couples with 1 child..	54 (9)	193 (314)	306 (251)	320 (62)	398 (17)	905 (4)	
5 Couples with 2 children	74 (43)	167 (438)	296 (144)	501 (16)	130 (3)	622 (2)	
6 Couples with 3 children	91 (58)	131 (146)	262 (34)	196 (3)	438 (1)		
7 Couples with 4 or more children.....	66 (72)	150 (40)					
8 Single man with 1 or more children.....	32 (2)	80 (2)	138 (5)	244 (3)	502 (2)	222 (1)	
9 Single woman with 1 or more children.....	123 (7)	99 (36)	300 (33)	291 (7)	305 (3)	428 (1)	
10 Other types.....	39 (18)	147 (88)	281 (49)	244 (12)	269 (5)	329 (1)	

Table VI,1i. Average expenditure per person on personal hygiene in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man	113 (1)	105 (7)	129 (52)	159 (51)	162 (69)	206 (48)	219 (16)
2 Single woman	99 (6)	146 (25)	185 (42)	302 (99)	296 (69)	320 (44)	413 (8)
3 Couples without children	27 (4)	64 (84)	117 (234)	170 (172)	214 (99)	243 (45)	142 (2)
4 Couples with 1 child	37 (9)	83 (314)	124 (251)	155 (62)	121 (7)	169 (4)	
5 Couples with 2 children	42 (43)	79 (438)	122 (144)	164 (16)	244 (3)	120 (2)	
6 Couples with 3 children	43 (58)	70 (146)	114 (34)	75 (3)	173 (1)		
7 Couples with 4 or more children	32 (72)	66 (40)					
8 Single man with 1 or more children	27 (2)	71 (2)	107 (5)	131 (3)	196 (2)	196 (1)	
9 Single woman with 1 or more children	46 (7)	99 (35)	148 (33)	186 (7)	306 (3)	363 (1)	
10 Other types	33 (18)	66 (88)	120 (49)	153 (12)	133 (5)	207 (1)	

Table VI,1j. Average expenditure per person on books, newspapers, etc. in certain income groups separately for different types of household.

Type of household	Disposable income per person						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1 Single man	(1)	63 (7)	85 (52)	112 (51)	148 (69)	233 (48)	280 (10)
2 Single woman	53 (6)	70 (25)	87 (42)	136 (99)	164 (69)	220 (44)	334 (8)
3 Couples without children	40 (4)	55 (84)	84 (234)	111 (172)	142 (99)	160 (45)	71 (2)
4 Couples with 1 child	24 (9)	46 (314)	76(251)	90 (62)	120 (7)	97 (4)	
5 Couples with 2 children	25 (43)	45 (438)	71 (144)	86 (16)	63 (3)	56 (2)	
6 Couples with 3 children	24 (58)	44 (146)	58 (34)	55 (3)	32 (1)		
7 Couples with 4 or more children	18 (72)	44 (40)					
8 Single man with 1 or more children	20 (2)	65 (2)	52 (5)	79 (3)	60 (2)	273 (1)	
9 Single woman with 1 or more children	18 (7)	41 (35)	81 (32)	130 (7)	248 (3)	297 (1)	
10 Other types	24 (18)	40 (88)	74 (49)	83 (12)	119 (15)	240 (1)	

Table VI,1k. Average expenditure per person on sports, holidays, hobbies in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	851 (1)	305 (7)	574 (52)	730 (51)	1122 (69)	1430 (50)	2774 (10)
2	Single women	74 (11)	172 (25)	311 (42)	602 (99)	880 (69)	1463 (44)	2061 (8)
3	Couples without children	36 (4)	123 (84)	330 (234)	596 (172)	839 (99)	1288 (45)	1969 (2)
4	Couples with 1 child	52 (9)	189 (314)	360 (251)	741 (62)	1189 (7)	940 (4)	
5	Couples with 2 children	54 (43)	177 (438)	468 (144)	826 (16)	846 (3)	1068 (2)	
6	Couples with 3 children	62 (58)	165 (146)	397 (34)	760 (3)	1430 (1)		
7	Couples with 4 or more children	47 (72)	204 (40)					
8	Single man with 1 or more children	33 (2)	285 (2)	367 (4)	399 (3)	547 (2)	1303 (1)	
9	Single woman with 1 or more children	64 (7)	153 (36)	421 (33)	646 (7)	955 (3)	987 (1)	
10	Other types	66 (18)	169 (88)	352 (49)	705 (12)	571 (5)	1266 (1)	

Table VI,1l. Average expenditure per person on transport incl. own car in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	104 (1)	199 (7)	324 (52)	889 (51)	762 (69)	1116 (50)	897 (10)
2	Single woman	61 (10)	126 (25)	219 (42)	379 (99)	432 (69)	518 (44)	520 (8)
3	Couples without children	42 (4)	105 (84)	227 (234)	429 (172)	750 (99)	1446 (45)	674 (2)
4	Couples with 1 child	44 (9)	157 (314)	359 (251)	490 (62)	542 (7)	1609 (4)	
5	Couples with 2 children	48 (43)	137 (438)	359 (144)	659 (16)	1359 (3)	3406 (2)	
6	Couples with 3 children	40 (58)	128 (146)	407 (34)	392 (3)	212 (1)		
7	Couples with 4 or more children	54 (72)	206 (40)					
8	Single man with 1 or more children	171 (2)	19 (2)	319 (4)	940 (3)	71 (2)	992 (1)	
9	Single woman with 1 or more children	50 (7)	86 (36)	144 (33)	297 (7)	336 (3)	264 (1)	
10	Other types	64 (18)	164 (88)	247 (49)	866 (12)	161 (5)	16 (1)	

Table VI,1m. Average expenditure per person on union fees, subscriptions etc. in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	(1)	106 (7)	234 (52)	365 (51)	345 (69)	384 (48)	248 (10)
2	Single woman	87 (5)	105 (25)	197 (42)	220 (99)	197 (69)	227 (44)	194 (8)
3	Couples without children	209 (4)	189 (84)	247 (234)	262 (172)	230 (99)	208 (45)	85 (2)
4	Couples with 1 child	101 (9)	150 (314)	155 (251)	179 (62)	193 (7)	119 (4)	
5	Couples with 2 children	104 (43)	125 (438)	131 (144)	94 (16)	132 (3)	187 (2)	
6	Couples with 3 children	102 (58)	99 (146)	117 (34)	164 (3)	121 (1)		
7	Couples with 4 or more children	67 (72)	87 (40)					
8	Single man with 1 or more children	92 (2)	114 (2)	134 (2)	197 (3)	292 (2)	467 (1)	
9	Single woman with 1 or more children	44 (7)	83 (35)	111 (32)	238 (7)	168 (3)	124 (1)	
10	Other types	65 (18)	107 (88)	146 (49)	179 (12)	112 (5)	78 (6)	

Table VI,1n. Average »expenditure« per person on savings in certain income groups separately for different types of household.

	Type of household	Disposable income per person						
		0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000–14,999	15,000 and above
1	Single man	2 (1)	10 (6)	43 (52)	54 (50)	43 (68)	29 (50)	158 (10)
2	Single woman	30 (9)	40 (25)	43 (39)	30 (97)	49 (69)	95 (44)	407 (8)
3	Couples without children	52 (4)	25 (84)	34 (234)	29 (172)	72 (99)	77 (45)	181 (2)
4	Couples with 1 child	6 (7)	7 (314)	13 (251)	20 (62)	62 (7)	31 (4)	
5	Couples with 2 children	4 (38)	4 (438)	14 (144)	85 (16)	4 (3)	47 (2)	
6	Couples with 3 children	2 (14)	12 (34)	40 (3)	1 (1)			
7	Couples with 4 or more children	−1 (49)	3 (29)					
8	Single man with 1 or more children	−11 (2)	1 (1)	−6 (3)	20 (2)	10 (2)	18 (1)	
9	Single woman with 1 or more children	6 (5)	18 (26)	11 (32)	1 (6)	25 (3)	170 (1)	
10	Other types	16 (10)	9 (75)	21 (49)	54 (12)	197 (5)	252 (1)	

clusions from the averages shown. In general it may be said that even if the conversion of all expenditure and income figures from amounts per household into amounts per person has undoubtedly eliminated also a substantial part of influence of the household type, there still remain systematic effects on the income-expenditure relationship arising from differences in household type among the observed households. This conclusion leads to the observation that the existing differences between the residential and social groups may to some extent be caused by systematic differences in household types between these groups.

Figures VI,1 and VI,2 show income and expenditure on the items of food and of sports, holidays and hobbies, the most typical necessity item and luxury item, respectively according to the figures in the tables. For the necessity item the diagram shows that the expenditure per person for given income per person falls appreciably with the number of persons (children) in the household. With a given income (per person) the large households spend a smaller share of their income on food than households with few persons. The expenditure items of dwelling and tobacco show the same picture. However, in the case of sports, holidays and hobbies the figure shows an equally appreciable shift in the opposite direction: for a given income per person the expenditure (per person) rises with the size of household. The items of clothing and transport present the same picture, if not quite so markedly.

The conclusion of these results compared with the results of the residential and social grouping effect referred to in chapter V above is that future analyses of consumption survey data should presumably place more emphasis on the household type effect and less on differences in residential and social grouping.

If in the present survey the observations had been divided into only four groups by residence and social grouping (one group of salary earners and one of wage earners in the two areas Copenhagen and the rest of Denmark) it should have been possible to undertake Engel curve analyses separately for three household types within each of these four groups of wage and salary earners and have the same number of observations available in each Engel curve analysis as in the present survey. Judging from the results shown above it seems that such a breakdown of the observations would have given greater homogeneity in the individual subgroups, and thus presumably more stable Engel curves (i.e. less residual variation) and consequently a more precise description of the observed income-expenditure relationships.

VI.b. Multiple Regression Analyses.

As the main tool in the description of the expenditure behaviour of households of wage and salary earners in this analysis the Engel function has been chosen, in which the disposable income of the household has been included as the only explanatory variable. A decisive reason for this choice was, of course, that for several purposes it is of interest to know possible expenditure reactions to changes in disposable income.

The object of the analysis has thus been shifted slightly away from the general one of providing a description of consumption behaviour towards an attempt to show the effect of income on expenditure. Accordingly it has been attempted to isolate this effect

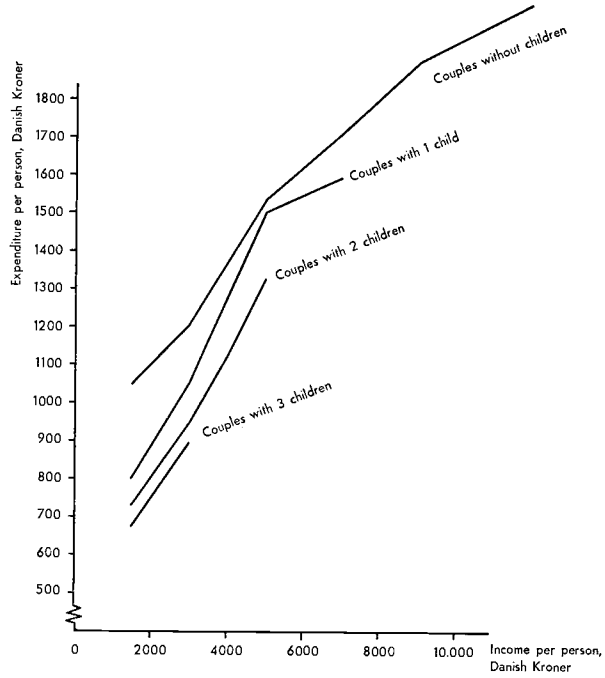

Fig. VI, 1. Income and expenditure on sport, holidays and hobbies per person for four different types of households.

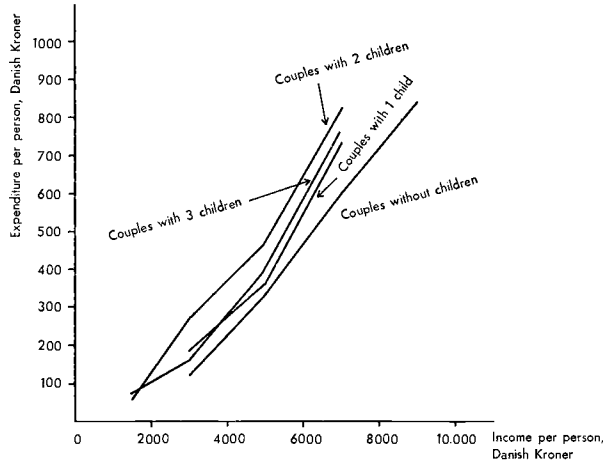

Fig. VI, 2. Income and expenditure on food per person for four different types of households.

by careful specification of the two variables and by a subdivision into residential and social grouping.

However, if in an attempt to arrive at a good description of the expenditure behaviour of the households one does not wish to be constrained by the considerations that led to placing the main emphasis on the influence of income and thereby to the preoccupation with the Engel curve, it seems natural to try to make the description more complete by introducing more explanatory variables in the expenditure functions in addition to disposable income.

Among such variables which may be imagined to influence the expenditures of the households on the different expenditure items there are a great many about which the basic material gives no information. There are the prices of the commodities, but also past or expected changes in these prices as well as variables reflecting plans or expections in the households.

However, the observations do contain additional information which might be included in the description of household expenditures on the different commodity groups; presumably the residual variation of y could be reduced thereby. The information referred to concerns *expenditures* on one or more other commodity groups, the personal *wealth of the households*, their *saving* during the survey period and finally the *income changes* experienced by the households during the preceding two-year period. Information on the *year of establishment of the households* should be valuable as a supplementary variable in the case of certain commodity groups (dwelling, durable goods).

Appendix C gives data on the expenditures of the individual households on all the 13 items, so that in the analysis of one expenditure item it would be very simple to include information on the expenditure of the individual households on the other items; the appendix moreover contains information which makes it possible to include all the other explanatory variables suggested above.

The present chapter only takes up the expenditure on one of the other commodity groups for further discussion. This is not because it is thought that this supplementary information necessarily gives the greatest contribution to reducing the residual variation of y, but because—as a byproduct of the main analysis—it is possible to ascertain for each expenditure item y_i the expenditure item y_h which will give the greatest effect if added as supplementary explanatory variable.

The more comprehensive analysis introducing one or more of the data shown in the appendix (income changes, personal wealth, etc.) with a view to providing a more adequate description or explanation of the expenditure behaviour of the households, therefore still remains. In this connection it should be mentioned that in a separate study of the saving pattern of households it was found that particularly income changes seemed to have great effect[3]). Households with rising incomes recorded considerably higher savings than households who had experienced a fall in income. Moreover, differences in personal wealth were reflected in significant differences in saving (for given income level), households whose personal wealth was around zero saving less than households with considerable psoitive or negative wealth[4]). It is, perhaps, not unreasonable to expect that these variables would also have an effect in the explanation of the expenditure on some of the commodity groups (particularly durable goods).

In choosing an expenditure item, y_h, as supplementary explanatory variable for the expenditure y_i, the criterion for selecting y_h must be some expression of the correlation between y_i and y_h. However, this expression must naturally be adjusted for the influence of income, on both variables. The problem is this: If a household with a given income, residence, social grouping, household type, etc., has a higher expenditure on item i than expected according to the "best" Engel function, can this be ascribed to any appreciable extent to this household's expenditure on item h?

It is here necessary to point out that every expenditure item y_i can be described or "explained" exhaustively by means of the income and *all* other m — 1 expenditure items including savings on the basis of the budget relation

$$x = \sum_{i=1}^{m} y_i \quad . \tag{VI, 3}$$

It is obvious that a given household's expenditure on commodity group No. i is uniquely determined if the disposable income and all other uses of that income are included in the explanation. There will then be so many constraints on the variables that there simply are no more degrees of freedom left. According to the budget relation (VI, 3) the following identity exists

$$y_i = x - \sum_{h=1}^{m} y_h \quad . \tag{VI, 4}$$

The—positive or negative—correlation between the residuals in the relations describing household expenditures on items i and h will determine whether it will be useful to include y_h in the description of y_i. It is evident that such a correlation will be most marked in the case of commodities which are close substitutes or complements in the consumption of the households. Abnormally high consumption of butter will thus, probably, occur at the same time as abnormally low consumption of margarine, high values for expenditure on petrol will often occur together with high values for expenditure on purchases of motor cars, etc.

In the breakdown of expenditure items which has been undertaken in the present analysis it has been attempted to place commodities which, in the opinion of the household are closely related to one another in the same group, cf. chapter IV, p. 38; the 13 expenditure items represent as far as possible 13 "unrelated" commodity categories, and the mentioned—positive or negative—correlation cannot therefore be expected to have any high value.

If now the best of the Engel functions studied is taken and for each of the expenditure items in question are calculated the residuals for the individual households from the expected expenditure, a table of the correlation between these deviations for each item can be set up. Such a correlation table for the group of skilled workers in the capital has been given in table VI,2. In the appendix will be found such tables for all twelve groups of wage

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[3]) Opsparing i lønmodtagerhusstandene 1955, *Statistiske Undersøgelser*, No. 3, Copenhagen 1960, p. 31.
[4]) Same as above, pp. 31–32.

Table VI,2. Correlation between each two of thirteen expenditure items.

Skilled workers. The Capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.369	−0.117	0.003	−0.324	−0.283	−0.046	0.054	−0.047	0.155	0.025	0.017	0.162
2.....	–	–	0.110	−0.057	−0.185	−0.146	−0.126	0.015	−0.038	0.205	−0.066	−0.124	0.225
3.....	–	–	–	−0.017	−0.193	−0.037	0.267	−0.165	0.065	0.079	0.048	−0.340	0.197
4.....	–	–	–	–	−0.127	−0.089	0.244	0.085	0.102	0.034	0.171	−0.185	−0.031
5.....	–	–	–	–	–	0.480	−0.176	0.112	0.265	0.061	0.110	0.010	−0.207
6.....	–	–	–	–	–	–	−0.132	0.056	0.120	−0.077	0.074	−0.077	−0.122
7.....	–	–	–	–	–	–	–	−0.055	0.018	0.099	0.204	−0.035	0.086
8.....	–	–	–	–	–	–	–	–	0.076	0.152	0.109	−0.182	−0.039
9.....	–	–	–	–	–	–	–	–	–	0.173	0.116	0.018	−0.055
10.....	–	–	–	–	–	–	–	–	–	–	0.165	−0.110	0.064
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.219	−0.227
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.097
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

Unskilled workers. The Capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.336	−0.097	0.024	0.161	0.122	0.151	0.067	0.169	0.074	0.034	−0.167	−0.016
2.....	–	–	−0.166	−0.034	−0.171	−0.123	−0.073	0.133	0.079	−0.031	−0.049	0.020	0.127
3.....	–	–	–	0.133	0.025	−0.086	0.275	−0.143	0.014	0.114	0.049	−0.032	0.186
4.....	–	–	–	–	−0.100	−0.030	0.186	−0.104	0.025	0.069	0.024	0.041	0.129
5.....	–	–	–	–	–	0.532	0.172	0.196	0.338	0.126	0.182	−0.187	0.034
6.....	–	–	–	–	–	–	0.265	0.099	0.300	0.053	0.092	−0.032	−0.066
7.....	–	–	–	–	–	–	–	−0.034	0.121	0.180	−0.049	−0.026	−0.029
8.....	–	–	–	–	–	–	–	–	0.111	−0.023	−0.053	−0.161	0.040
9.....	–	–	–	–	–	–	–	–	–	0.110	0.083	−0.012	0.114
10.....	–	–	–	–	–	–	–	–	–	–	0.102	−0.171	0.190
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.164	0.186
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.016
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

1. Dwelling. 2. Fuel and light. 3. Food. 4. Tobacco. 5. Clothing. 6. Footwear. 7. Washing and cleaning. 8. Durable goods. 9. Personal hygiene. 10. Books, newspapers etc. 11. Sports, holidays, etc. 12. Transportation. 13. Union fees and subscriptions.

and salary earners, cf. appendix B, p. 174. Table VI,2 shows for each of the 13 expenditure items the correlation between the deviations of the individual households from the expected expenditure on this item and the deviation from the expected expenditure on each of the other 12 expenditure items—where the expected expenditure has been calculated according to the double logarithmic Engel function.

An estimate of the correlation between the deviations of the observed values of two expenditure items from the calculated values according to the double logarithmic function should be based on the logarithmically transformed expenditures. However, since, i.a. for technical reasons, correlations had to be computed on the basis of the individual households and not on the basis of the deviations of expenditures of *groups* of households, the zero observation problem again arose, cf. p. 36 above, and it was therefore decided to base the calculations on the deviations of the untransformed, observed expenditures from the antilogarithm of the calculated value $f(x) = a + b\ (\log x - \overline{\log x})$. For expenditure items No. i and h the estimate of the correlation coefficient, r, is accordingly obtained in the following way

$$r = \frac{S\,P\,D_{i,\,h}}{\sqrt{S\,S\,D_i \cdot S\,S\,D_h}}$$

where

$$S\,P\,D_{i,\,h} = \sum_j^N (Y_{i,\,j} - y_{i,\,j})\,(Y_{h,\,j} - y_{h,\,j}) - \frac{\sum_j^N (Y_{i,\,j} - y_{i,\,j}) \sum_j^N (Y_{h,\,j} - y_{h,\,j})}{N}$$

and

$$S\,S\,D_i = \sum_j^N (Y_{i,\,j} - y_{i,\,j})^2 - \frac{\left(\sum_j^N (Y_{i,\,j} - y_{i,\,j})\right)^2}{N}$$

and

$$S\,S\,D_h = \sum_j^N (Y_{h,\,j} - y_{h,\,j})^2 - \frac{\left(\sum_j^N (Y_{h,\,j} - y_{h,\,j})\right)^2}{N}$$

where $Y_{i,\,j} = \text{antilog}\ f_i\,(x_j)$ and $Y_{h,\,j} = \text{antilog}\ f_h\,(x_j)$

Since it is expenditures rather than logarithms of expenditures which are used, the expenditure deviations will, in the case of the high income brackets, be included with too much weight a consequence of which is a certain bias. The primary aim in computing the correlations has been to find the sets of expenditure items which were "closest" or "farthest", and not to measure *how* close or *how* far. In other words the computations offer a qualitative rather than a quantitative impression; it has not, accordingly, been attempted to introduce any correction for the bias in the correlation coefficients and the tables must therefore be read with this reservation in mind.

It must also be borne in mind that the budget relation (VI, 3) brings about a slight negative correlation between the expenditure residuals in the equations explaining the in-

Table VI,3. The biggest positive and negative correlationcoefficient

Expenditure item		Group of wage							
		1		2		3		4	
1 Dwelling	positive	2	0.309	2	0.395	2	0.369	2	0.336
	negative	13	−0.100	4	−0.055	5	−0.324	12	−0.167
2 Fuel and light	positive	1	0.309	1	0.395	1	0.369	1	0.336
	negative	11	−0.385	11	−0.144	5	−0.185	5	−0.171
3 Food	positive	7	0.365	4	0.262	7	0.267	7	0.275
	negative	8	−0.045	12	−0.261	12	−0.340	2	−0.166
4 Tobacco	positive	3	0.288	3	0.262	7	0.244	7	0.186
	negative	13	−0.156	6	−0.064	12	−0.185	8	−0.104
5 Clothing	positive	6	0.578	6	0.469	6	0.480	5	0.532
	negative	2	−0.240	2	−0.125	1	−0.324	12	−0.187
6 Footwear	positive	5	0.578	5	0.469	5	0.480	5	0.532
	negative	12	−0.112	2	−0.075	1	−0.283	2	−0.132
7 Washing and cleaning	positive	3	0.365	9	0.236	3	0.267	3	0.275
	negative	12	− 0.027	8	−0.043	5	−0.176	2	−0.073
8 Durable goods	positive	1	0.176	6	0.148	10	0.152	5	0.196
	negative	10	−0.139	12	−0.054	12	−0.182	12	−0.161
9 Personal hygiene	positive	5	0.485	5	0.365	5	0.265	5	0.338
	negative	2	−0.145	2	−0.139	13	−0.055	12	−0.012
10 Books, newspapers etc	positive	9	0.381	13	0.347	2	0.205	13	0.190
	negative	2	− 0.181	12	−0.116	12	−0.110	12	−0.171
11 Sports, holidays etc	positive	5	0.359	4	0.102	7	0.204	13	0.186
	negative	2	−0.385	10	−0.116	13	−0.227	12	−0.167
12 Transportation	positive	13	0.065	4	0.102	9	0.018	4	0.041
	negative	6	−0.114	10	−0.116	3	−0.340	5	−0.187
13 Union fees and subscriptions	positive	11	0.141	10	0.347	2	0.225	10	0.190
	negative	2	−0.156	6	−0.006	11	−0.227	6	−0.066

dividual items. A household with an expenditure considerably above the expected expenditure on an item which weighs heavily in the budget must necessarily display negative deviations from the expected expenditure on one or more of the other items. However, this cannot be seen from the correlation tables, partly because the income concept used, disposable income, is not precisely equal to the sum of the 13 expenditure items studied, as some small items (domestic help, gifts and charity, etc.) are left out, which is also the case for the part of the disposable income used for saving, and partly because of the above-mentioned bias in the correlation estimates.

Only very few of these correlation estimates exceed a level as moderate as 0.5, which is some sort of a confirmation of the impression that the commodity classification has been reasonable, cf. above. Even if very high correlation values do not occur, there is still, in the case of some items, a considerable correlation between the deviations of the households from the expected expenditure behaviour. Consequently the description of the expenditure behaviour of the households with regard to these commodity groups will evidently become more satisfactory (resulting in a lower residual variance of the

separately for each group of wage and salary earners.

and salary earners*)

5		6		7		8		9		10		11		12	
2	0.294	2	0.250	2	0.278	2	0.292	2	0.183	2	0.341	2	0.191	2	0.491
12	−0.122	11	−0.160	4	−0.302	11	−0.335	8	−0.199	6	−0.205	3	−0.174	11	−0.233
1	0.294	1	0.250	1	0.278	1	0.292	1	0.183	1	0.341	10	0.296	1	0.491
5	−0.192	9	−0.252	11	−0.274	12	−0.288	11	−0.263	11	−0.224	11	−0.447	11	−0.228
2	0.338	13	0.159	13	0.288	13	0.260	11	0.174	13	0.214	7	0.165	10	0.220
5	−0.235	8	−0.132	8	−0.236	5	−0.388	13	−0.172	8	−0.327	1	−0.174	1	−0.190
9	0.368	7	0.204	7	0.293	10	0.211	11	0.315	2	0.254	9	0.228	7	0.220
8	−0.095	8	−0.094	1	−0.302	8	−0.135	2	−0.099	8	−0.234	2	−0.253	8	−0.124
9	0.507	6	0.510	6	0.596	6	0.590	6	0.428	6	0.496	6	0.447	6	0.458
3	−0.235	2	−0.252	12	−0.396	3	−0.388	2	−0.222	8	−0.292	13	−0.230	12	−0.195
5	0.469	5	0.510	5	0.596	5	0.590	5	0.428	5	0.496	5	0.447	5	0.458
3	−0.200	2	−0.223	12	−0.336	3	−0.327	2	−0.227	1	−0.205	3	−0.101	2	−0.146
13	0.371	4	0.204	11	0.467	9	0.482	9	0.291	5	0.429	13	0.210	11	0.333
12	−0.093	8	−0.044	2	−0.202	12	−0.196	11	−0.152	12	−0.305	1	−0.125	8	−0.214
5	0.130	9	0.052	5	0.191	6	0.088	5	0.251	11	0.054	9	0.240	9	0.290
11	−0.130	3	−0.132	13	−0.242	12	−0.191	1	−0.199	3	−0.327	13	−0.175	11	−0.245
5	0.507	6	0.397	10	0.309	7	0.482	6	0.360	7	0.384	6	0.402	5	0.299
2	−0.182	2	−0.252	12	−0.045	3	−0.326	2	−0.248	8	−0.229	2	−0.146	3	−0.153
11	0.282	11	0.182	9	0.309	4	0.211	7	0.171	9	0.276	2	0.296	7	0.262
12	−0.162	1	−0.130	12	−0.223	8	−0.174	1	−0.112	8	−0.188	11	−0.091	8	−0.115
9	0.323	4	0.191	7	0.467	12	0.411	4	0.315	6	0.216	6	0.254	7	0.333
3	−0.206	2	−0.165	2	−0.274	1	−0.335	2	−0.263	2	−0.224	2	−0.447	8	−0.242
13	0.049	7	0.014	1	0.062	11	0.411	10	0.130	11	0.136	1	0.122	7	0.322
11	−0.182	2	−0.167	5	−0.396	2	−0.288	2	−0.186	7	−0.305	3	−0.173	5	−0.195
7	0.371	3	0.159	3	0.288	3	0.260	7	0.110	3	0.314	7	0.210	10	0.242
8	−0.072	12	−0.139	8	−0.242	9	−0.200	11	−0.180	8	−0.270	5	−0.230	5	−0.162

*) 1. Higher public servants and salaried employees, the Capital; 2. Lower public servants and salaried employees, the Capital; 3. Skilled workers, the Capital; 4. Unskilled workers, the Capital; 5. Higher public servants and salaried employees, the provincical towns; 6. Lower public servants and salaried employees, provincical towns; 7. Skilled workers, provincical towns; 8. Unskilled workers, provincical towns; 9. Lower public servants and salaried employees, rural districts; 10. Skilled workers, rural districts 11. Unskilled workers, rural districts; 12. Farm workers, rural districts.

dependent variable y) if the expenditure on the commodity group for which the table shows the highest positive or negative correlation is introduced as an explanatory variable in addition to disposable income.

Table VI, 3 shows for each expenditure item the two other items displaying the greatest positive or negative correlation coefficient. Only in the case of three items would the same supplementary determining variable be chosen in all twelve groups of wage and salary earners if this table were used as the criterion. The items of *dwelling* and *fuel & lighting* are so closely related that in the description of one of them the other would everywhere be included as the supplementary variable y_h. This is also true, except for one group of wage and salary earners, for the items of *clothing* and *footwear*. In the case of both sets of expenditures there is positive correlation. For the remaining items the picture changes from one group of wage and salary earners to the other, and especially

Table VI,4. The highest and lowest values of the correlationcoefficient of deviations, separately for each social group.

Social groups	Highest		Lowest	
	Expenditure group*)	Coefficients	Expenditure group*)	Coefficient
1	5–6	0.578	2–11	−0.385
Higher public servants and salaried	5–9	0.485	2–5	−0.240
employees, the Capital	6–9	0.432	2–10	−0.181
	9–10	0.381	2–13	−0.156
	10–11	0.378	4–13	−0.156
2	5–6	0.469	2–11	−0.144
Lower public servants and salaried	1–2	0.395	2–9	−0.139
employees, the Capital	6–9	0.370	2–5	−0.125
	5–9	0.365	10–12	−0.116
	10–13	0.347	2–6	−0.075
3	5–6	0.480	3–12	−0.340
Skilled workers, the Capital	1–2	0.369	1–5	−0.324
	3–7	0.267	1–6	−0.283
	5–9	0.265	11–13	−0.227
	4–7	0.244	11–12	−0.219
4	5–6	0.532	5–12	−0.187
Unskilled workers, the Capital	5–9	0.338	5–2	−0.171
	1–2	0.336	10–12	−0.171
	6–9	0.300	1–12	−0.167
	3–7	0.275	2–3	−0.167
5	5–9	0.507	3–5	−0.235
Higher public servants and salaried	5–6	0.469	3–11	−0.206
employees, provincial towns	6–9	0.423	3–6	−0.200
	7–13	0.371	2–5	−0.192
	4–9	0.368	2–9	−0.182
6	5–6	0.510	2–5	−0.252
Lower public servants and salaried	6–9	0.397	2–9	−0.252
employees, provincial towns	5–9	0.390	2–6	−0.223
	1–2	0.250	2–12	−0.167
	4–7	0.204	2–11	−0.165

*) 1. Dwelling. 2. Fuel and light. 3. Food. 4. Tobacco. 5. Clothing 6. Footwear. 7. Washing and cleaning. 8. Durables excl. own car. 9. Personal hygiene. 10. Books, newspapers etc.. 11. Sports, holidays, hobbies, etc. 12. Transport, incl. own car. 13. Union fees, subscriptions etc.

in the case of the negatively correlated items such typically interrelated expenditure sets are lacking.

Table VI,4 gives the five highest coefficients of correlation of each category (positive and negative) for each of the twelve groups of wage and salary earners. Also here especi-

Table VI,4. continued.

Social groups	Highest		Lowest	
	Expenditure group*)	Coefficients	Expenditure group*)	Coefficient
7	5–6	0.596	5–12	−0.396
Skilled workers, provincial towns	7–11	0.467	6–12	−0.336
	9–10	0.309	2–11	−0.274
	4–7	0.293	8–13	−0.242
	3–13	0.288	3–8	−0.236
8	5–6	0.590	3–5	−0.388
Unskilled workers, provincial towns	7–9	0.482	1–11	−0.335
	5–7	0.445	3–6	−0.327
	11–12	0.411	3–9	−0.326
	6–9	0.394	2–12	−0.288
9	5–6	0.428	2–11	−0.263
Lower public servants and salaried	6–9	0.360	2–9	−0.248
employees, rural districts	5–9	0.359	2–6	−0.227
	4–11	0.315	2–5	−0.222
	7–9	0.291	1–8	−0.199
10	5–6	0.496	3–8	−0.237
Skilled workers, rural districts	5–7	0.429	7–12	−0.305
	7–9	0.384	3–12	−0.301
	1–2	0.341	5–8	−0.292
	3–13	0.314	7–8	−0.274
11	5–6	0.447	2–11	−0.447
Unskilled workers, rural districts	6–9	0.402	2–4	−0.253
	5–9	0.398	5–13	−0.230
	2–10	0.296	8–13	−0.175
	6–11	0.254	1–3	−0.174
12	1–2	0.491	8–11	−0.245
Farm workers, rural districts	5–6	0.458	1–11	−0.233
	7–11	0.333	2–11	−0.228
	7–12	0.322	7–8	−0.214
	5–9	0.299	5–12	−0.195

*) 1. Dwelling. 2. Fuel and light. 3. Food. 4. Tobacco. 5. Clothing. 6. Footwear. 7. Washing and cleaning. 8. Durables excl. own car. 9. Personal hygiene. 10. Books, newspapers etc. 11. Sports, holidays, hobbies, etc. 12. Transport, incl. own car. 13. Union fees, subscriptions etc.

ally the negatively correlated items are characterized by great differences in the pattern from one group of wage and salary earners to the other.

How the extra determining variable is to be fitted into the Engel function to yield the maximum reduction in the residual variance of the dependent variable, will not be discussed here.

One technically simple method would be to let y_h or a transformation thereof enter linearly so that the result will be e.g. a function of the following form

$$\log \eta_i = \alpha + \beta (\log v - \overline{\log v}) + \gamma (\log \eta_h - \overline{\log \eta_h})$$

whereby efficient estimates of parameters and of the residual variance on y_i, can be calculated according to the theory of multiple linear regression.

The results of such calculations as regards the case of footwear in the group of skilled workers in the provincial towns are shown in table VI, 5, expenditure on clothing entering as supplementary explanatory variable. The residual variance of log y_i is reduced by about 35 per cent namely from 0.00928 to 0.00587.

Table VI,5. Unexplained variance in the regression analysis. Skilled workers in provincial towns. $\log y_1 = a + b_1 (\log x - \overline{\log x}) + b_2 (\log y_2 - \overline{\log y_2})$. Expenditure on footwear, y_1 as a function of income, x and expenditure on clothing, y_2.

$$\log y_1 = 1.8718 + 0.1909\ (\log x - 3.5746) + 0.4326\ (\log y_2 - 2.4665)$$

$$s^2_{\log y_1 \,|\, \log x,\, \log y_2} = 0.005873$$

$$s_{\log y_1 \,|\, \log x,\, \log y_2} = 0.0766$$

$$\log y_1 = a' + b'\ (\log y_2 - \overline{\log y_2})$$

$$s_{\log y_1 \,|\, \log y_2} = 0.0784$$

$$\log y_1 = a'' + b''\ (\log x - \overline{\log x})$$

$$s_{\log y_1 \,|\, \log x} = 0.0965$$

DANSK RESUMÉ

Undersøgelsen af danske lønmodtagerhusstandes indkomst-, forbrugs- og opsparingsforhold for året 1955, som gennemførtes i begyndelsen af året 1956, er den største og mest detaillerede af de forbrugsundersøgelser, Det statistiske Departement har foretaget, siden man i 1897 påbegyndte denne art af undersøgelser. Forbrugsundersøgelsernes primære formål var oprindelig at fremskaffe oplysning om »Livsvilkår i de forskellige samfundslag, derunder ernærings- og forbrugsforhold«,[1]) men efter at pristalsreguleringen af lønninger og ydelser og tilskud af forskellig art vandt stærkt frem, har de foretagne forbrugsundersøgelser her som i mange andre vesteuropæiske lande i første række skullet tjene som redskab til opstilling af vægte ved prisindeksberegningerne. I de seneste år synes imidlertid det alment beskrivende, som var det primære sigte med de første forbrugsundersøgelser, atter at komme i første række. Dette skyldes bl.a., at man har erkendt, at det grundmateriale, som tilvejebringes ved en omhyggelig planlagt og udført forbrugsundersøgelse – i denne forbindelse må de senere års betydelige fremskridt indenfor undersøgelsesteknikken haves i erindring - rummer oplysninger om væsentlige økonomiske sammenhænge især vedrørende anvendelsen af den indtjente indkomst, der ikke, eller kun mangelfuldt, kan belyses ad anden vej.[2])

Forbrugsundersøgelsen for året 1955 har da også været genstand for en mere omfattende bearbejdelse end nogen af de foregående undersøgelser.

En almindelig oversigt over 1955-undersøgelsen, dens tilrettelæggelse og dens hovedresultater er givet i Statistiske Efterretninger i 1957.[3]) Fødevareforbruget blev særskilt behandlet i en artikel i Statistiske Efterretninger i 1958.[4]) De indhentede oplysninger vedrørende lønmodtagerhusstandenes opsparings- og formueforhold blev gjort til genstand for en særskilt analyse, hvis resultater meddeltes i et hæfte i serien Statistiske Undersøgelser i 1960.[5]) I samme serie behandledes de indhentede oplysninger om lønindkomsternes fordeling og sammensætning[6]).

Hovedparten af de indhentede oplysninger fra de adspurgte lønmodtagerhusstande vedrørte disses husstandes forbrugsudgifter i året 1955, og man besluttede derfor at underkaste lønmodtagernes forbrugsadfærd en mere indgående analyse. Det er resultaterne fra denne analyse, der indeholdes i nærværende publikation.

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[1]) Lov om Statens statistiske Bureau 1895.
[2]) Jfr. I. L. O. (11).
[3]) Statistiske Efterretninger 1957, nr. 83.
[4]) Statistiske Efterretninger 1958, nr. 46.
[5]) Opsparing i lønmodtagerhusstandene 1955, Statistiske Undersøgelser nr. 3, Kbh. 1960.
[6]) Lønmodtagerindkomster, Fordeling og sammensætning, Statistiske Undersøgelser nr. 6, Kbh. 1962.

2. Analysens hovedresultater.

Analysen tilsigtede at give en præcis beskrivelse af sammenhængen mellem de danske lønmodtagerhusstandes disponible indkomst og udgiften til nogle væsentlige udgiftsposter i året 1955. Denne sammenhæng mellem disponibel indkomst og udgiften til givne udgiftsposter er utvivlsomt af væsentlig betydning, hvis man vil prøve at forklare forskelle i forbrugsadfærd fra den ene husstand til den anden, selvom naturligvis mange andre forhold spiller ind såsom husstandstype, bopæls- og socialgruppering m.v. Indkomst–udgiftsrelationen er imidlertid tillige af væsentlig betydning, hvis man vil forsøge at foretage skøn over forbrugets sandsynlige udvikling ved givne, alternative indkomstforskydninger, hvad enten dette nu drejer sig om den enkelte husstand eller husstandsgruppe, eller det drejer sig om alle husstande under eet.[7])

Hovedvægten i analysen blev derfor lagt på udledning af de indkomst–udgiftsrelationer, som ifølge det foreliggende grundmateriale gav den bedste beskrivelse af sammenhængen. De nævnte indkomst–udgiftsrelationer går ofte under betegnelsen Engelfunktioner efter den tyske økonom og statistiker, Ernst Engel, og det konkrete analysearbejde har bestået i at beregne skøn over parametrene i fem på forhånd udvalgte funktionstyper og derefter ved et antal test at sammenligne disse funktionstyper for at finde frem til den for hver udgiftspost bedst egnede Engelkurve.

For at eliminere de væsentligste forstyrrende påvirkninger hidrørende fra forskelle i husstandsstørrelse i de undersøgte husstande omregnedes alle udgifts- og indkomstbeløb for hver af de 3100 husstande til beløb pr. person.

Engel funktionens uafhængigt variable fastlagdes som disponibel indkomst (samtlige kontantindtægter minus betalte personlige skatter) pr. person, og der blev udledt Engelfunktioner for følgende 13 udgiftsposter, der tilsammen udgør 85 pct. af totalforbruget for samtlige lønmodtagerhusstande.

1. Bolig.
2. Brændsel og belysning.
3. Fødevarer (incl. regelmæssig fortæring ude og øl, vin og spiritus indenfor det sædvanlige husholdningsforbrug).
4. Tobak.
5. Beklædning.
6. Fodtøj.
7. Vask og rengøring.
8. Varige goder (excl. motorkøretøjer).
9. Personlig pleje.
10. Bøger, aviser m.v.
11. Sport, ferie, fritid m.v. (incl. restaurationsbesøg, teater, biograf og øl, vin og spiritus uden for det sædvanlige husholdningsforbrug).
12. Transport (incl. motorkøretøjer).
13. Kontingent og forsikringer m.v. (excl. livs- og pensionsforsikringer).

Beregningerne udførtes særskilt for 12 lønmodtagergrupper, nemlig 4 socialgrupper indenfor hver af 3 landsdele, jfr. resultattabellen i bilag A. De 5 funktionstyper, hvis

[7]) Jfr. Erling Jørgensen (12), side 54–61.

parametre man dannede skøn over, var følgende, hvor v betegner den disponible indkomst og η udgiften til en given udgiftspost:

$$(1)\quad \log \eta = \alpha + \beta\,(\log v - \overline{\log v})$$

$$(2)\quad \log \eta = \alpha + \beta\left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$$

$$(3)\quad \eta = \alpha + \beta\,(\log v - \overline{\log v})$$

$$(4)\quad \eta = \alpha + \beta\left(\frac{1}{v} - \overline{\frac{1}{v}}\right)$$

$$(5)\quad \log \eta = \log \varkappa + \log\,[\Phi\,(\alpha + \log v)]$$

Væsentlige dele af analyserapporten behandler estimationsproblemer, således at man kan sige, at udredningen af *analysemetoderne* var et andet hovedformål ved analysearbejdet ved siden af selve beregningen af *analyseresultaterne.*

De foretagne testberegninger viste næsten samstemmende, at funktionstype (1), den dobbeltlogaritmiske funktion, for samtlige 13 udgiftsposter gav den bedste fremstilling af Engelrelationen. Dette resultat er i en vis forstand overraskende, fordi det indebærer, at indkomstelasticiteten i de pågældende husstandes efterspørgsel efter de 13 udgiftsposter er konstant (for given socialgruppe, idet beregningerne som nævnt er udført særskilt for 12 lønmodtagergrupper) og altså uafhængig af indkomstniveauet. Dette følger af, at indkomstelasticiteten er identisk med parameteren β i den dobbeltlogaritmiske Engelfunktion. Man måtte vel på forhånd vente, at varegrupper, der i de højeste indkomstgrupper betragtes som nødvendighedsvarer (lav indkomstelasticitet), i de lavere indkomstgrupper ville gå over til at blive betragtet som luksusvarer (høj indkomstelasticitet). Imidlertid viser det sig[8]), at der er en bemærkelsesværdig stabilitet til stede, også når vi går fra lønmodtagergruppe til lønmodtagergruppe for så vidt angår det nævnte parameterskøn over β, skønnet over indkomstelasticiteten. For 6 udgiftsposters vedkommende kan en hypotese om konstant indkomstelasticitet alle 12 lønmodtagergrupper igennem opretholdes, og for de resterende 7 posters vedkommende er afvigelserne omend statistisk signifikante dog ikke særligt store. Konstateringen af denne stabilitet i lønmodtagerhusstandenes indkomstelasticitet i udgiften til de væsentligste udgiftsposter er et af de mest iøjnefaldende resultater af analysearbejdet[9]).

Denne stabilitet gør det forsvarligt at beregne gennemsnit af de 12 lønmodtagergruppers indkomstelasticiteter for hver de 13 udgiftsposter. Disse gennemsnitselasticiteter er vist i nedenstående oversigt, hvor udgiftsposterne er ordnet efter gennemsnitsindkomstelasticitetens størrelse.

Man ser umiddelbart af denne tabel, at de beregnede gennemsnitselasticiteter falder i tre klart afgrænsede størrelsesgrupper:

1. En gruppe, man kunne kalde nødvendighedsvarer, hvor elasticiteten ligger på godt 0.5, bestående af de tre poster, fødevarer, fodtøj og brændsel og belysning.

[8]) Jfr. kap. V, side 83.

[9]) Dette resultat frister til at postulere, at de fundne indkomstelasticiteter for lønmodtagerbefolkningen har generel gyldighed for alle befolkningsgrupper. Om konsekvenserne heraf se Erling Jørgensen, (12).

Udgiftspost	Indkomst-elasticitet	Gnstl. Indkomst-elasticitet[1]
Nødvendighedsvarer		
Brændsel og belysning	0.511	0.59
Fodtøj	0.562	
Fødevarer	0.608	
»Neutrale« varer		
Kontingenter og forsikring	0.821	0.94
Personlig pleje	0.856	
Vask og rengøring	0.859	
Bolig	0.885	
Bøger, aviser m.v.	0.977	
Tobak	0.980	
Varige goder excl. motorkøretøjer	0.989	
Beklædning	1.035	
Luksusvarer		
Transport incl. motorkøretøjer	1.386	1.45
Sport, ferie og fritid	1.500	

[1]) Ved beregningen af de 3 gennemsnitselasticiteter er de 13 udgiftsposters andel i totalforbruget anvendt som vægte.

2. En anden gruppe, man kunne kalde neutrale varer, hvor elasticiteten ligger på et niveau omkring 1.0, og udgiften derfor stiger med samme procent som indkomsten. I denne gruppe ligger bl.a. de to vigtigste udgiftsposter bolig og beklædning.

3. Endelig er der den tredje gruppe, som man kunne kalde luksusvarer, hvor elasticiteten er ca. 1.5, bestående af de to poster transport (incl. motorkøretøjer) og sport, ferie og fritid.

Analysen gav videre til resultat, at de beregnede 12 Engelkurver for hver udgiftspost – nemlig en for hver af de 12 lønmodtagergrupper, hvori materialet var opdelt – ikke kunne betragtes som sammenfaldende, men at denne opdeling efter bopæl og socialgruppering syntes at modsvare faktisk eksisterende forskelle i forbrugsadfærd de tolv grupper imellem[10]).

Hovedformålet med analysen har som nævnt været at formulere en præcis beskrivelse af sammenhængen mellem lønmodtagerhusstandenes indkomst og udgifter til væsentlige udgiftsposter. Den anvendte analysemetode, som overvejende består i lineær regressionsanalyse, synes at give tilfredsstillende resultater for de fleste udgiftsposter, med »pæne« udledte Engelkurvefunktioner til følge. For enkelte poster, især de to poster *varige goder* og *transport* (*incl. motorkøretøjer*), er den uforklarede del af udgiftsvariationen fra husstand til husstand imidlertid uforholdsmæssig høj og er kun blevet reduceret ganske lidt ved inddragelsen af husstandenes disponible indkomst i undersøgelsesperioden som uafhængig, forklarende variabel.

Man kan formentlig heraf konkludere, at analysen af husstandenes udgifter til disse poster må gå ad andre veje end den her anvendte, med inddragelse of oplysninger om

[10]) Jfr. kapitel V, side 85.

husstandstype og øvrige milieubetingede faktorer samt ikke mindst af oplysninger vedrørende indkomstændringer og tidligere perioders forbrugsadfærd. En sådan dynamisk analyse har imidlertid ligget uden for rammerne af dette arbejde, men det må erkendes, at de her repræsenterede resultater for disse posters vedkommende er utilfredsstillende.

På et par punkter er man gået ud over det ovenfor afgrænsede analyseformål, idet man i et afsluttende kapitel har undersøgt dels, i hvilket omfang de 13 udgiftsposter er korrelerede, d.v.s. om husstande, der giver meget eller lidt ud til een bestemt udgiftspost udviser, en karakterisk udgiftsadfærd med hensyn til een eller flere af de øvrige poster (har husstande med et højt tobaksforbrug et mindre fødevareforbrug end husstande med lavt forbrug af tobak? etc.); dels har man forsøgt at skitsere, hvilken betydning forskelle i husstandstype (husstandens størrelse og sammensætning) har for husstandenes forbrugsadfærd i de forskellige indkomstklasser.

Hvad det første problem angår – korrelationen mellem de 13 udgiftsposter – viste de foretagne beregninger, at der kun i ringe grad kunne påvises en sådan korrelation. Kun for så vidt angår de to poster *bolig* og *brændsel–belysning* fandtes en stærk (positiv) korrelation. Dette resultat falder godt i tråd med hele oplægget til analysen, idet grupperingen af de mangfoldige varer og tjenester, hvorom oplysninger indhentedes, i et beskedent antal hovedudgiftsposter netop sigtede mod en gruppering, hvor der kun var en ringe positiv eller negativ korrelation mellem de enkelte grupper. Herved ville man søge at nå frem til stabile indkomst–udgiftsrelationer, men måtte naturligvis samtidig give afkald på at beskrive husstandenes forbrugsadfærd overfor enkeltvarer og tjenester.

Med hensyn til husstandstypens betydning for husstandenes forbrugsadfærd viste de foretagne undersøgelser, at selve husstandsstørrelsen var den dominerende faktor, og at man ved den foretagne omregning til beløb pr. person fik elimineret størsteparten af denne »forstyrrende« påvirkning. For visse udgiftsposter, bl.a. *bolig* og *fritidsudgifter*, var der imidlertid stadig mærkbare påvirkninger at spore udover persontalseffekten, og generelt gjaldt det, som man vel også på forhånd ville vente, at der består economies of scale, d.v.s., at udgiften pr. person til en given udgiftspost er faldende med persontallet pr. husstand.

Rapportens kapitel I indeholder en oversigt over arbejdets baggrund og tilrettelæggelse samt over nogle af analysens hovedresultater. Kapitel II er en gennemgang af det anvendte grundmateriale. Denne gennemgang indeholder dels en beskrivelse af forbrugs- og opsparingsundersøgelsens praktiske udførelse, d.v.s. grundmaterialets indsamling og bearbejdelse, og dels en udledning af den statistiske usikkerhed, som de fra undersøgelsesmaterialet udledte tal er behæftet med. I kapitel III afgrænses analyseopgaven, idet forskellige modeller til beskrivelse af de adspurgte husstandes udgiftsadfærd diskuteres, en diskussion der munder ud i en motivering for valget af Engelkurveproblematikken som analysens hovedemne. Kapitel IV indeholder en detailleret gennemgang af analysemetoderne. Hvilke funktionstyper skal lægges til grund ved udledningen af Engelkurver for de forskellige udgiftsposter? Hvorledes skal de i Engelfunktionen indgående variable nærmere afgrænses? Og ikke mindst, hvorledes skal de anvendte funktionstypers egnethed ved beskrivelsen af indkomst–udgiftsrelationerne afprøves?

Herefter følger i kapitel V rapportens hovedafsnit, nemlig gennemgangen af analyseresultaterne, hvorunder især den dobbeltlogaritmiske Engelkurvefunktion, som efter de

udførte test *for goodness of fit* fandtes at være den »bedste« af de 5 afprøvede funktionstyper, kommenteres.

Endelig er der i det afsluttende kapitel VI anført nogle eksempler på nærliggende videregående beregninger, der skønnes at kunne bidrage til en yderligere præcision i beskrivelsen af husstandenes forbrugsadfærd, end nærværende analyses hovedredskab, Engelkurven, muliggør. Til »forklaring« af de observerede forskelle i husstandenes udgifter til en given udgiftspost fremdrages dels forskelle i husstandenes størrelse og sammensætning og dels husstandenes udgifter til een eller flere andre udgiftsposter.

I bilag til rapporten er anført dels en samlet oversigt over analyseresultaterne, der falder i to afsnit, hovedanalysens resultater, jfr. kap. V og resultater af de videregående beregninger jfr. kap. VI, dels det ved analysen benyttede grundmateriale suppleret med visse yderligere oplysninger, der vil kunne inddrages i eventuelle supplerende analyser.

En liste over den benyttede litteratur er anført side 117–118.

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APPENDICES

Appendix A. Results of regression analysis.

The results comprise the estimates a, k and b for the five Engel functions

$$1 \quad \log y = a + b\,(\log x - \overline{\log x})$$

$$2 \quad \log y = a + b\left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$$

$$3 \quad y = a + b\,(\log x - \overline{\log x})$$

$$4 \quad y = a + b\left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$$

$$5 \quad \log y = \log k + \log \Phi\,(a + \log x),$$

x denoting disposable income per person and y denoting expenditure per person on a given item. Also included are the averages of the dependent variable, $\overline{\log x}$ or $\overline{\frac{1}{x}}$ and estimates of the standard errors of a and b, s_a and s_b as well as the estimates s_1 and s_2 denoting the square roots of the variance in the distribution of y within groups and of the variance in the distribution of residuals respectively. The tables of result finally contain the results of the following tests: the correlation coefficient, R, between observed and calculated expenditures, N-test for number of runs and l-test for number of elements in the longest run, d-test for size and sign of the residuals, F-test, and χ^2-test for normality of the residuals.

The limits of significance (5 or 95 per cent) are given in the following table, separately for each of the twelve groups of wage and salary earners[1]).

[1]) This table do not include the limits of significance for the N-test the test for number of runs, as these limits differ from expenditure item to expenditure item within each group of wage and salary earners, cfr. table V,5.

Limits of significance.

Group of wage and salary earners	Number of groups of 3 house-holds	χ^2-test		d-test		F-test		l-test
		degrees of freedom	$\chi^2_{.95}$	degrees of freedom	$d_{.05}$	degrees of freedom	$F_{.95}$	$l_{.95}$
1. Higher sal. public servants and empl., the capital.....	112	7	14.1	110	1.64	111.224	1.31	11
2. Lower public servants and sal. empl., the capital.....	154	9	16.9	512	1.67	153.308	1.26	12
3. Skilled workers, the capital	83	7	14.1	81	1.59	82.166	1.36	10
4. Unskilled workers, the capital.....	68	5	11.1	66	1.54	67.136	1.41	10
5. Higher public servants and sal. empl.....	70	5	11.1	68	1.55	69.140	1.40	10
6. Lower public servants and sal. empl.....	111	7	14.1	109	1.64	110.222	1.31	11
7. Skilled workers provincial towns.....	51	3	7.8	49	1.46	50.102	1.48	9
8. Unskilled workers, provincial towns..	70	5	11,1	68	1.55	69.140	1.40	10
9. Lower public servants and sal. empl., rural distr.....	102	7	14.1	100	1.63	101.204	1.32	11
10. Skilled workers, rural districts.....	51	3	7.8	49	1.46	50.102	1.48	9
11. Unskilled workers, rural districts.....	93	7	14.1	91	1.61	92.186	1.34	10
12. Agric. workers, rural distr....	53	3	7.8	51	1.46	52.106	1.47	9

Appendix A. Main results. Higher public servants and salaried

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1: $\log y = a + b (\log x - \overline{\log x})$						
a	2.768	2.452	3.151	2.354	2.723	2.057
b	0.960	0.734	0.524	0.799	0.885	0.429
$\overline{\log x}$	3.806	3.806	3.806	3.806	3.806	3.806
s_1	0.117	0.105	0.0548	0.197	0.116	0.116
s_2	0.141	0.120	0.0690	0.247	0.127	0.127
s_a	0.013	0.011	0.0065	0.023	0.012	0.012
s_b	0.070	0.060	0.034	0.12	0.063	0.063
R	0.79	0.76	0.82	0.53	0.80	0.54
N	49	63	63	47	48	58
l	9	7	8	7	7	10
d	2.24	2.03	1.85	1.86	1.69	2.07
F	1.45	1.30	1.59	1.57	1.20	1.19
χ^2 (f)	9.9 (7)	6.3 (7)	8.9 (7)	21.5 (7)	8.4 (7)	10.0 (7)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.768	2.452	3.151	2.354	2.723	2.057
$b \cdot 10^{-4}$	−0.261	−0.206	−0.151	−0.231	−0.250	−0.123
$\frac{\bar{1}}{x} \cdot 10^{+4}$	1.705	1.705	1.705	1.705	1.705	1.705
s_1	0.117	0.105	0.0548	0.197	0.116	0.116
s_2	0.152	0.123	0.0678	0.246	0.130	0.127
s_a	0.014	0.012	0.0064	0.023	0.012	0.012
$s_b \cdot 10^{-4}$	0.022	0.108	0.0097	0.035	0.019	0.018
R	0.75	0.74	0.83	0.53	0.79	0.54
N	49	57	52	51	48	62
L	9	7	8	7	8	10
d	1.89	1.94	1.81	1.87	1.59	2.06
F	1.69	1.37	1.53	1.56	1.26	1.19
χ^2 (f)	5.9 (7)	7.4 (7)	8.8 (7)	12.9 (7)	9.2 (7)	6.5 (7)
3: $y = a + b (\log x - \overline{\log x})$						
a	500.7	251.7	1322	209.2	450.3	111.9
b	1300	525	1880	512	1110	133
$\overline{\log x}$	3.679	3.697	3.724	3.683	3.682	3.735
s_1	0.269	0.242	1.26	0.454	0.267	0.267
s_2	0.344	0.263	0.148	0.445	0.281	0.277
s_a	17	6.6	19	9.4	13	3.0
s_b	110	42	120	61	83	18

employees. The capital. (1.1.) 112 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
2.080	2.448	2.178	1.988	2.800	2.547	2.062
0.803	0.574	0.807	1.015	1.387	0.863	0.634
3.806	3.806	3.806	3.806	3.806	3.806	3.806
0.124	0.195	0.105	0.140	0.138	0.215	0.117
0.130	0.287	0.108	0.138	0.132	0.362	0.126
0.012	0.027	0.010	0.013	0.012	0.034	0.012
0.065	0.14	0.054	0.069	0.066	0.18	0.063
0.76	0.36	0.82	0.81	0.90	0.41	0.69
45	59	57	61	55	49	58
9	10	11	9	6	10	6
1.65	2.21	1.84	2.04	2.14	1.98	2.10
1.10	2.16	1.05	0.97	0.91	2.84	1.17
12.4 (7)	3.9 (7)	5.1 (7)	10.6 (7)	6.0 (7)	25.7 (7)	3.3 (7)
2.080	2.448	2.178	1.988	2.800	2.547	2.062
−0.231	−0.186	−0.226	−0.272	−0.393	−0.274	−0.179
1.705	1.705	1.705	1.705	1.705	1.705	1.705
0.124	0.195	0.105	0.140	0.138	0.215	0.117
0.130	0.281	0.112	0.154	0.137	0.353	0.128
0.012	0.027	0.011	0.015	0.013	0.033	0.012
0.018	0.040	0.016	0.022	0.020	0.050	0.018
0.77	0.40	0.80	0.76	0.89	0.46	0.68
44	62	55	51	49	54	61
12	8	11	11	6	9	6
1.60	2.29	1.70	1.72	1.96	2.09	2.05
1.09	2.08	1.14	1.21	0.98	2.70	1.20
8.6 (7)	11.5 (7)	6.6 (7)	11.6 (7)	4.6 (7)	16.9 (7)	6.9 (7)
104.0	282.8	130.2	82.06	402.1	326.6	107.3
245	666	298	220	1910	1390	186
3.686	3.686	3.689	3.671	3.620	3.635	3.711
0.286	0.449	0.241	0.323	0.319	0.495	0.270
0.285	0.660	0.266	0.429	0.334	1.01	0.302
3.0	19	3.5	3.6	15	36	3.2
19	120	22	24	110	260	20

Appendix A. Main results (continued). Higher public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.73	0.77	0.84	0.62	0.79	0.58
N	45	57	56	55	58	60
l	11	10	8	6	7	10
d	1.95	2.03	1.94	1.75	1.59	2.12
F	1.63	1.18	1.38	0.96	1.11	1.07
χ^2 (f)	17.2 (7)	14.8 (7)	13.1 (7)	3.6 (7)	4.3 (7)	8.6 (7)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	508.7	253.9	1328	209.7	456.0	112.1
$b10^{-4}$	−290	−119	−448	−116	−244	326
$\frac{\bar{1}}{x}10^{+4}$	2.234	2.152	2.021	2.224	2.223	1.977
s_1	0.269	0.242	0.126	0.454	0.267	0.267
s_2	0.388	0.301	0.170	0.472	0.324	0.287
s_a	20	7.6	22	10	15	3.1
$s_b \cdot 10^{-4}$	28	11	31	14	21	4.5
R	0.70	0.73	0.81	0.62	0.74	0.57
N	43	49	50	61	49	58
l	11	10	8	6	12	10
d	1.43	1.61	1.50	1.64	1.22	2.03
F	2.07	1.55	1.81	1.08	1.48	1.15
χ^2 (f)	27.8 (8)	25.0 (7)	8.0 (7)	15.0 (7)	7.6 (7)	5.8 (7)
5: $\log y = \log k + \log \Phi (a + \log x)$						
a	−5.687	−5.075	−4.466	−5.258	−5.490	−4.160
k	19870	2813	5646	3132	11650	319.8
s_1	0.117	0.105	0.0548	0.197	0.116	0.116
s_2	0.141	0.119	0.0664	0.245	0.125	0.125
s_a	0.29	0.28	0.16	0.51	0.29	0.36
s_k	12000	1300	1000	2800	6600	110
R	0.72	0.76	0.84	0.62	0.79	0.58
N	53	61	63	49	50	60
l	9	7	8	7	7	10
d	2.21	2.05	1.93	1.87	1.74	2.09
F	1.45	1.29	1.47	1.54	1.16	1.17
χ^2 (f)	6.05 (9)	6.35 (9)	13.70 (9)	18.97 (9)	12.26 (9)	13.15 (9)

salaried employees. The capital. (1.1.) 112 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.77	0.46	0.79	0.66	0.85	0.46	0.67
48	64	51	53	51	43	57
12	8	12	9	7	14	10
1.63	2.26	1.70	1.57	1.50	2.20	2.05
1.00	21.6	1.21	1.77	1.10	4.14	1.26
10.4 (7)	39.6 (7)	17.7 (7)	50.5 (7)	8.6 (7)	80.6 (7)	8.6 (7)
104,4	277.9	131.1	85.26	398.8	272.0	109.0
−55.1	−154	−67.0	−45.0	−394	−295	−42.8
2.207	2.228	2.194	2.281	2.586	2.616	2.067
0.286	0.449	0.241	0.323	0.319	0.495	0.270
0.315	0.697	0.305	0.571	0.449	0.956	0.332
3.3	20	4.0	4.8	21	31	3.5
4.6	28	5.6	6.7	29	44	5.0
0.75	0.47	0.75	0.56	0.79	0.54	0.63
46	62	37	49	39	45	51
12	8	15	10	11	14	10
1.34	2.22	1.35	1.16	0.81	2.22	1.86
1.21	2.41	1.60	3.13	1.99	3.73	1.51
7.6 (7)	42.1 (7)	35.7 (7)	68.4 (7)	35.1 (7)	86.4 (7)	23.1 (7)
−5.272	−4.636	−5.278	−5.829	−9.705	−5.440	−4.789
1713	1400	2171	4587	$2381 \cdot 10^8$	7003	719.0
0.124	0.195	0.105	0.140	0.138	0.215	0.117
0.128	0.283	0.107	1.139	0.257	0.359	0.125
0.32	0.55	0.27	0.34	0.051	0.54	0.32
960	990	1000	3500	$50 \cdot 10^8$	7200	320
0.77	0.43	0.79	0.70	0.64	0.34	0.67
46	61	55	59	33	51	63
9	6	11	7	21	9	6
1.69	2.24	1.86	2.11	0.59	2.02	2.12
1.06	2.11	1.03	0.99	3.48	2.79	1.15
9.13 (9)	5.93 (9)	8.73 (9)	9.41 (9)	19.55 (9)	29.28 (9)	4.47 (9)

Appendix A. Main results (continued). Lower public servants and salaried

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b\,(\log x - \overline{\log x})$						
a	2.735	2.368	3.152	2.344	2.689	2.063
b	0.931	0.498	0.533	0.838	1.115	0.623
$\overline{\log x}$	3.745	3.745	3.745	3.745	3.745	3.745
s_1	0.116	0.149	0.0613	0.228	0.129	0.123
s_2	0.129	0.171	0.0670	0.273	0.138	0.122
s_a	0.010	0.014	0.0054	0.022	0.011	0.0098
s_b	0.055	0.073	0.028	0.12	0.059	0.052
R	0.81	0.49	0.84	0.51	0.84	0.70
N	76	67	73	70	81	66
l	8	7	7	9	9	9
d	1.76	1.97	2.06	1.91	2.12	1.91
F	1.24	1.31	1.19	1.43	1.14	0.99
χ^2 (f)	5.2 (9)	25.5 (9)	10.2 (9)	30.4 (9)	8.5 (9)	9.4 (9)
2: $\log y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.735	2.368	3.152	2.344	2.689	2.063
$b \cdot 10^{-4}$	−0.198	−0.104	−0.118	−0.197	−0.242	−0.132
$\frac{\bar{1}}{x} \cdot 10^{+4}$	1.975	1.975	1.975	1.975	1.975	1.975
s_1	0.116	0.149	0.0613	0.228	0.129	0.123
s_2	0.139	0.174	0.0666	0.267	0.145	0.127
s_a	0.011	0.014	0.0054	0.022	0.012	0.010
$s_b \cdot 10^{-4}$	0.013	0.016	0.0060	0.025	0.014	0.012
R	0.78	0.46	0.84	0.54	0.82	0.67
N	69	67	70	72	77	70
L	11	7	8	9	9	9
d	1.52	1.90	2.03	1.98	1.90	1.76
F	1.43	1.36	1.18	1.38	1.26	1.07
χ^2 (f)	4.8 (9)	16.7 (9)	10.9 (9)	38.8 (9)	3.2 (9)	5.8 (9)
3: $y = a + b\,(\log x - \overline{\log x})$						
a	453.3	228.0	1312	193.0	348.6	107.7
b	1040	311	1765	487	1080	161
$\overline{\log x}$	3.596	3.651	3.652	3.580	3.549	3.642
s_1	0.268	0.344	0.141	0.525	0.298	0.282
s_2	0.340	0.362	0.148	0.478	0.333	0.281
s_a	13	6.9	16	8.2	11	2.5
s_b	72	37	87	44	58	14

employees. The capital. 1.2 154 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
2.047	2.396	2.203	1.961	2.653	2.393	2.115
0.853	0.885	0.999	0.946	1.366	1.087	0.656
3.745	3.745	3.745	3.745	3.745	3.745	3.745
0.133	0.236	0.106	0.138	0.155	0.193	0.124
0.134	0.324	0.124	0.167	0.170	0.305	0.141
0.011	0.026	0.010	0.013	0.014	0.025	0.011
0.057	0.14	0.053	0.071	0.072	0.13	0.060
0.77	0.46	0.84	0.74	0.84	0.56	0.66
81	81	95	70	76	80	72
6	5	5	8	5	7	9
1.84	2.07	2.27	1.91	1.87	1.96	1.85
1.02	1.89	1.37	1.46	1.20	2.50	1.29
13.8 (9)	8.2 (9)	9.1 (9)	9.9 (9)	3.9 (9)	40.3 (9)	10.2 (9)
2.047	2.396	2.203	1.961	2.653	2.393	2.115
−0.188	−0.198	−0.221	−0.211	−0.295	−0.241	−0.150
1.975	1.975	1.975	1.975	1.975	1.975	1.975
0.133	0.236	0.106	0.138	0.155	0.193	0.124
0.136	0.323	0.124	0.166	0.180	0.305	0.138
0.011	0.026	0.010	0.013	0.015	0.025	0.011
0.013	0.030	0.012	0.016	0.017	0.029	0.013
0.77	0.47	0.84	0.74	0.82	0.56	0.68
80	82	87	72	65	82	78
6	6	6	8	15	6	6
1.77	2.08	2.23	1.91	1.64	1.95	1.90
1.04	1.88	1.37	1.45	1.35	2.50	1.24
7.8 (9)	9.1 (9)	7.0 (9)	6.7 (9)	5.0 (9)	34.0 (9)	8.2 (9)
94.10	204.4	119.7	74.49	571.8	204.9	117.0
204	686	333	188	1700	722	212
3.601	3.536	3.565	3.582	3.745	3.523	3.623
0.306	0.543	0.244	0.318	–	0.445	0.286
0.321	0.759	0.314	0.379	–	1.028	0.308
2.6	15	3.4	2.5	–	20	72
14	79	18	13	–	110	9

Appendix A. Main results (continued). Lower public servants and salaried

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.76	0.57	0.86	0.67	0.84	0.69
N	70	65	76	74	73	70
l	18	10	8	9	9	11
d	1.51	1.88	2.11	1.81	1.79	1.86
F	1.61	1.11	1.10	0.83	1.25	1.00
χ^2 (f)	18.9 (9)	22.0 (9)	10.7 (9)	11.6 (9)	13.2 (9)	13.8 (9)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	487.1	230.8	131.9	275.4	576.3	109.9
$b10^{-4}$	−167	−54.0	−315	−111	−291	−27.8
$\frac{\bar{1}}{x}\,10^{+4}$	2.677	2.449	2.452	1.975	1.975	2.471
s_1	0.268	0.344	0.141	–	–	0.282
s_2	0.414	0.389	0.169	–	–	0.302
s_a	17	7.4	19	–	–	2.8
$s_b \cdot 10^{-4}$	15	7.0	17	–	–	2.6
R	0.67	0.53	0.83	0.72	0.68	0.66
N	55	61	60	72	61	65
l	21	11	20	9	17	16
d	1.18	1.75	1.68	2.20	1.91	1.61
F	2.39	1.28	1.43	–	–	1.15
χ^2 (f)	33.4 (9)	34.8 (9)	10.1 (9)	–	–	14.9 (9)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.496	−4.251	−4.375	−5.257	–	−4.639
k	13810	772.5	5447	3440	–	631.9
s_1	0.116	0.149	0.0613	0.228	–	0.123
s_2	0.129	0.171	0.0562	0.270	–	0.122
s_a	0.25	0.38	0.15	0.49	–	0.29
s_k	6800	310	940	3100	–	240
R	0.78	0.56	0.85	0.65	–	0.69
N	78	67	75	70	–	66
l	8	7	7	9	–	9
d	1.78	1.96	2.13	1.94	–	1.90
F	1.24	1.32	1.13	1.40	–	0.98
χ^2 (f)	6.66 (11)	20.84 (11)	9.45 (11)	32.74 (11)	–	10.14 (11)

employees. The capital. 1.2 154 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.76	0.58	0.83	0.75	0.45	0.47	0.72
78	80	84	74	63	66	72
6	6	10	8	14	11	9
1.76	2.15	2.16	1.87	1.98	1.95	1.84
1.10	1.96	1.66	1.42	–	5.34	1.16
25.1 (9)	60.0 (9)	36.9 (9)	19.7 (9)	–	229.8 (9)	14.2 (9)
95.79	351.2	122.6	106.6	571.8	374.0	118.7
−32.2	−161	−50.4	−46.7	−339	−185	−34.3
2.795	1.975	3.048	1.975	1.975	1.975	2.639
0.306	–	0.244	–	–	–	0.286
0.360	–	0.375	–	–	–	0.345
3.0	–	4.2	–	–	–	3.5
2.5	–	3.3	–	–	–	3.0
0.72	0.62	0.78	0.70	0.69	0.42	0.67
61	71	57	74	55	58	74
15	9	31	8	14	13	8
1.39	2.07	1.67	2.35	1.99	1.66	1.56
1.38	–	2.36	–	–	–	1.45
29.6 (9)	–	54.5 (9)	–	–	–	31.5 (9)
−5.290	−5.376	−5.678	−5.540	−9.633	−5.906	−4.748
1849	4920	6099	2558	$1564 \cdot 10^8$	16390	838.4
0.133	0.236	0.106	0.138	0.155	0.193	0.124
0.133	0.322	0.122	0.164	0.287	0.303	0.139
0.29	0.51	0.22	0.29	0.046	0.40	0.29
970	4700	2900	1500	$29 \cdot 10^8$	15000	340
0.76	0.50	0.83	0.75	0.55	0.43	0.72
82	81	94	70	51	82	76
6	5	5	8	23	7	9
1.86	2.08	2.32	1.95	0.71	1.97	1.90
1.00	1.86	1.32	1.42	3.42	2.47	1.26
12.40 (11)	8.92 (11)	8.28 (11)	8.48 (11)	16.43 (11)	39.25 (11)	11.95 (11)

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.616	2.333	3.166	2.450	2.586	1.999
b	0.868	0.402	0.685	0.931	1.020	0.502
$\overline{\log x}$	3.705	3.705	3.705	3.705	3.705	3.705
s_1	0.132	0.131	0.0603	0.156	0.116	0.103
s_2	0.135	0.116	0.0495	0.176	0.129	0.101
s_a	0.016	0.014	0.0060	0.021	0.016	0.012
s_b	0.084	0.072	0.031	0.11	0.080	0.063
R	0.79	0.57	0.94	0.72	0.84	0.70
N	36	33	35	37	40	33
l	4	4	4	5	5	6
d	2.03	1.86	2.11	1.70	2.04	1.94
F	1.05	0.78	0.67	1.27	1.23	0.96
χ^2 (f)	4.5 (5)	10.8 (5)	1.4 (5)	6.1 (5)	8.7 (5)	9.8 (5)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\overline{1}}{x}\right)$						
a	2.616	2.333	3.166	2.450	2.586	1.999
$b \cdot 10^{-4}$	−0.172	−0.091	−0.138	−0.183	−0.213	−0.106
$\frac{\overline{1}}{x} \cdot 10^{+4}$	2.171	2.171	2.171	2.171	2.171	2.171
s_1	0.132	0.131	0.0603	0.156	0.116	0.103
s_2	0.142	0.110	0.0563	0.184	0.124	0.0973
s_a	0.017	0.013	0.0068	0.022	0.015	0.012
$s_b \cdot 10^{-4}$	0.018	0.014	0.0072	0.023	0.016	0.012
R	0.76	0.62	0.92	0.69	0.86	0.72
N	35	33	31	37	33	34
l	6	4	6	5	6	6
d	1.84	2.07	1.62	1.58	2.23	2.06
F	1.16	0.70	0.87	1.38	1.14	0.90
χ^2 (f)	3.3 (5)	4.5 (5)	0.9 (5)	1.1 (5)	6.6 (5)	3.6 (5)
3: $y = a + b (\log x - \overline{\log x})$						
a	341.5	207.3	1276	230.9	279.2	94.47
b	794	243	2220	593	850	119
$\overline{\log x}$	3.555	3.624	3.587	3.540	3.521	3.617
s_1	0.304	0.302	0.139	0.360	0.267	0.237
s_2	0.309	0.249	0.120	0.408	0.278	0.240
s_a	14	6.4	20	13	11	2.8
s_b	76	34	110	70	60	15

The capital. (1.3.) 68 groups og 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
2.023	2.376	2.105	1.900	2.597	2.370	2.337
0.702	1.214	0.679	0.772	1.507	1.561	0.895
3.705	3.705	3.705	3.705	3.705	3.705	3.705
0.120	0.198	0.101	0.135	0.143	0.209	0.0972
0.135	0.263	0.112	0.129	0.132	0.299	0.0855
0.016	0.032	0.014	0.016	0.016	0.036	0.010
0.084	0.16	0.070	0.080	0.082	0.19	0.053
0.72	0.67	0.77	0.76	0.91	0.72	0.90
37	36	35	34	34	36	36
5	5	6	6	6	4	7
1.69	2.07	2.06	2.05	2.26	2.34	2.04
1.27	1.76	1.25	0.91	0.86	2.04	0.77
5.0 (5)	12.8 (5)	6.6 (5)	0.9 (5)	4.5 (5)	3.8 (5)	5.0 (5)
2.023	2.376	2.105	1.900	2.597	2.370	2.337
−0.133	−0.241	−0.142	−0.152	−0.298	−0.308	−0.178
2.171	2.171	2.171	2.171	2.171	2.171	2.171
0.120	0.198	0.101	0.135	0.143	0.209	0.0972
0.145	0.270	0.109	0.136	0.154	0.311	0.0962
0.018	0.033	0.013	0.016	0.019	0.038	0.012
0.019	0.035	0.014	0.017	0.020	0.040	0.012
0.66	0.65	0.78	0.73	0.88	0.69	0.87
33	35	37	33	29	34	33
4	5	5	11	13	5	6
1.48	1.97	2.18	1.86	1.69	2.18	1.63
1.47	1.86	1.18	1.01	1.16	2.20	0.98
5.0 (5)	5.5 (5)	8.4 (5)	3.0 (5)	4.0 (5)	5.1 (5)	4.2 (5)
95.11	199.1	112.2	69.39	217.2	104.6	177.7
172	622	204	138	1080	831	396
3.583	3.528	3.582	3.573	3.459	3.407	3.559
0.276	0.456	0.232	0.311	0.329	0.482	0.151
0.330	0.596	0.257	0.330	0.418	0.762	0.205
4.0	16	3.7	3.0	14	14	4.8
22	92	20	16	87	100	26

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.79	0.66	0.93	0.72	0.87	0.70
N	37	31	33	37	33	35
l	6	4	6	6	6	8
d	1.88	1.95	1.88	1.62	2.16	2.10
F	1.03	0.68	0.75	1.29	1.09	1.03
χ^2 (f)	2.7 (5)	8.0 (5)	7.1 (5)	6.9 (5)	2.4 (5)	18.9 (5)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	436.1	204.9	1285	237.4	286.7	93.00
$b10^{-4}$	−126	−44.3	−362	−89.5	−129	−21.8
$\frac{\bar{1}}{x}\,10^{+4}$	3.062	2.660	2.850	3.162	3.281	2.712
s_1	0.304	0.302	0.139	0.360	0.267	0.237
s_2	0.355	0.247	0.165	0.473	0.319	0.242
s_a	16	6.3	27	15	13	2.8
$s_b \cdot 10^{-4}$	13	5.7	23	12	10	2.5
R	0.76	0.69	0.89	0.67	0.84	0.73
N	27	36	19	31	29	34
l	11	4	13	9	7	8
d	1.53	2.02	1.02	1.32	1.67	2.06
F	1.37	0.67	1.42	1.73	1.44	1.04
χ^2 (f)	6.8 (5)	9.6 (5)	1.7 (5)	12.8 (5)	1.0 (5)	13.3 (5)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.290	−3.934	−4.787	−5.457	−5.697	−4.246
k	7424	532.8	10640	7180	16910	343.7
s_1	0.132	0.131	0.0603	0.156	0.116	0.103
s_2	0.135	0.113	0.0486	0.176	0.125	0.0311
s_a	0.42	0.52	0.20	0.49	0.35	0.38
s_k	5700	250	3200	6900	13000	140
R	0.78	0.64	0.94	0.72	0.84	0.69
N	37	33	34	37	40	33
l	4	4	6	5	5	6
d	2.01	1.95	2.15	1.71	2.13	2.10
F	1.04	0.74	0.65	1.27	1.16	0.91
χ^2 (f)	7.51 (7)	8.49 (7)	2.46 (7)	4.95 (7)	4.48 (7)	9.49 (7)

The capital. (1.3.) 68 groups og 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.70	0.63	0.78	0.73	0.84	0.71	0.88
31	35	34	33	25	31	31
9	5	5	11	14	7	6
1.33	1.56	2.19	1.82	1.00	1.87	1.56
1.43	1.71	1.23	1.12	1.62	2.50	0.84
13.5 (5)	3.9 (5)	1.8 (5)	8.1 (5)	14.2 (5)	44.3 (5)	2.7 (5)
95.79	321.6	111.7	71.21	205.7	100.8	182.8
−28.2	−165	−33.8	−22.1	−161	−124	−60.7
2.890	2.171	2.900	2.900	3.892	4.197	3.014
0.276	–	0.232	0.311	0.329	0.482	0.151
0.387	–	0.264	0.374	0.556	0.888	0.268
4.8	–	3.8	3.4	19	18	6.4
4.0	–	3.2	2.9	16	17	5.3
0.65	0.60	0.79	0.68	0.77	0.67	0.81
31	31	35	25	15	29	23
9	8	6	11	20	7	15
1.01	2.10	1.99	1.55	0.57	1.49	0.87
1.96	–	1.30	1.44	2.86	3.40	1.44
16.9 (5)	–	6.9 (5)	13.7 (5)	20.7 (5)	56.7 (5)	3.3 (5)
−4.825	−6.192	−4.772	−5.028	−9.572	−9.546	−9.733
815.5	37430	903.6	867.6	$1263 \cdot 10^8$	$670.2 \cdot 10^8$	$1178 \cdot 10^8$
0.120	0.198	0.101	0.135	0.143	0.209	0.0972
0.136	0.260	0.110	0.129	0.242	0.351	0.410
0.40	0.59	0.34	0.44	0.068	0.11	0.031
450	57000	440	630	$36 \cdot 10^8$	$32 \cdot 10^8$	$12 \cdot 10^8$
0.71	0.66	0.76	0.73	0.67	0.42	0.49
37	36	36	34	29	37	15
5	5	6	6	13	5	17
1.64	2.11	2.12	2.06	0.67	1.68	0.10
1.29	1.73	1.19	0.91	2.86	2.82	17.78
6.19 (7)	4.88 (7)	7.29 (7)	2.31 (7)	6.36 (7)	3.64 (7)	29.44 (7)

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.602	2.328	3.157	2.449	2.551	1.968
b	0.940	0.312	0.702	1.074	1.047	0.613
$\overline{\log x}$	3.672	3.672	3.672	3.672	3.672	3.672
s_1	0.133	0.124	0.0615	0.178	0.152	0.131
s_2	0.142	0.172	0.0620	0.204	0.156	0.125
s_a	0.016	0.019	0.0068	0.022	0.017	0.014
s_b	0.080	0.096	0.035	0.11	0.088	0.070
R	0.80	0.34	0.91	0.72	0.80	0.69
N	38	38	40	50	46	43
l	5	7	5	6	6	7
d	1.83	1.43	1.76	2.06	2.08	2.30
F	1.14	1.92	1.02	1.32	1.06	0.92
χ^2 (f)	4.1 (7)	8.0 (7)	8.5 (8)	14.6 (7)	13.3 (7)	7.3 (7)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.602	2.328	3.157	2.449	2.551	1.968
$b \cdot 10^{-4}$	−0.158	−0.0644	−0.115	−0.170	−0.176	−0.103
$\frac{\bar{1}}{x} \cdot 10^{+4}$	2.359	2.359	2.359	2.359	2.359	2.359
s_1	0.133	0.124	0.0615	0.178	0.152	0.131
s_2	0.146	0.167	0.0749	0.221	0.161	0.128
s_a	0.016	0.018	0.0082	0.024	0.018	0.014
$s_b \cdot 10^{-4}$	0.014	0.016	0.0072	0.021	0.016	0.012
R	0.78	0.41	0.87	0.66	0.78	0.68
N	39	42	33	43	43	42
l	6	7	11	6	5	6
d	1.75	1.52	1.23	1.77	1.94	2.19
F	1.21	1.81	1.48	1.54	1.13	0.96
χ^2 (f)	9.9 (7)	13.7 (7)	7.3 (7)	14.6 (7)	19.7 (7)	7.0 (7)
3: $y = a + b (\log x - \overline{\log x})$						
a	308.1	211.2	1237	223.7	239.1	85.06
b	707	222	2010	551	696000	122
$\overline{\log x}$	3.473	3.586	3.535	3.467	3.431	3.552
s_1	0.306	0.286	0.142	0.409	0.350	0.301
s_2	0.349	0.310	0.157	0.459	0.341	0.271
s_a	13	7.4	23	13	11	2.6
s_b	60	36	110	58	48	12

The capital. (1.4.) 83 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.993	2.301	2.108	1.907	2.492	2.288	2.295
0.810	0.984	0.828	1.052	1.463	1.342	1.102
3.672	3.672	3.672	3.672	3.672	3.672	3.672
0.134	0.217	0.115	0.155	0.177	0.232	0.119
0.142	0.291	0.132	0.182	0.189	0.270	0.135
0.016	0.032	0.014	0.020	0.021	0.030	0.015
0.079	0.16	0.074	0.10	0.11	0.15	0.075
0.75	0.56	0.78	0.75	0.84	0.70	0.85
33	49	41	40	49	51	31
7	7	6	6	4	4	9
1.89	1.95	1.83	1.88	1.97	2.54	1.59
1.11	1.80	1.30	1.39	1.14	1.36	1.28
9.0 (7)	9.7 (7)	5.0 (7)	3.4 (7)	3.3 (7)	5.1 (7)	8.0 (7)
1.993	2.301	2.108	1.907	2.492	2.288	2.295
−0.125	−0.176	−0.145	−0.170	−0.248	−0.220	−0.188
2.359	2.359	2.359	2.359	2.359	2.359	2.359
0.134	0.217	0.115	0.155	0.177	0.232	0.119
0.158	0.285	0.127	0.195	0.195	0.281	0.137
0.017	0.031	0.014	0.021	0.021	0.031	0.015
0.015	0.027	0.012	0.019	0.019	0.027	0.013
0.67	0.58	0.80	0.71	0.83	0.67	0.85
33	48	44	35	45	43	30
7	7	6	7	6	7	10
1.53	2.02	1.91	1.64	1.84	2.32	1.52
1.38	1.73	1.22	1.59	1.21	1.47	1.32
9.8 (7)	15.0 (7)	8.8 (7)	9.0 (7)	2.2 (7)	7.6 (7)	10.2 (7)
85.51	142.5	94.64	55.44	120.8	89.25	119.5
155	449	231	162	725	509	392
3.520	3.413	3.465	3.426	3.310	3.316	3.405
0.309	0.499	0.266	0.356	0.407	0.534	0.274
0.338	0.557	0.293	0.445	0.479	0.800	0.316
3.4	11	3.5	3.3	9.8	12	5.1
16	48	16	15	50	60	23

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.79	0.57	0.90	0.73	0.85	0.74
N	37	42	37	49	41	47
l	6	7	8	6	6	5
d	1.63	1.91	1.44	1.80	1.92	2.20
F	1.30	1.18	1.23	1.26	0.95	0.81
χ^2 (f)	12.9 (7)	8.8 (7)	3.5 (7)	10.7 (7)	9.0 (7)	2.2 (7)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	457,2	213.8	1276	347.2	234.9	84.23
$b10^{-4}$	−140	−29.8	−253	−122	−82.7	−16.5
$\frac{\bar{1}}{x}\,10^{+4}$	2.359	2.875	3.266	2.359	4.395	3.276
s_1	–	0.286	0.142	–	0.350	0.301
s_2	–	0.329	0.216	–	0.405	0.287
s_a	–	7.9	32	–	13	2.8
$s_b \cdot 10^{-4}$	–	5.3	19	–	6.3	1.6
R	0.78	0.53	0.84	0.60	0.83	0.75
N	37	36	19	37	33	39
l	6	10	17	10	10	7
d	1.77	1.86	0.82	1.91	1.47	1.92
F	–	1.32	2.33	–	1.34	0.91
χ^2 (f)	–	10.9 (7)	9.7 (7)	–	9.4 (7)	8.3 (7)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.414	−3.575	–	–	−5.695	−4.504
k	9976	399.3	–	–	16810	465.2
s_1	0.133	0.124	–	–	0.152	0.131
s_2	0.140	0.169	–	–	0.155	0.124
s_a	0.37	0.49	–	–	0.42	0.41
s_k	7300	130	–	–	15000	240
R	0.79	0.55	–	–	0.82	0.73
N	38	38	–	–	48	41
l	5	7	–	–	5	7
d	1.87	1.48	–	–	2.11	2.33
F	1.11	1.85	–	–	1.04	0.90
χ^2 (f)	7.91 (9)	8.89 (9)	–	–	12.53 (9)	9.17 (9)

The capital. (1.4.) 83 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.74	0.72	0.86	0.78	0.85	0.70	0.88
33	48	39	37	43	33	28
7	6	6	7	8	12	11
1.58	2.26	1.87	1.36	1.46	2.12	1.37
1.19	1.24	1.21	1.64	1.39	2.24	1.33
14.7 (7)	5.4 (7)	13.9 (7)	18.2 (7)	9.7 (7)	60.7 (7)	11.7 (7)
87.41	150.8	81.23	55.60	121.9	85.23	230.8
−18.6	−52.6	−28.7	−19.0	−84.3	−59.8	−81.0
3.511	4.341	4.420	4.440	5.467	5.483	2.359
0.309	0.499	0.266	0.356	0.407	0.534	–
0.402	0.602	0.313	0.564	0.577	0.918	–
4.1	12	3.4	4.2	12	14	–
2.3	6.0	1.7	2.1	6.8	7.7	–
0.67	0.71	0.88	0.70	0.81	0.66	0.86
29	42	35	37	31	29	26
15	9	9	7	11	14	11
1.18	2.02	1.62	0.98	1.05	1.84	1.86
1.69	1.45	1.39	2.51	2.01	2.96	–
16.7 (7)	9.8 (7)	8.6 (7)	32.6 (7)	16.8 (7)	77.4 (7)	–
−5.057	−5.537	−5.118	−5.703	–	−6.443	−9.618
1204	6530	1758	3877	–	70590	$836.8 \cdot 10^8$
0.134	0.217	0.115	0.155	–	0.232	0.119
0.144	0.287	0.128	0.182	–	0.269	0.339
0.39	0.60	0.33	0.42	–	0.61	0.039
800	8200	1000	3600	–	120000	$130 \cdot 10^8$
0.76	0.68	0.81	0.79	–	0.66	0.61
31	49	41	38	–	51	25
10	7	6	7	–	4	18
1.84	1.98	2.06	1.85	–	2.55	0.27
1.15	1.75	1.25	1.38	–	1.34	8.14
11.60 (9)	10.42 (9)	2.71 (9)	3.67 (9)	–	6.06 (9)	23.40 (9)

Appendix A. Main results (continued). Higher public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.697	2.488	3.085	2.289	2.706	2.020
b	0.800	0.568	0.548	0.763	0.905	0.379
$\overline{\log x}$	3.751	3.751	3.751	3.751	3.751	3.751
s_1	0.124	0.122	0.0633	0.185	0.114	0.0984
s_2	0.109	0.120	0.0559	0.223	0.118	0.114
s_a	0.013	0.014	0.0067	0.027	0.014	0.014
s_b	0.065	0.072	0.034	0.13	0.071	0.069
R	0.83	0.69	0.89	0.57	0.84	0.56
N	35	39	36	43	36	34
l	6	5	8	4	4	5
d	2.15	2.26	1.97	2.35	1.94	1.86
F	0.73	0.96	0.78	1.45	1.07	1.34
χ^2 (f)	5.4 (5)	3.8 (5)	7.1 (5)	9.0 (5)	6.4 (5)	5.0 (5)
2: $\log y = a + b \left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$						
a	2.697	2.488	3.085	2.289	2.706	2.020
$b \cdot 10^{-4}$	−0.184	−0.130	−0.124	−0.173	−0.206	−0.0863
$\overline{\frac{1}{x}} \cdot 10^{+4}$	1.957	1.957	1.957	1.957	1.957	1.957
s_1	0.124	0.122	0.0633	0.185	0.114	0.0984
s_2	0.111	0.122	0.0611	0.225	0.123	0.115
s_a	0.013	0.015	0.0073	0.027	0.015	0.014
$s_b \cdot 10^{-4}$	0.016	0.017	0.0085	0.032	0.017	0.016
R	0.82	0.68	0.87	0.56	0.82	0.55
N	37	37	28	42	33	33
l	6	5	8	4	6	5
d	2.04	2.22	1.72	2.29	1.80	1.83
F	0.76	0.99	0.93	1.48	1.16	1.36
χ^2 (f)	4.6 (5)	6.0 (5)	14.0 (5)	10.6 (5)	5.4 (5)	3.0 (5)
3: $y = a + b (\log x - \overline{\log x})$						
a	400.0	283.3	1116	169.8	398.0	102.8
b	898	431	1516	374	964	101
$\overline{\log x}$	3.592	3.643	3.654	3.592	3.580	3.680
s_1	0.294	0.281	0.146	0.426	0.263	0.227
s_2	0.236	0.258	0.140	0.425	0.273	0.260
s_a	12	9.1	19	9.4	14	32
s_b	63	48	100	48	73	5

salaried employees. Provincial towns. (2.1) 70 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.916	2.462	2.099	1.906	2.638	2.434	2.078
0.816	1.008	0.730	1.022	1.459	1.676	0.757
3.751	3.751	3.751	3.751	3.751	3.751	3.751
0.128	0.219	0.103	0.144	0.149	0.251	0.0953
0.145	0.317	0.097	0.175	0.145	0.431	0.0928
0.017	0.038	0.012	0.021	0.017	0.051	0.011
0.087	0.19	0.059	0.11	0.087	0.26	0.056
0.75	0.54	0.83	0.76	0.90	0.62	0.85
36	39	37	36	41	39	35
5	7	5	6	7	6	7
1.56	2.22	1.97	2.00	2.15	2.41	2.13
1.29	2.10	0.89	1.48	0.95	2.97	0.95
3.8 (5)	14.6 (5)	6.8 (5)	7.4 (5)	10.2 (5)	6.7 (5)	4.1 (5)
1.916	2.462	2.099	1.906	2.638	2.434	2.078
−0.175	−0.221	−0.165	−0.228	−0.333	−0.370	−0.172
1.957	1.957	1.957	1.957	1.957	1.957	1.957
0.128	0.219	0.103	0.144	0.149	0.251	0.0953
0.158	0.324	0.103	0.184	0.155	0.443	0.0982
0.019	0.039	0.012	0.022	0.019	0.053	0.012
0.022	0.045	0.014	0.026	0.022	0.062	0.014
0.69	0.51	0.81	0.73	0.88	0.59	0.84
35	39	29	35	31	40	28
7	7	5	6	8	6	8
1.32	2.13	1.76	1.78	1.86	2.28	1.88
1.53	2.19	1.00	1.65	1.09	3.15	1.06
13.5 (5)	10.6 (5)	4.5 (5)	6.7 (5)	3.0(5)	11.8 (5)	11.9 (5)
69.58	243.6	107.0	56.25	566.7	94.4	99.3
151	682	207	177	1830	1033	205
3.598	3.530	3.615	3.532	3.751	3.360	3.605
0.294	0.504	0.237	0.331	–	0.575	0.220
0.373	0.835	0.236	0.436	–	1.00	0.225
3.4	28	3.2	3.5	–	21	2.9
17	140	17	17	–	150	15

Appendix A. Main results (continued). Higher public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.87	0.74	0.88	0.69	0.85	0.58
N	39	35	32	38	33	32
l	6	5	8	5	6	5
d	2.12	2.22	1.90	2.32	1.78	1.83
F	0.64	0.84	0.92	1.00	1.07	1.32
χ^2 (f)	12.6 (5)	3.6 (5)	12.5 (5)	6.5 (5)	7.1(5)	3.1 (5)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	393.3	290.2	1144	169.7	396.2	102.4
$b10^{-4}$	−140	−71.9	−256	−56.0	−143	−19.5
$\frac{\bar{1}}{x}10^{+4}$	2.972	2.483	2.400	2.987	3.074	2.336
s_1	0.294	0.281	0.146	0.426	0.263	0.227
s_2	0.286	0.298	0.190	0.496	0.340	0.269
s_a	15	11	26	11	18	3.4
$s_b \cdot 10^{-4}$	11	9.3	24	7.9	13	3.2
R	0.85	0.69	0.79	0.63	0.80	0.60
N	27	33	20	30	25	35
l	12	8	26	10	13	5
d	1.50	1.90	1.27	1.89	1.13	1.74
F	0.95	1.12	1.71	1.36	1.67	1.41
χ^2 (f)	4.8 (5)	1.2 (5)	33.4 (5)	11.9 (5)	9.9 (5)	10.7 (5)
5: $\log y = \log k + \log \Phi (a + \log x)$						
a	−5.163	−4.500	−4.439	−5.063	–	−3.884
k	6390	1375	5023	2081	–	237.2
s_1	0.124	0.122	0.0633	0.185	–	0.094
s_2	0.107	0.119	0.0551	0.221	–	0.114
s_a	0.40	0.42	0.22	0.58	–	0.39
s_k	4400	710	1300	2000	–	77
R	0.83	0.73	0.88	0.68	–	0.58
N	34	37	34	43	–	34
l	6	5	8	4	–	5
d	2.22	2.28	2.09	2.35	–	1.86
F	0.75	0.95	0.76	1.43	–	1.33
χ^2 (f)	2.53 (7)	4.12 (7)	9.05 (7)	8.82 (7)	–	2.01 (7)

salaried employees. Provincial towns. (2.1.) 70 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.74	0.51	0.84	0.80	0.75	0.65	0.86
35	29	35	35	37	34	28
7	8	5	6	9	12	8
1.24	2.31	1.92	1.89	2.29	2.12	2.00
1.61	2.75	0.99	1.74	–	3.03	1.05
8.0 (5)	31.9 (5)	13.8 (5)	16.8 (5)	–	64.5 (5)	8.3 (5)
70.1	263.9	106.2	52.19	566.7	158.0	98.4
−24.1	−101	−32.5	−26.4	−383	−219	−32.5
2.884	3.233	2.808	3.541	1.957	3.493	2.862
0.294	0.504	0.237	0.331	–	0.575	0.220
0.458	0.873	0.289	0.512	–	1.05	0.284
4.3	31	4.0	4.0	–	3.2	3.6
3.1	21	3.0	2.7	–	35	2.7
0.70	0.48	0.79	0.76	0.69	0.60	0.83
29	27	27	21	33	28	29
13	13	10	11	9	13	8
0.89	2.16	1.35	1.34	1.73	1.98	1.38
2.42	3.01	1.48	2.40	–	3.34	1.67
17.9 (5)	32.7 (5)	12.4 (5)	25.1 (5)	–	47.2 (5)	23.4 (5)
−5.198	−5.718	−4.967	−5.752	–	−7.399	−5.043
1133	11970	1137	3606	–	2087000	1237
0.128	0.219	0.103	0.144	–	0.251	0.0953
0.147	0.315	0.0972	0.175	–	0.428	0.0919
0.40	0.65	0.33	0.42	–	0.70	0.30
780	17000	590	3300	–	440000	610
0.72	0.48	0.82	0.72	–	0.55	0.84
36	39	39	36	–	39	35
5	7	5	6	–	6	7
1.53	2.22	1.98	2.00	–	2.41	2.17
1.31	2.07	0.89	1.47	–	2.91	0.93
5.84 (7)	12.99 (7)	8.45 (7)	9.89 (7)	–	8.86 (7)	2.13 (7)

Appendix A. Main results (continued). Lower public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.619	2.405	3.071	2.259	2.628	2.002
b	0.856	0.440	0.640	0.896	1.017	0.567
$\overline{\log x}$	3.656	3.656	3.656	3.656	3.656	3.656
s_1	0.131	0.157	0.0660	0.203	0.121	0.120
s_2	0.137	0.157	0.0723	0.253	0.127	0.126
s_a	0.013	0.015	0.0069	0.024	0.012	0.012
s_b	0.061	0.070	0.032	0.11	0.057	0.056
R	0.80	0.51	0.88	0.60	0.86	0.69
N	48	63	48	54	60	57
l	7	9	6	6	6	6
d	1.77	2.20	1.90	2.14	2.08	2.05
F	1.09	1.00	1.20	1.56	1.10	1.10
χ^2 (f)	9.4 (7)	15.0 (7)	5.8 (7)	32.0 (7)	6.1 (7)	10.9 (7)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.619	2.405	3.071	2.259	2.628	2.002
$b \cdot 10^{-4}$	−0.146	−0.0720	−0.108	−0.151	−0.173	−0.967
$\frac{\bar{1}}{x} \cdot 10^{+4}$	2.484	2.484	2.484	2.484	2.484	2.484
s_1	0.131	0.157	0.0660	0.203	0.121	0.120
s_2	0.140	0.160	0.0781	0.257	0.134	0.128
s_a	0.013	0.015	0.0074	0.024	0.013	0.012
$s_b \cdot 10^{-4}$	0.011	0.012	0.0060	0.020	0.010	0.0099
R	0.79	0.49	0.86	0.59	0.85	0.68
N	48	61	53	55	55	58
l	7	9	9	6	6	6
d	1.69	2.13	1.65	2.09	1.88	1.99
F	1.15	1.04	1.40	1.60	1.23	1.13
χ^2 (f)	3.9 (7)	9.6 (7)	4.3 (7)	18.9 (7)	7.7 (7)	15.5 (7)
3: $y = a + b (\log x - \overline{\log x})$						
a	311.3	245.3	1021	149.0	294.7	91.32
b	755	292	1610	365	813	134
$\overline{\log x}$	3.448	3.550	3.517	3.447	3.424	3.527
s_1	0.302	0.362	0.152	0.466	0.280	0.277
s_2	0.312	0.313	0.167	0.490	0.338	0.290
s_a	10	7.5	17	7.9	11	2.6
s_b	48	35	80	36	50	12

salaried employees. Provincial towns. (2.2.) 111 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.870	2.367	2.071	1.801	2.478	2.148	2.088
0.983	1.042	0.866	1.107	1.564	1.389	0.788
3.656	3.656	3.656	3.656	3.656	3.656	3.656
0.152	0.243	0.115	0.158	0.155	0.236	0.101
0.168	0.340	0.139	0.169	0.175	0.353	0.123
0.016	0.032	0.013	0.016	0.017	0.034	0.012
0.075	0.15	0.062	0.076	0.078	0.16	0.055
0.78	0.55	0.80	0.81	0.89	0.64	0.81
45	47	51	59	62	45	60
10	7	9	6	6	8	6
1.68	1.84	1.81	1.80	2.15	1.87	2.18
1.22	1.97	1.47	1.14	1.28	2.24	1.50
5.6 (7)	12.6 (7)	7.0 (7)	12.6 (7)	8.5 (7)	7.1 (7)	6.4 (7)
1.870	2.367	2.071	1.801	2.478	2.148	2.088
−0.163	−0.185	−0.149	−0.181	−0.261	−0.240	−0.134
2.484	2.484	2.484	2.484	2.484	2.484	2.484
0.152	0.243	0.115	0.158	0.155	0.236	0.101
0.179	0.337	0.140	0.186	0.198	0.354	0.127
0.017	0.032	0.013	0.018	0.019	0.034	0.012
0.014	0.026	0.011	0.014	0.015	0.027	0.0099
0.75	0.56	0.80	0.77	0.85	0.64	0.79
43	57	54	51	41	50	51
10	7	6	8	8	8	12
1.48	1.87	1.79	1.50	1.70	1.85	2.06
1.38	1.92	1.49	1.39	1.63	2.25	1.60
5.8 (7)	17.6 (7)	10.4 (7)	15.2 (7)	2.5 (7)	8.7 (7)	7.0 (7)
50.49	221.3	91.68	79.57	432.5	42.39	99.36
149	553	208	213	1490	443	201
3.411	3.445	3.458	3.656	3.656	3.234	3.477
0.350	0.559	0.264	–	–	0.543	0.232
0.404	0.901	0.381	–	–	1.05	0.293
2.3	21	3.7	–	–	7.9	3.0
11	98	17	–	–	52	14

Appendix A. Main results (continued). Lower public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.84	0.62	0.89	0.70	0.84	0.72
N	52	63	53	61	51	60
l	7	8	9	7	7	6
d	1.66	2.12	1.83	1.98	1.77	2.00
F	1.07	0.75	1.21	1.10	1.46	1.09
χ^2 (f)	13.5 (7)	3.8 (7)	4.0 (7)	6.0 (7)	11.9 (7)	21.5 (7)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	298.9	248.6	1039	155.9	287.1	91.01
$b10^{-4}$	−89.4	−37.2	−197	−43.1	−93.8	−17.5
$\frac{\bar{1}}{x}\,10^{+4}$	4.316	3.198	3.474	4.055	4.523	3.450
s_1	0.302	0.362	0.152	0.466	0.280	0.277
s_2	0.372	0.355	0.219	0.555	0.417	0.317
s_a	12	8.6	23	9.4	14	2.9
$s_b \cdot 10^{-4}$	6.1	5.2	13	4.7	6.7	1.6
R	0.81	0.56	0.83	0.67	0.80	0.72
N	39	63	35	49	43	55
l	11	11	21	11	18	5
d	1.18	1.83	1.18	1.57	1.16	1.76
F	1.52	0.96	2.08	1.41	2.22	1.31
χ^2 (f)	14.7 (7)	12.4 (7)	9.0 (7)	12.2 (7)	19.5 (7)	27.3 (7)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.200	−3.971	−4.595	−5.307	−5.625	−4.379
k	6918	685.4	6896	3753	17720	435.3
s_1	0.131	0.157	0.0660	0.203	0.121	0.120
s_2	0.136	0.157	0.0711	0.252	0.126	0.125
s_a	0.30	0.44	0.16	0.46	0.27	0.31
s_k	3800	280	1500	3300	10000	160
R	0.81	0.62	0.89	0.68	0.84	0.71
N	48	65	53	54	60	58
l	7	9	7	6	6	6
d	1.83	2.21	1.97	2.15	2.13	2.10
F	1.07	1.00	1.16	1.54	1.08	1.09
χ_2 (f)	6.57 (9)	15.03 (9)	10.73 (9)	25.49 (9)	8.41 (9)	14.15 (9)

salaried employees. Provincial towns. (2.2.) 111 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.82	0.47	0.76	0.42	0.74	0.64	0.81
49	35	52	45	37	40	53
10	13	10	9	13	9	12
1.31	1.77	1.78	2.07	2.02	1.86	2.09
1.33	2.60	2.09	–	–	3.72	1.60
14.3 (7)	91.1 (7)	36.9 (7)	–	–	100.5 (7)	8.5 (7)
48.56	199.0	91.60	79.57	432.5	246.0	105.5
−17.1	−66.8	−24.5	−31.7	−218	−107	−23.7
4.683	4.541	4.110	2.484	2.484	2.484	3.689
0.350	0.559	0.264	–	–	–	0.232
0.492	0.941	0.432	–	–	–	0.355
2.8	22	4.3	–	–	–	3.8
1.4	10	2.1	–	–	–	2.1
0.76	0.52	0.73	0.41	0.65	0.58	0.74
35	36	39	31	33	36	47
17	13	18	17	15	9	16
0.88	1.69	1.41	2.02	1.78	1.80	1.60
1.98	2.83	2.69	–	–	–	2.35
37.7 (7)	98.4 (7)	42.7 (7)	–	–	–	18.4 (7)
−5.535	−5.694	−5.230	−5.855	−9.450	–	−5.016
2508	11440	2077	4643	$677.4 \cdot 10^8$	–	1437
0.152	0.243	0.115	0.158	0.155	–	0.101
0.167	0.339	0.136	0.159	0.263	–	0.122
0.34	0.53	0.26	0.34	0.69	–	0.23
1800	14000	1000	3700	$2000 \cdot 10^8$	–	560
0.79	0.46	0.76	0.79	0.65	–	0.82
46	47	49	55	45	–	62
10	7	5	6	12	–	5
1.67	1.96	1.87	1.80	0.96	–	2.24
1.21	1.94	1.41	1.14	2.89	–	1.45
9.69 (9)	13.51 (9)	7.16 (9)	11.85 (9)	8.00 (9)	–	10.51 (9)

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.504	2.368	3.045	2.313	2.467	1.872
b	0.750	0.276	0.601	1.068	1.103	0.670
$\overline{\log x}$	3.575	3.575	3.575	3.575	3.575	3.575
s_1	0.112	0.123	0.0521	0.181	0.123	0.108
s_2	0.102	0.135	0.0673	0.187	0.137	0.0965
s_a	0.014	0.019	0.0094	0.026	0.019	0.014
s_b	0.077	0.10	0.051	0.14	0.10	0.073
R	0.81	0.36	0.86	0.73	0.83	0.79
N	24	25	28	18	30	29
l	6	5	5	6	4	6
d	2.34	1.42	2.46	1.57	2.44	2.10
F	0.83	1.21	1.67	1.07	1.25	0.79
χ^2 (f)	7.0 (3)	6.5 (3)	3.9 (3)	5.8 (3)	2.1 (3)	2.8 (3)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.504	2.368	3.045	2.313	2.467	1.872
$b \cdot 10^{-4}$	−0.117	−0.0550	−0.0933	− 0.164	−0.173	−0.105
$\frac{\bar{1}}{x} \cdot 10^{+4}$	2.901	2.901	2.901	2.901	2.901	2.901
s_1	0.112	0.123	0.0521	0.181	0.123	0.108
s_2	0.106	0.129	0.0711	0.194	0.139	0.0978
s_a	0.015	0.018	0.0099	0.027	0.020	0.014
$s_b \cdot 10^{-4}$	0.013	0.016	0.0085	0.023	0.017	0.012
R	0.80	0.45	0.84	0.71	0.83	0.79
N	28	26	28	19	28	28
l	4	5	7	6	5	6
d	2.14	1.54	2.18	1.50	2.36	2.05
F	0.89	1.10	1.86	1.15	1.29	0.82
χ^2 (f)	5.3 (3)	9.6 (3)	0.9 (3)	6.4 (3)	3.2 (3)	5.4 (3)
3: $y = a + b (\log x - \overline{\log x})$						
a	282.9	232.1	1016	161.0	222.8	67.45
b	545	236	1560	515	693	116
$\overline{\log x}$	3.465	3.512	3.483	3.411	3.414	3.474
s_1	0.259	0.252	0.120	0.417	0.282	0.249
s_2	0.242	0.264	0.162	0.442	0.314	0.218
s_a	10	8.7	24	11	11	2.1
s_b	60	50	140	70	68	13

Provincial towns. (2.3.) 51 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.846	2.230	1.963	1.703	2.345	2.055	2.285
0.898	1.501	0.767	0.858	1.679	1.576	0.799
3.575	3.575	3.575	3.575	3.575	3.575	3.575
0.121	0.203	0.110	0.135	0.151	0.244	0.0977
0.149	0.344	0.0905	0.138	0.141	0.338	0.0794
0.021	0.048	0.013	0.019	0.020	0.047	0.011
0.11	0.26	0.069	0.10	0.11	0.26	0.60
0.75	0.64	0.85	0.76	0.91	0.66	0.88
21	23	21	29	28	23	32
7	5	6	5	8	6	5
1.74	2.20	1.69	2.14	1.90	1.86	2.64
1.52	2.88	0.68	1.04	0.87	1.92	0.66
0.7 (3)	2.2 (3)	3.7 (3)	4.3 (3)	5.0 (3)	0.5 (3)	13.0 (3)
1.846	2.230	1.963	1.703	2.345	2.055	2.285
−0.135	−0.244	−0.123	−0.136	−0.266	−0.243	−0.124
2.901	2.901	2.901	2.901	2.901	2.901	2.901
0.121	0.203	0.110	0.135	0.151	0.244	0.0977
0.159	0.338	0.087	0.138	0.140	0.345	0.0849
0.022	0.047	0.012	0.019	0.020	0.048	0.012
0.019	0.041	0.010	0.017	0.017	0.041	0.010
0.71	0.65	0.86	0.76	0.92	0.64	0.87
25	26	19	25	26	23	29
7	4	6	4	6	6	6
1.55	2.27	1.80	2.13	1.90	1.82	2.35
1.71	2.78	0.63	1.03	0.85	1.99	0.75
1.2 (3)	0.1 (3)	2.7 (3)	4.1 (3)	0.4 (3)	1.2 (3)	7.8 (3)
59.67	61.87	78.30	41.84	67.65	72.2	163.8
147	695	169	107	731	414	353
3.441	3.287	3.454	3.436	3.290	3.332	3.454
0.279	0.466	0.252	0.312	0.348	0.563	0.225
0.367	0.748	0.205	0.354	0.380	0.813	0.176
3.3	11	2.4	2.2	5.8	10	4.3
20	92	14	14	50	74	26

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.79	0.56	0.85	0.73	0.82	0.80
N	26	24	28	23	28	31
l	7	5	7	6	5	6
d	2.16	1.53	2.29	1.39	2.18	2.12
F	0.87	0.87	1.81	1.12	1.24	0.76
χ^2 (f)	2.5 (3)	6.9 (3)	1.4 (3)	6.9 (3)	2.6 (3)	2.7 (3)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	290.4	229.8	1026	159.2	232.7	67.47
$b10^{-4}$	−67.8	−34.7	−202	−61.1	−83.1	−15.2
$\frac{\bar{1}}{x}\,10^{+4}$	3.650	3.373	3.535	4.265	4.085	3.645
s_1	0.259	0.252	0.120	0.417	0.282	0.249
s_2	0.283	0.261	0.191	0.515	0.371	0.236
s_a	12	8.6	28	13	14	2.3
$s_b \cdot 10^{-4}$	8.9	6.6	26	9.1	9.5	1.7
R	0.73	0.60	0.80	0.69	0.78	0.78
N	24	24	21	23	21	29
l	7	6	16	6	7	6
d	1.66	1.64	1.71	1.18	1.63	1.88
F	1.20	0.85	2.53	1.53	1.73	0.90
χ^2 (f)	8.2 (3)	10.3 (3)	3.1 (3)	5.5 (3)	1.1 (3)	1.3 (3)
5: $\log y = \log k + \log \Phi (a + \log x)$						
a	−4.855	−3.399	−4.428	−5.701	−5.797	−4.629
k	3229	414.1	5711	12470	22650	517.4
s_1	0.112	0.123	0.0521	0.181	0.123	0.108
s_2	0.100	0.131	0.0661	0.185	0.135	0.0948
s_a	0.45	0.69	0.22	0.67	0.45	0.44
s_k	2300	180	1600	19000	24000	330
R	0.80	0.53	0.85	0.70	0.82	0.79
N	26	25	28	18	30	29
l	4	5	5	6	4	6
d	2.45	1.47	2.48	1.57	2.49	2.17
F	0.80	1.14	1.61	1.05	1.20	0.77
χ^2 (f)	3.56 (5)	2.39 (5)	0.61 (5)	5.64 (5)	1.55 (5)	5.57 (5)

Provincial towns. (2.3.) 51 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.73	0.74	0.86	0.75	0.91	0.62	0.89
23	25	21	26	21	17	31
7	6	6	4	8	10	5
1.64	2.14	1.83	2.11	1.12	1.34	2.48
1.73	2.57	0.66	1.29	1.19	2.09	0.61
1.3 (3)	9.3 (3)	4.8 (3)	11.0 (3)	2.8 (3)	7.8 (3)	5.4 (3)
61.01	41.89	77.42	41.42	57.15	193.4	164.0
−18.3	−79.4	−21.6	−13.2	−83.0	−113	−44.3
3.888	5.608	3.847	4.014	5.491	2.901	3.827
0.279	0.466	0.252	0.312	0.348	–	0.225
0.414	0.836	0.224	0.394	0.550	–	0.226
3.9	9.8	2.6	2.5	7.9	–	5.5
2.8	11	1.9	1.8	7.7	–	4.0
0.69	0.73	0.85	0.73	0.84	0.24	0.84
19	23	17	23	19	17	27
7	7	7	5	8	10	6
1.31	2.02	1.58	1.83	0.53	2.24	1.67
2.20	3.21	0.79	1.59	2.50	–	1.01
5.5 (3)	11.8 (3)	8.1 (3)	9.2 (3)	13.6 (3)	–	10.3 (3)
−5.255	–	−4.906	−5.154	−7.231	–	−4.991
1531	–	1016	895.9	1758000	–	2492
0.121	–	0.110	0.135	0.151	–	0.0977
0.149	–	0.0873	0.136	0.137	–	0.0782
0.46	–	0.43	0.52	0.54	–	0.38
1400	–	730	870	3400000	–	1600
0.71	–	0.84	0.74	0.89	–	0.89
21	–	23	29	28	–	34
7	–	6	5	8	–	5
1.72	–	1.82	2.19	2.29	–	2.65
1.52	–	0.63	1.02	0.82	–	0.64
0.56 (5)	–	3.48 (5)	7.86 (5)	3.77 (5)	–	7.93 (5)

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.457	2 347	3.034	2.215	2.453	1.857
b	0.704	0.430	0.617	1.168	1.014	0.626
$\overline{\log x}$	3.526	3.526	3.526	3.526	3.526	3.526
s_1	0.122	0.103	0.0656	0.183	0.123	0.109
s_2	0.144	0.109	0.0597	0.170	0.167	0.132
s_a	0.017	0.013	0.0071	0.020	0.020	0.016
s_b	0.091	0.069	0.038	0.11	0.11	0.083
R	0.68	0.60	0.89	0.80	0.76	0.67
N	34	32	32	43	35	45
l	6	7	13	5	7	6
d	1.77	1.64	1.80	2.44	2.32	2.11
F	1.38	1.12	0.83	0.86	1.84	1.46
χ^2 (f)	4.6 (5)	3.1 (5)	2.8 (5)	4.9 (5)	6.3 (5)	1.6 (5)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.457	2.347	3.034	2.215	2.453	1.857
$b \cdot 10^{-4}$	−0.0899	−0.0527	−0.0821	−0.156	−0.140	−0.0876
$\frac{\bar{1}}{x} \cdot 10^{+4}$	3.261	3.261	3.261	3.261	3.261	3.261
s_1	0.122	0.103	0.0656	0.183	0.123	0.109
s_2	0.152	0.115	0.0667	0.177	0.166	0.130
s_a	0.018	0.014	0.0080	0.021	0.020	0.016
$s_b \cdot 10^{-4}$	0.013	0.010	0.0058	0.015	0.014	0.011
R	0.64	0.54	0.86	0.78	0.76	0.69
N	30	28	29	41	36	45
l	6	10	9	5	7	6
d	1.58	1.49	1.47	2.24	2.27	2.10
F	1.55	1.25	1.03	0.94	1.82	1.42
χ^2 (f)	3.2 (5)	3.2 (5)	1.8 (5)	9.7 (5)	9.4 (5)	1.9 (5)
3: $y = a + b (\log x - \overline{\log x})$						
a	266.0	219.9	984.0	99.26	164.2	65.59
b	418	204	1450	365	633	109
$\overline{\log x}$	3.411	3.460	3.428	3.272	3.266	3.414
s_1	0.282	0.238	0.151	0.422	0.284	0.251
s_2	0.363	0.281	0.147	0.398	0.374	0.295
s_a	12	7.5	18	5.9	9.4	2.4
s_b	64	41	96	29	45	13

Provincial towns. (2.4.) 70 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.753	2.169	1.916	1.688	2.240	1.976	2.275
0.771	1.368	0.969	1.041	1.538	1.617	0.913
3.526	3.526	3.526	3.526	3.526	3.526	3.526
0.135	0.220	0.102	0.137	0.167	0.233	0.0908
0.148	0.254	0.102	0.129	0.183	0.317	0.0865
0.018	0.030	0.012	0.015	0.022	0.038	0.010
0.094	0.16	0.065	0.081	0.12	0.20	0.055
0.71	0.72	0.88	0.84	0.85	0.70	0.90
35	33	33	35	36	39	34
7	10	5	5	7	7	8
1.90	1.99	1.62	2.06	2.28	1.79	1.57
1.21	1.33	1.01	0.90	1.20	1.85	0.91
7.8 (5)	3.2 (5)	7.0 (5)	2.8 (5)	14.0 (5)	4.6 (5)	4.9 (5)
1.753	2.169	1.916	1.688	2.240	1.976	2.275
−0.103	−0.190	−0.131	−0.141	−0.207	−0.201	−0.116
3.261	3.261	3.261	3.261	3.261	3.261	3.261
0.135	0.220	0.102	0.137	0.167	0.233	0.0908
0.153	0.252	0.107	0.133	0.193	0.344	0.110
0.018	0.030	0.013	0.016	0.023	0.041	0.013
0.013	0.022	0.0093	0.012	0.017	0.030	0.0096
0.68	0.73	0.86	0.83	0.83	0.63	0.83
33	34	34	31	37	33	25
7	10	5	6	5	7	7
1.72	1.97	1.43	1.89	2.08	1.57	1.06
1.29	1.30	1.10	0.95	1.34	2.18	1.47
1.4 (5)	3.0 (5)	2.9 (5)	3.3 (5)	4.2 (5)	3.4 (5)	3.1 (5)
47.26	51.56	59.02	32.13	239.3	56.01	162.9
105	391	163	102	897	384	321
3.371	3.169	3.331	3.304	3.526	3.289	3.399
0.311	0.509	0.235	0.314	–	0.537	0.209
0.407	0.586	0.259	0.295	–	1.12	0.248
2,5	6.0	2.1	1.4	–	11	25
13	34	10	6,6	–	71	8

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.63	0.52	0.88	0.84	0.87	0.72
N	36	30	29	41	34	45
l	6	10	9	6	9	5
d	1.71	1.53	1.61	2.03	2.21	2.04
F	1.65	1.40	0.94	0.89	1.74	1.38
χ^2 (f)	12.9 (5)	12.0 (5)	1.5 (5)	3.8 (5)	9.0 (5)	4.7 (5)
4: $y = a + b\left(\frac{1}{x} - \overline{\frac{1}{x}}\right)$						
a	318.8	225.0	1014	98.77	134.5	60.73
$b10^{-4}$	−70.2	−16.9	−140	−31.6	−55.5	−11.4
$\overline{\frac{1}{x}}\,10^{+4}$	3.261	3.721	4.023	6.179	6.658	4.719
s_1	–	0.238	0.151	0.422	0.284	0.251
s_2	–	0.310	0.199	0.501	0.438	0.308
s_a	–	8.5	25	7.6	10	2.4
$s_b \cdot 10^{-4}$	–	5.1	13	3.0	4.1	1.1
R	0.50	0.42	0.79	0.78	0.86	0.79
N	28	21	27	31	31	37
l	7	16	10	8	11	6
d	1.57	1.37	1.00	1.35	1.86	1.94
F	–	1.70	1.73	1.41	2.38	1.50
χ^2 (f)	–	11.8 (5)	4.6 (5)	18.3 (5)	8.0 (5)	5.8 (5)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−4.667	−3.831	−4.422	−5.905	−5.513	−4.451
k	2290	592.6	5920	19230	12270	410.7
s_1	0.122	0.103	0.0656	0.183	0.123	0.109
s_2	0.143	0.109	0.0587	0.169	0.165	0.130
s_a	0.41	0.41	0.23	0.56	0.38	0.38
s_k	1400	230	1800	27000	10000	210
R	0.65	0.53	0.89	0.79	0.76	0.68
N	32	32	34	44	38	45
l	6	7	9	5	7	6
d	1.80	1.82	1.88	2.45	2.57	2.29
F	1.38	1.12	0.80	0.85	1.79	1.42
χ^2 (f)	4.55 (7)	4.19 (7)	4.87 (7)	8.51 (7)	5.25 (7)	1.81 (7)

Provincial towns. (2.4.) 70 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.73	0.82	0.90	0.91	0.78	0.55	0.82
33	31	32	35	29	27	25
6	10	5	6	12	11	8
1.78	1.74	1.31	1.82	1.95	1.25	1.05
1.72	1.33	1.22	0.88	–	4.39	1.40
11.1 (5)	10.4 (5)	7.9 (5)	3.9 (5)	–	52.5 (5)	1.8 (5)
43.22	49.65	57.45	30.38	113.6	44.56	208.6
−9.90	−33.9	−14.3	−8.91	−57.8	−45.4	−56.7
5.271	7.420	5.527	5.928	4.991	5.665	3.261
0.311	0.509	0.235	0.314	0.385	0.537	–
0.489	0.694	0.349	0.377	0.649	1.36	–
2.9	7.2	2.8	1.7	11	12	–
1.2	3.4	1.1	0.67	7.1	9.3	–
0.71	0.77	0.84	0.85	0.71	0.52	0.78
32	21	21	27	27	23	21
10	11	17	10	10	11	14
1.49	1.50	0.79	1.13	1.36	1.10	1.94
2.48	1.86	2.21	1.44	2.84	6.38	–
31.9 (5)	19.6 (5)	12.2 (5)	6.6 (5)	25.2 (5)	88.7 (5)	–
−4.858	−6.414	−5.394	–	–	–	−9.571
628.2	77220	2714	–	–	–	$1080 \cdot 10^8$
0.135	0.220	0.102	–	–	–	0.0908
0.148	0.251	0.101	–	–	–	0.414
0.45	0.66	0.32	–	–	–	0.028
460	150000	1800	–	–	–	$100 \cdot 10^8$
0.69	0.74	0.88	–	–	–	0.62
35	33	33	–	–	–	19
7	10	5	–	–	–	20
1.96	2.05	1.69	–	–	–	0.09
1.20	1.30	0.98	–	–	–	20.71
7.45 (7)	2.23 (7)	1.94 (7)	–	–	–	34.51 (7)

Appendix A. Main results (continued). Lower public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.477	2.411	3.018	2.197	2.512	1.911
b	0.835	0.550	0.577	1.061	1.117	0.712
$\overline{\log x}$	3.585	3.585	3.585	3.585	3.585	3.585
s_1	0.146	0.143	0.0702	0.198	0.136	0.118
s_2	0.140	0.160	0.0743	0.250	0.133	0.105
s_a	0.014	0.016	0.0074	0.025	0.013	0.010
s_b	0.069	0.079	0.036	0.12	0.065	0.051
R	0.77	0.57	0.85	0.65	0.86	0.81
N	44	42	42	47	55	51
l	10	9	11	8	12	5
d	1.82	1.59	1.57	2.04	2.21	2.19
F	0.92	1.25	1.12	1.60	0.95	0.79
χ^2 (f)	5.0 (7)	23.4 (7)	2.8 (7)	11.1 (7)	5.5 (7)	6.7 (7)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.477	2.411	3.018	2.197	2.512	1.911
$b \cdot 10^{-4}$	−0.118	−0.0855	−0.0834	−0.162	−0.153	−0.0994
$\frac{\bar{1}}{x} \cdot 10^{+4}$	2.891	2.891	2.891	2.891	2.891	2.891
s_1	0.146	0.143	0.0702	0.198	0.136	0.118
s_2	0.148	0.156	0.0776	0.244	0.156	0.115
s_a	0.015	0.015	0.0077	0.024	0.015	0.011
$s_b \cdot 10^{-4}$	0.011	0.011	0.0056	0.018	0.0011	0.0083
R	0.74	0.61	0.83	0.68	0.81	0.77
N	45	43	43	55	39	49
l	8	9	9	6	15	10
d	1.66	1.69	1.45	2.18	1.58	1.85
F	1.02	1.18	1.22	1.51	1.32	0.95
χ^2 (f)	7.7 (7)	20.7 (7)	2.4 (7)	13.4 (7)	4.5 (7)	9.0 (7)
3: $y = a + b (\log x - \overline{\log x})$						
a	257.6	229.3	937.2	89.4	221.3	70.82
b	484	380	1320	352	620	117
$\overline{\log x}$	3.429	3.444	3.467	3.280	3.342	3.442
s_1	0.336	0.330	0.162	0.456	0.313	0.272
s_2	0.343	0.284	0.173	0.502	0.370	0.263
s_a	9.4	6.8	17	5.9	9.6	2.0
s_b	43	32	79	27	42	9.1

salaried employees. Rural districts. (3.2.) 102 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.818	2.314	1.943	1.698	2.340	2.260	2.009
0.936	1.104	0.954	0.925	1.590	1.530	0.819
3.585	3.585	3.585	3.585	3.585	3.585	3.585
0.154	0.232	0.119	0.163	0.165	0.252	0.102
0.160	0.316	0.115	0.191	0.205	0.361	0.120
0.016	0.031	0.011	0.019	0.020	0.036	0.012
0.078	0.15	0.056	0.093	0.10	0.18	0.059
0.77	0.58	0.86	0.70	0.85	0.65	0.81
48	50	64	45	58	50	51
7	6	7	6	5	8	6
1.79	1.92	2.36	1.85	2.34	1.97	2.21
1.08	1.85	0.94	1.37	1.55	2.05	1.38
3.7 (7)	6.8 (7)	14.9 (7)	8.3 (7)	4.6 (7)	5.7 (7)	8.1 (7)
1.818	2.314	1.943	1.698	2.340	2.260	2.009
−0.124	−0.167	−0.134	−0.131	−0.223	−0.207	−0.114
2.891	2.891	2.891	2.891	2.891	2.891	2.891
0.154	0.232	0.119	0.163	0.165	0.252	0.102
0.180	0.311	0.129	0.197	0.228	0.382	0.132
0.018	0.031	0.013	0.020	0.023	0.038	0.013
0.013	0.022	0.0093	0.014	0.016	0.028	0.0095
0.69	0.60	0.82	0.68	0.81	0.60	0.77
43	50	43	37	49	49	51
7	5	8	7	12	9	7
1.40	1.97	1.89	1.75	1.91	1.76	1.82
1.38	1.80	1.18	1.47	1.92	2.30	1.69
3.5 (7)	2.9 (7)	6.2 (7)	8.1 (7)	6.7 (7)	5.5 (7)	10.8 (7)
53.37	59.98	65.21	37.32	314.2	358.7	84.73
115	551	157	96.8	1107	1522	165
3.393	3.166	3.378	3.356	3.585	3.585	3.419
0.354	0.534	0.273	0.374	–	–	0.234
0.429	0.747	0.319	0.577	–	–	0.311
2.5	8.2	2,3	2.5	–	–	2.8
11	49	10	11	–	–	13

Appendix A. Main results (continued). Lower public servants and

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.74	0.77	0.86	0.81	0.83	0.79
N	43	47	42	52	29	49
l	8	9	9	6	15	10
d	1.60	1.60	1.57	2.08	1.46	1.96
F	1.04	0.74	1.15	1.21	1.39	0.94
χ^2 (f)	9.5 (7)	8.1 (7)	8.9 (7)	12.5 (7)	19.4 (7)	13.9 (7)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	275.0	230.9	962.7	204.0	226.1	74.86
$b10^{-4}$	−46.5	−38.3	−136	−64.1	−59.2	−11.9
$\frac{\bar{1}}{x}\,10^{+4}$	4.109	4.179	3.797	2.891	5.379	3.943
s_1	0.336	0.330	0.162	–	0.313	0.272
s_2	0.407	0.330	0.216	–	0.473	0.324
s_a	12	8.0	21	–	13	2.5
$s_b \cdot 10^{-4}$	5.3	3.6	11	–	5.0	1.2
R	0.66	0.73	0.79	0.74	0.76	0.71
N	35	33	33	53	23	43
l	14	19	23	8	24	14
d	1.22	1.41	1.08	2.14	0.91	1.41
F	1.47	1.00	1.79	–	2.28	1.42
χ^2 (f)	14.1 (7)	14.7 (7)	14.8 (7)	–	47.1 (7)	22.1 (7)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.075	−4.274	−4.346	−5.679	−9.573	−4.734
k	4481	1067	4738	8851	$1573 \cdot 10^8$	660.3
s_1	0.146	0.143	0.0702	0.198	0.136	0.118
s_2	0.139	0.157	0.0726	0.247	0.369	0.110
s_a	0.37	0.40	0.19	0.47	0.038	0.31
s_k	2900	510	1100	9500	$220 \cdot 10^8$	310
R	0.76	0.74	0.86	0.76	0.61	0.81
N	44	42	44	51	31	49
l	10	9	10	8	17	9
d	1.90	1.63	1.65	2.09	0.30	2.20
F	0.91	1.21	1.07	1.55	7.35	0.79
χ^2 (f)	2.89 (9)	20.85 (9)	8.98 (9)	11.00 (9)	34.47 (9)	4.92 (9)

salaried employees. Rural districts. (3.2.) 102 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.72	0.76	0.84	0.68	0.77	0.45	0.79
41	44	37	35	39	37	51
7	11	15	12	16	14	7
1.42	1.94	1.79	1.84	1.91	2.18	1.95
1.47	1.96	1.36	2.38	–	–	1.76
14.0 (7)	38.8 (7)	18.6 (7)	43.2 (7)	–	–	11.5 (7)
56.40	33.37	100.6	61.7	314.2	358.7	114.2
−11.5	−51.3	−28.9	−18.7	−137	−174	−28.7
4.578	7.814	2.891	2.891	2.891	2.891	2.891
0.354	0.534	–	–	–	–	–
0.519	0.780	–	–	–	–	–
3.2	6.3	–	–	–	–	–
1.3	4.3	–	–	–	–	–
0.66	0.76	0.79	0.67	0.74	0.46	0.86
37	41	33	35	33	27	39
10	11	15	13	15	14	14
0.99	1.82	1.45	2.01	1.23	1.78	1.54
2.15	2.14	–	–	–	–	–
36.8 (7)	47.0 (7)	–	–	–	–	–
−5.340	−5.790	−5.395	−5.317	–	−9.377	−5.030
1688	15290	2538	1219	–	$409.8 \cdot 10^8$	1397
0.154	0.232	0.119	0.163	–	0.252	0.102
0.162	0.313	0.115	0.190	–	0.410	0.120
0.38	0.55	0.29	0.40	–	0.13	0.26
1300	20000	1500	960	–	$230 \cdot 10^8$	620
0.73	0.58	0.86	0.71	–	0.30	0.80
47	52	62	42	–	42	53
7	5	7	6	–	11	6
1.72	2.05	2.36	1.86	–	1.52	2.22
1.10	1.82	0.93	1.36	–	2.64	1.38
8.81 (9)	7.93 (9)	13.83 (9)	8.91 (9)	–	3.78 (9)	11.22 (9)

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.409	2.336	2.982	2.168	2.366	1.769
b	0.926	0.322	0.649	0.933	1.021	0.617
log x	3.488	3.488	3.488	3.488	3.488	3.488
s_1	0.126	0.105	0.0481	0.185	0.134	0.129
s_2	0.123	0.120	0.0520	0.166	0.134	0.122
s_a	0.017	0.017	0.0073	0.023	0.019	0.017
s_b	0.095	0.091	0.040	0.14	0.10	0.093
R	0.81	0.45	0.92	0.70	0.82	0.69
N	25	19	29	21	22	28
l	7	10	6	6	5	5
d	1.65	1.43	2.03	2.12	1.95	1.94
F	0.95	1.30	1.17	0.81	0.99	0.89
χ^2 (f)	0.6 (3)	2.3 (3)	9.4 (3)	5.9 (3)	3.0 (3)	8.6 (3)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.409	2.336	2.982	2.168	2.366	1.769
$b \cdot 10^{-4}$	−0.126	−0.0565	−0.0870	−0.118	−0.141	−0.0843
$\frac{\bar{1}}{x} \cdot 10^{+4}$	3.523	3.523	3.523	3.523	3.523	3.523
s_1	0.126	0.105	0.0481	0.185	0.134	0.129
s_2	0.120	0.111	0.0618	0.173	0.137	0.124
s_a	0.017	0.016	0.0087	0.024	0.019	0.017
$s_b \cdot 10^{-4}$	0.013	0.012	0.0066	0.019	0.015	0.013
R	0.82	0.57	0.88	0.67	0.81	0.68
N	25	20	25	25	25	28
l	5	10	6	5	4	5
d	1.72	1.67	1.32	1.95	1.84	1.86
F	0.91	1.11	1.66	0.87	1.05	0.92
χ^2 (f)	4.1 (3)	2.9 (3)	2.2 (3)	3.7 (3)	6.2 (3)	3.7 (3)
3: $y = a + b (\log x - \overline{\log x})$						
a	207.1	211.2	870.1	128.8	187.5	55.23
b	555	254	1450	331	526	88.6
$\overline{\log x}$	3.349	3.426	3.404	3.364	3.354	3.407
s_1	0.291	0.243	0.111	0.425	0.309	0.298
s_2	0.293	0.247	0.128	0.420	0.283	0.263
s_a	9.3	7.5	16	8.3	8.1	2.1
s_b	57	45	100	53	51	13

Rural districts. (3.3.) 51 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.747	2.114	1.826	1.598	2.169	2.247	2.182
0.875	1.068	0.806	0.862	1.606	1.964	0.938
3.488	3.488	3.488	3.488	3.488	3.488	3.488
0.132	0.215	0.106	0.136	0.164	0.252	0.0943
0.132	0.333	0.128	0.149	0.201	0.347	0.0964
0.018	0.047	0.018	0.021	0.028	0.049	0.014
0.10	0.25	0.098	0.11	0.15	0.26	0.073
0.78	0.52	0.76	0.74	0.83	0.73	0.88
30	23	21	28	29	30	20
4	9	7	4	5	5	6
2.30	1.50	1.47	1.55	2.37	2.23	1.87
0.99	2.41	1.48	1.20	1.51	1.91	1.05
1.1 (3)	3.7 (3)	11.5 (3)	1.5 (3)	7.1 (3)	4.9 (3)	6.6 (3)
1.747	2.114	1.826	1.598	2.169	2.247	2.182
−0.116	−0.152	−0.108	−0.120	−0.208	−0.266	−0.123
3.523	3.523	3.523	3.523	3.523	3.523	3.523
0.132	0.215	0.106	0.136	0.164	0.252	0.0943
0.141	0.331	0.135	0.150	0.231	0.358	0.114
0.020	0.046	0.019	0.021	0.032	0.050	0.016
0.015	0.035	0.014	0.016	0.024	0.038	0.012
0.74	0.52	0.73	0.73	0.77	0.71	0.82
30	23	22	26	25	29	21
4	9	5	4	7	5	6
1.96	1.56	1.31	1.52	1.84	2.11	1.31
1.13	2.38	1.64	1.21	1.99	2.03	1.47
3.2 (3)	2.6 (3)	10.6 (3)	1.3 (3)	2.3 (3)	2.0 (3)	2.2 (3)
47.21	208.9	58.53	34.82	224.3	49.40	128.6
117	928	131	81.3	1170	751	310
3.364	3.494	3.378	3.375	3.494	3.181	3.372
0.305	–	0.243	0.314	–	0.579	0.217
0.357	–	0.282	0.369	–	0.812	0.255
2.5	–	2.5	1.9	–	10	4.9
16	–	15	12	–	100	31

Appendix A. Main results (continued). Skilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.81	0.63	0.90	0.67	0.83	0.70
N	23	20	26	23	23	28
l	7	10	6	8	4	5
d	1.70	1.66	1.60	2.08	1.71	1.90
F	1.02	1.03	1.35	0.98	0.84	0.78
χ^2 (f)	5.4 (3)	3.3 (3)	3.4 (3)	5.4 (3)	0.5 (3)	4.0 (3)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	206.4	209.4	874.2	132.3	196.6	55.00
$b\,10^{-4}$	−52.2	−29.7	−15.5	−32.7	−52.0	−9.81
$\frac{\bar{1}}{x}\,10^{+4}$	4.935	4.070	4.268	4.609	4.675	4.263
s_1	0.291	0.243	0.111	0.425	0.309	0.298
s_2	0.326	0.245	0.178	0.470	0.351	0.274
s_a	10	7.3	23	9.6	11	2.2
$s_b \cdot 10^{-4}$	5.7	4.9	14	5.8	6.2	1.4
R	0.79	0.66	0.84	0.64	0.77	0.71
N	17	24	17	25	19	25
l	12	9	13	9	9	6
d	1.31	1.82	0.81	1.81	1.19	1.70
F	1.26	1.02	2.60	1.22	1.29	0.85
χ^2 (f)	8.4 (3)	3.3 (3)	5.9 (3)	3.9(3)	8.2 (3)	3.8 (3)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−9.484	−3.527	–	−5.272	–	−4.431
k	$1340 \cdot 10^8$	449.9	–	4045	–	341.6
s_1	0.126	0.105	–	0.185	–	0.129
s_2	0.358	0.115	–	0.164	–	0.120
s_a	0.053	0.55	–	0.77	–	0.54
s_k	$260 \cdot 10^2$	190	–	6300	–	2500
R	0.27	0.59	–	0.66	–	0.68
N	11	19	–	25	–	28
l	24	10	–	5	–	5
d	0.29	1.51	–	2.10	–	1.96
F	8.07	1.21	–	0.79	–	0.87
χ^2 (f)	25.20 (5)	1.42 (5)	–	2.80 (5)	–	4.22 (5)

Rural districts. (3.3.) 51 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.73	0.21	0.78	0.69	0.41	0.73	0.82
26	17	22	24	13	23	19
4	9	5	8	16	9	6
1.94	2.54	1.24	1.53	2.35	1.45	1.22
1.37	–	1.34	1.39	–	1.96	1.38
7.0 (3)	–	4.5 (3)	4.8 (3)	–	4.1 (3)	1.5 (3)
50.09	109.5	59.15	35.22	224.3	52.37	129.9
−12.1	−37.1	−13.5	−7.60	−133	−72.4	−29.6
4.496	5.628	4.530	4.622	3.479	6.782	4.675
0.305	0.494	0.243	0.314	–	0.579	0.217
0.452	1.21	0.343	0.401	–	1.02	0.351
3.5	20	3.0	2.1	–	15	6.8
2.1	11	1.8	1.2	–	12	4.0
0.65	0.42	0.73	0.66	0.50	0.65	0.72
17	15	21	24	15	21	15
7	11	6	8	16	12	15
1.51	1.17	0.85	1.35	2.19	0.91	0.72
2.20	6.03	1.99	1.63	–	3.10	2.61
19.3 (3)	52.0 (3)	6.4 (3)	10.0 (3)	–	5.5 (3)	11.0 (3)
−5.151	−5.664	−4.963	−9.510	−9.384	–	−5.318
1161	8798	959.2	$220.3 \cdot 10^8$	$548 \cdot 10^8$	–	4529
0.132	0.215	0.106	0.136	0.164	–	0.0943
0.131	0.327	0.127	0.394	0.263	–	0.0971
0.51	0.80	0.41	0.054	0.099	–	0.36
1100	16000	700	$42 \cdot 10^8$	$230 \cdot 10^8$	–	3300
0.76	0.59	0.78	0.21	0.56	–	0.86
30	23	21	15	27	–	22
4	9	7	14	7	–	6
2.29	1.52	1.44	0.27	1.46	–	1.83
0.99	2.33	1.44	8.37	2.58	–	1.06
2.51 (5)	3.16 (5)	5.95 (5)	23.25 (5)	8.84 (5)	–	2.36 (5)

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.321	2.336	2.984	2.121	2.366	1.743
b	0.981	0.642	0.665	1.275	0.993	0.498
$\overline{\log x}$	3.468	3.468	3.468	3.468	3.468	3.468
s_1	0.133	0.114	0.0565	0.169	0.112	0.112
s_2	0.152	0.116	0.0520	0.187	0.136	0.125
s_a	0.016	0.012	0.0054	0.019	0.014	0.013
s_b	0.076	0.058	0.026	0.093	0.068	0.063
R	0.80	0.76	0.94	0.82	0.84	0.64
N	44	39	46	49	46	47
l	5	10	6	6	6	8
d	1.91	1.54	1.74	2.28	2.43	2.17
F	1.31	1.04	0.85	1.22	1.47	1.25
χ^2 (f)	3.8 (7)	17.7 (7)	9.0 (7)	11.7 (7)	3.6 (7)	8.9 (7)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.321	2.336	2.984	2.121	2.366	1.743
$b \cdot 10^{-4}$	−0.112	−0.0795	−0.0768	−0.145	−0.111	−0.0565
$\frac{\bar{1}}{x} \cdot 10^{+4}$	3.788	3.788	3.788	3.788	3.788	3.788
s_1	0.133	0.114	0.0565	0.169	0.112	0.112
s_2	0.164	0.110	0.0619	0.202	0.153	0.129
s_a	0.017	0.011	0.0064	0.021	0.016	0.013
$s_b \cdot 10^{-4}$	0.0097	0.0065	0.0037	0.012	0.0091	0.0077
R	0.77	0.79	0.91	0.78	0.79	0.61
N	35	40	35	51	45	47
l	11	14	9	8	7	8
d	1.66	1.71	1.23	1.95	1.91	2.03
F	1.51	0.93	1.20	1.43	1.85	1.33
χ^2 (f)	7.4 (7)	8.2 (7)	2.9 (7)	10.6 (7)	1.5 (7)	11.7 (7)
3: $y = a + b (\log x - \overline{\log x})$						
a	163.1	184.7	827.9	172.9	173.7	52.66
b	416	350	1420	531	461	65.7
$\overline{\log x}$	3.281	3.324	3.336	3.468	3.269	3.370
s_1	0.306	0.262	0.130	–	0.259	0.258
s_2	0.385	0.249	0.126	–	0.367	0.260
s_a	7.3	5.1	11	–	7.5	1.5
s_b	36	26	58	–	37	7.4

Rural districts. (3.4.) 93 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.696	2.068	1.775	1.556	2.073	2.057	2.180
0.888	0.791	0.872	0.914	1.571	1.659	0.935
3.468	3.468	3.468	3.468	3.468	3.468	3.468
0.136	0.207	0.108	0.146	0.173	0.236	0.0857
0.129	0.275	0.104	0.143	0.192	0.294	0.0760
0.013	0.028	0.011	0.015	0.020	0.030	0.0079
0.065	0.14	0.052	0.071	0.096	0.15	0.038
0.82	0.52	0.87	0.80	0.86	0.76	0.93
46	45	51	47	51	49	36
9	6	8	6	6	9	6
1.93	1.76	1.96	1.79	2.02	1.85	1.86
0.91	1.75	0.94	0.96	1.23	1.54	0.79
9.0 (7)	7.3 (7)	3.8 (7)	5.2 (7)	5.2 (7)	4.0 (7)	10.6 (7)
1.696	2.068	1.775	1.556	2.073	2.057	2.180
−0.0993	−0.104	−0.0990	−0.107	−0.179	−0.174	−0.108
3.788	3.788	3.788	3.788	3.788	3.788	3.788
0.136	0.207	0.108	0.146	0.173	0.236	0.0857
0.144	0.264	0.118	0.146	0.214	0.336	0.0911
0.015	0.027	0.012	0.015	0.022	0.035	0.0095
0.0086	0.016	0.0070	0.0087	0.013	0.020	0.0054
0.77	0.57	0.83	0.79	0.83	0.67	0.90
39	44	40	40	45	39	37
9	7	10	6	6	10	6
1.55	1.90	1.49	1.69	1.60	1.42	1.34
1.13	1.61	1.20	1.01	1.53	2.02	1.13
10.5 (7)	7.8 (7)	14.1 (7)	8.8 (7)	4.9 (7)	4.5 (7)	9.4 (7)
39.87	89.28	46.16	27.16	33.27	219.7	114.5
92.5	279	110	71.5	322	1060	282
3.295	3.246	3.290	3.274	3.090	3.468	3.287
0.313	0.477	0.248	0.335	0.398	–	0.197
0.344	0.636	0.268	0.358	0.634	–	0.218
1.6	7.0	1.4	1.1	3.8	–	2.9
7.8	35	7.1	5.7	26	–	14

Appendix A. Main results (continued). Unskilled workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.77	0.82	0.93	0.68	0.79	0.68
N	35	44	43	39	49	49
l	11	14	6	8	8	5
d	1.67	1.69	1.49	2.23	1.65	2.08
F	1.58	0.91	0.94	–	2.02	1.02
χ^2 (f)	11.3 (7)	17.7 (7)	5.9 (7)	–	15.2 (7)	5.1 (7)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	248.0	182.8	834.5	172.9	276.3	52.94
$b\,10^{-4}$	−60.3	−29.7	−124	−54.0	−72.5	−6.10
$\frac{\bar{1}}{x}\,10^{+4}$	3.788	5.460	5.206	3.788	3.788	4.771
s_1	–	0.262	0.130	–	–	0.258
s_2	–	0.287	0.194	–	–	0.284
s_a	–	5.9	18	–	–	1.6
$s_b \cdot 10^{-4}$	–	2.3	7.3	–	–	0.72
R	0.67	0.80	0.87	0.73	0.69	0.66
N	31	40	27	39	37	45
l	11	15	17	10	9	9
d	1.73	1.35	0.70	1.37	2.31	1.78
F	–	1.20	2.22	–	–	1.21
χ^2 (f)	–	20.7 (7)	33.7 (7)	–	–	3.6 (7)
5: $\log y = \log k + \log \Phi\,(a + \log x)$						
a	−5.369	−4.449	−4.504	−9.373	−5.397	−3.998
k	7442	1350	6526	$484.7 \cdot 10^8$	8801	188.6
s_1	0.133	0.114	0.0565	0.169	0.112	0.112
s_2	0.152	0.112	0.0518	0.330	0.137	0.125
s_a	0.33	0.31	0.15	0.58	0.28	0.33
s_k	5200	590	1400	$11 \cdot 10^8$	5200	68
R	0.75	0.80	0.94	0.47	0.82	0.68
N	44	41	46	33	46	47
l	5	11	6	18	6	8
d	1.92	1.64	1.74	0.75	2.38	2.18
F	1.31	0.97	0.84	3.83	1.49	1.24
χ^2 (f)	4.29 (9)	14.49 (9)	14.75 (9)	13.96 (9)	4.29 (9)	9.18 (9)

Rural districts. (3.4.) 93 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.78	0.66	0.86	0.82	0.81	0.16	0.90
35	42	44	42	31	17	35
9	7	8	7	14	20	6
1.58	1.97	1.51	1.64	0.97	1.62	1.29
1.21	1.77	1.17	1.14	2.53	–	1.22
31.4 (7)	26.2 (7)	27.4 (7)	13.9 (7)	35.7 (7)	–	12.7 (7)
41.69	152.7	45.17	26.93	175.9	219.7	169.9
−7.63	−33.7	−9.03	−5.62	−68.7	−99.9	−40.1
5.619	3.788	6.025	6.204	3.788	3.788	3.788
0.313	–	0.248	0.335	–	–	–
0.422	–	0.358	0.436	–	–	–
2.0	–	1.9	1.4	–	–	–
0.78	–	0.71	0.51	–	–	–
0.73	0.68	0.80	0.75	0.52	0.45	0.88
31	42	31	35	27	19	29
13	7	12	14	14	22	15
1.07	1.78	0.90	1.28	1.38	2.27	1.66
1.82	–	2.09	1.70	–	–	–
42.1 (7)	–	30.6 (7)	28.1 (7)	–	–	–
−5.118	−4.876	−5.077	−5.195	−9.306	–	–
1022	1497	1127	868.9	$327.7 \cdot 10^8$	–	–
0.136	0.207	0.108	0.146	0.173	–	–
0.130	0.270	0.105	0.141	0.275	–	–
0.34	0.54	0.27	0.37	0.075	–	–
670	1400	580	620	$110 \cdot 10^8$	–	–
0.79	0.59	0.86	0.82	0.58	–	–
48	45	47	49	33	–	–
9	6	8	6	19	–	–
1.88	1.80	1.95	1.82	0.98	–	–
0.91	1.70	0.94	0.94	2.52	–	–
8.19 (9)	7.93 (9)	5.01 (9)	11.25 (9)	11.29 (9)	–	–

Appendix A. Main results (continued). Agricultural workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
1 : $\log y = a + b (\log x - \overline{\log x})$						
a	2.173	2.276	2.937	1.997	2.195	1.609
b	0.962	0.764	0.651	1.132	1.236	0.487
$\overline{\log x}$	3.361	3.361	3.361	3.361	3.361	3.361
s_1	0.170	0.105	0.0618	0.177	0.133	0.117
s_2	0.194	0.123	0.0680	0.221	0.165	0.109
s_a	0.027	0.017	0.0093	0.030	0.023	0.015
s_b	0.14	0.087	0.048	0.16	0.12	0.077
R	0.70	0.78	0.88	0.71	0.83	0.66
N	21	27	27	26	28	22
l	6	6	7	8	5	5
d	1.57	1.95	1.58	2.26	2.05	1.83
F	1.31	1.36	1.21	1.56	1.54	0.87
χ^2 (f)	6.6 (3)	8.6 (3)	5.8 (3)	1.6 (3)	3.2 (3)	2.4 (3)
2: $\log y = a + b \left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	2.173	2.276	2.937	1.997	2.195	1.609
$b \cdot 10^{-4}$	−0.0816	−0.0655	−0.0592	−0.0969	−0.112	−0.0439
$\frac{\bar{1}}{x} \cdot 10^{+4}$	4.803	4.803	4.803	4.803	4.803	4.803
s_1	0.170	0.105	0.0618	0.177	0.133	0.117
s_2	0.206	0.132	0.0670	0.233	0.166	0.109
s_a	0.028	0.018	0.0092	0.032	0.023	0.015
$s_b \cdot 10^{-4}$	0.013	0.0085	0.0043	0.015	0.011	0.0070
R	0.65	0.74	0.89	0.67	0.83	0.66
N	21	19	29	25	29	23
l	6	14	5	6	4	6
d	1.40	1.67	1.65	2.02	2.04	1.83
F	1.47	1.58	1.17	1.74	1.55	0.88
χ^2 (f)	2.6 (3)	4.7 (3)	1.8 (3)	0.6 (3)	6.3 (3)	2.9 (3)
3: $y = a + b (\log x - \overline{\log x})$						
a	130.3	168.0	756.6	75.22	103.4	38.77
b	291	298	1270	242	360	46.8
$\overline{\log x}$	3.205	3.234	3.240	3.158	3.135	3.273
s_1	0.391	0.242	0.142	0.407	0.306	0.268
s_2	0.500	0.317	0.148	0.534	0.409	0.256
s_a	9.7	7.7	16	6.5	6.9	1.4
s_b	51	40	84	34	38	7.3

Rural districts. (3.5.) 53 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
1.660	1.953	1.655	1.464	1.900	1.846	2.080
0.865	0.847	0.727	1.096	1.429	0.922	0.875
3.361	3.361	3.361	3.361	3.361	3.361	3.361
0.132	0.220	0.109	0.153	0.191	0.208	0.115
0.189	0.260	0.105	0.191	0.237	0.309	0.130
0.026	0.036	0.014	0.026	0.033	0.042	0.018
0.13	0.18	0.075	0.13	0.17	0.22	0.092
0.67	0.54	0.81	0.75	0.77	0.51	0.80
23	30	32	31	22	25	22
8	5	6	4	7	6	6
1.43	2.33	1.78	1.52	1.34	1.83	1.85
2.07	1.39	0.94	1.54	1.54	2.20	1.27
8.8 (3)	1.3 (3)	5.6 (3)	6.1 (3)	1.8 (3)	9.7 (3)	3.5 (3)
1.660	1.953	1.655	1.464	1.900	1.846	2.080
−0.0634	−0.0823	−0.0656	−0.106	−0.118	−0.0677	−0.0782
4.803	4.803	4.803	4.803	4.803	4.803	4.803
0.132	0.220	0.109	0.153	0.191	0.208	0.115
0.214	0.252	0.106	0.172	0.265	0.327	0.133
0.029	0.035	0.015	0.024	0.036	0.045	0.018
0.014	0.016	0.0068	0.011	0.017	0.021	0.0085
0.54	0.58	0.80	0.80	0.70	0.41	0.79
23	35	24	28	24	23	25
6	4	7	6	7	8	4
1.15	2.50	1.72	1.90	1.07	1.66	1.75
2.65	1.31	0.95	1.25	1.91	2.47	1.33
1.7(3)	1.1 (3)	5.3 (3)	3.3 (3)	6.6 (3)	8.1 (3)	3.4 (3)
43.69	72.85	38.63	14.84	37.47	76.44	93.58
83.5	210	74.6	74.7	244	136	237
3.237	3.169	3.224	3.092	3.062	3.214	3.188
0.303	0.507	0.251	0.354	0.441	0.479	0.265
0.546	0.564	0.251	0.380	0.776	0.894	0.300
3.5	6.4	1.4	1.0	5.7	9.7	4.3
18	34	7.4	6.0	36	51	22

Appendix A. Main results (continued). Agricultural workers.

Parameter estimates and test results	Expenditure					
	Dwelling	Fuel & light	Food	Tobacco	Clothing	Footwear
R	0.63	0.72	0.90	0.71	0.80	0.67
N	23	21	31	25	27	22
l	7	19	5	6	7	6
d	1.60	1.82	1.68	2.02	1.90	1.88
F	1.63	1.72	1.09	1.72	1.78	0.91
χ^2 (f)	4.9 (3)	20.2 (3)	0.8 (3)	3.2 (3)	2.1 (3)	8.5 (3)
4: $y = a + b\left(\frac{1}{x} - \frac{\bar{1}}{x}\right)$						
a	128.8	169.3	759.5	75.24	192.6	39.22
$b\,10^{-4}$	−20.6	−21.3	−90.3	−15.6	−41.8	−3.39
$\frac{\bar{1}}{x}\,10^{+4}$	7.083	6.497	6.400	7.905	4.803	5.840
s_1	0.391	0.242	0.142	0.407	–	0.268
s_2	0.529	0.344	0.180	0.611	–	0.269
s_a	10	8.5	20	7.4	–	1.5
$s_b \cdot 10^{-4}$	3.5	3.0	7.1	2.5	–	0.57
R	0.64	0.71	0.87	0.66	0.72	0.64
N	23	17	23	21	23	21
l	9	19	10	10	7	6
d	1.39	1.47	1.20	1.65	1.94	1.73
F	1.83	2.02	1.60	2.25	–	1.00
χ^2 (f)	3.3 (3)	3.2 (3)	8.3 (3)	2.9 (3)	–	7.0 (3)
5: $\log y = \log k + \log \Phi\,(a + \overline{\log x})$						
a	−5.193	−4.657	−4.323	−5.635	−5.903	−3.849
k	4530	1965	5381	8802	28920	131.7
s_1	0.170	0.105	0.0618	0.177	0.133	0.117
s_2	0.193	0.122	0.0651	0.220	0.162	0.108
s_a	0.60	0.39	0.24	0.60	0.45	0.49
s_k	5600	1200	1800	13000	34000	68
R	0.59	0.71	0.90	0.70	0.82	0.67
N	21	27	29	28	28	22
l	6	6	5	4	5	5
d	1.56	1.94	1.69	2.25	2.15	1.89
F	12.9	1.35	1.11	1.54	1.49	0.85
χ^2 (f)	2.90 (5)	10.64 (5)	3.69 (5)	0.05 (5)	3.16 (5)	4.00 (5)

Rural districts. (3.5.) 53 groups of 3 households.

groups

Washing & cleaning	Durables excl. vehicles	Personal hygiene	Books, newspapers etc.	Sports, holidays, hobbies	Transport incl. own car	Union fees, subscriptions etc.
0.53	0.66	0.82	0.90	0.71	0.37	0.83
23	31	26	28	18	21	25
8	4	7	8	7	9	4
1.17	2.23	1.73	1.99	0.76	1.67	1.81
3.24	1.24	1.00	1.15	3.10	3.49	1.28
3.2 (3)	2.7 (3)	3.6 (3)	4.0 (3)	29.5 (3)	34.4 (3)	3.2 (3)
45.74	72.83	39.47	12.30	28.90	84.90	94.73
−579	−14.0	−5.15	4.84	−16.6	−10.3	−16.1
6.339	7.524	6.558	9.269	9.861	6.176	7.203
0.303	0.507	0.251	0.354	0.441	0.479	0.265
0.646	0.580	0.299	0.400	0.986	0.998	0.366
4.3	6.7	1.7	1.0	6.6	12	5.3
1.6	2.2	0.61	0.37	2.8	4.6	1.8
0.46	0.66	0.76	0.88	0.64	0.29	0.78
21	33	16	27	17	17	23
8	4	19	8	7	12	8
1.00	2.12	1.37	1.85	0.49	1.47	1.44
4.53	1.31	1.43	1.28	4.99	4.34	1.90
10.0 (3)	5.1 (3)	9.3 (3)	2.4 (3)	45.4 (3)	44.3 (3)	13.1 (3)
−4.918	−4.898	−4.562	−5.549	–	−5.072	−4.964
778.2	1467	399.4	2066	–	1638	2244
0.132	0.220	0.109	0.153	–	0.208	0.115
0.193	0.254	0.103	0.180	–	0.309	0.128
0.47	0.79	0.41	0.53	–	0.74	0.41
680	2100	250	2500	–	2400	1700
0.52	0.60	0.83	0.84	–	0.34	0.82
23	30	32	31	–	25	24
8	5	6	4	–	6	4
1.37	23.7	1.83	1.69	–	1.88	1.86
2.14	1.33	0.90	1.39	–	2.21	1.24
4.91 (5)	1.98 (5)	13.66 (5)	6.66 (5)	–	10.29 (5)	3.03 (5)

Appendix B.

The tables show the correlation coefficient[1]) between the residuals of the different expenditure items, where the calculated expenditures are calculated from the function $\log y = a + b (\log x - \overline{\log x})$. The tables are shown separately for each of the twelve groups of wage and salary earners cf. the heads of the tables.

The numbers 1–13 in the head and the front column of the tables denote the different expenditure items according to the following code:

1. Dwelling.
2. Full and light.
3. Food.
4. Tobacco.
5. Clothing.
6. Footwear.
7. Washing and cleaning.
8. Durables (excl. own car).
9. Personal hygiene.
10. Books, newspapers etc.
11. Sports, holidays, hobbies.
12. Transport incl. own car.
13. Union fees, subscriptions etc.

[1]) Cf. chapter VI, p. 105.

1.1 Higher public servants and salaried employees. The capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.309	0.076	0.045	−0.093	−0.043	0.161	0.176	0.067	−0.096	0.023	0.057	−0.100
2.....	–	–	0.017	−0.053	−0.240	−0.081	−0.002	0.099	−0.145	−0.181	−0.385	−0.060	−0.156
3.....	–	–	–	0.288	0.290	0.102	0.365	−0.045	0.145	−0.032	0.176	0.004	0.033
4.....	–	–	–	–	0.163	0.055	0.176	−0.116	0.233	0.160	0.122	0.032	−0.156
5.....	–	–	–	–	–	0.578	0.319	−0.052	0.485	0.141	0.359	0.003	0.100
6.....	–	–	–	–	–	–	0.191	0.060	0.432	0.116	0.127	−0.114	−0.022
7.....	–	–	–	–	–	–	–	−0.011	0.338	0.020	0.258	−0.027	0.077
8.....	–	–	–	–	–	–	–	–	0.017	−0.139	−0.030	−0.043	0.041
9.....	–	–	–	–	–	–	–	–	–	0.381	0.342	−0.028	0.044
10.....	–	–	–	–	–	–	–	–	–	–	0.378	0.053	0.081
11.....	–	–	–	–	–	–	–	–	–	–	–	0.065	0.141
12.....	–	–	–	–	–	–	–	–	–	–	–	–	0.080
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

1.2 Lower public servants and salaried employees. The capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.395	0.082	−0.055	−0.046	0.122	0.154	0.039	0.021	0 077	0.074	−0.028	0.021
2.....	–	–	0.076	−0.055	−0.125	−0.075	0.073	−0.016	−0.139	0.014	−0.144	−0.070	0.006
3.....	–	–	–	0.262	0.013	0.004	0.204	0.048	0.053	0.166	0.073	−0.061	0.152
4.....	–	–	–	–	0.013	−0.064	0.128	−0.011	0.042	0.158	0.067	0.102	0.187
5.....	–	–	–	–	–	0.469	0.199	0.099	0.365	0.124	0.302	−0.046	0.021
6.....	–	–	–	–	–	–	0.132	0.148	0.370	0.078	0.172	−0.073	−0.006
7.....	–	–	–	–	–	–	–	0.043	0.235	0.114	0.185	0.095	0.055
8.....	–	–	–	–	–	–	–	–	0.094	0.146	−0.024	−0.054	0.122
9.....	–	–	–	–	–	–	–	–	–	0.222	0.207	−0.041	0.061
10.....	–	–	–	–	–	–	–	–	–	–	0.109	−0.116	0.347
11.....	–	–	–	–	–	–	–	–	–	–	–	0.051	0.004
12.....	–	–	–	–	–	–	–	–	–	–	–	–	0.082
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

1.3 Skilled workers. The capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.369	−0.117	0.003	−0.324	−0.283	−0.046	0.054	−0.047	0.155	0.025	0.017	0.162
2.....	–	–	0.110	−0.057	−0.185	−0.146	−0.126	0.015	−0.038	0.205	−0.066	−0.124	0.225
3.....	–	–	–	−0.017	−0.193	−0.037	0.267	−0.165	0.065	0.079	0.048	−0.340	0.197
4.....	–	–	–	–	−0.127	−0.089	0.244	0.085	0.120	0.034	0.171	−0.185	−0.031
5.....	–	–	–	–	–	0.480	−0.176	0.112	0.265	0.061	0.110	0.010	−0.207
6.....	–	–	–	–	–	–	−0.132	0.056	0.120	−0.077	0.074	−0.077	−0.122
7.....	–	–	–	–	–	–	–	−0.055	0.018	0.099	0.204	−0.035	0.086
8.....	–	–	–	–	–	–	–	–	0.076	0.152	0.109	−0.182	−0.039
9.....	–	–	–	–	–	–	–	–	–	0.173	0.116	0.018	−0.055
10.....	–	–	–	–	–	–	–	–	–	–	0.165	−0.110	0.064
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.219	−0.227
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.097
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

1.4 Unskilled workers. The capital.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.336	−0.097	0.024	0.161	0.122	0.151	0.067	0.169	0.074	0.034	−0.167	−0.016
2.....	–	–	−0.166	−0.034	−0.171	−0.123	−0.073	0.133	0.079	−0.031	−0.049	0.020	0.127
3.....	–	–	–	0.133	0.025	−0.086	0.265	−0.143	0.014	0.114	0.049	−0.032	0.186
4.....	–	–	–	–	−0.100	−0.030	0.186	−0.104	0.025	0.069	0.024	0.041	0.129
5.....	–	–	–	–	–	0.532	0.172	0.196	0.338	0.126	0.182	−0.187	0.034
6.....	–	–	–	–	–	–	0.265	0.099	0.300	0.053	0.092	−0.032	−0.066
7.....	–	–	–	–	–	–	–	−0.034	0.121	0.180	−0.049	−0.026	−0.029
8.....	–	–	–	–	–	–	–	–	0.111	−0.023	−0.053	−0.161	0.040
9.....	–	–	–	–	–	–	–	–	–	0.110	0.083	−0.012	0.114
10.....	–	–	–	–	–	–	–	–	–	–	0.102	−0.171	0.190
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.164	0.186
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.016
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

2.1 Higher public servants and salaried employees. Provincial towns.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.294	0.129	0.076	−0.052	−0.102	0.119	0.115	0.054	0.114	−0.053	−0.122	0.240
2.....	–	–	0.338	−0.026	−0.192	−0.131	0.050	−0.075	−0.182	0.044	−0.078	−0.086	0.047
3.....	–	–	–	0.016	−0.235	−0.200	0.087	−0.108	−0.071	−0.039	−0.206	−0.093	0.135
4.....	–	–	–	–	0.282	0.088	0.307	−0.095	0.368	0.072	0.288	−0.070	0.243
5.....	–	–	–	–	–	0.469	0.252	0.130	0.507	0.121	0.237	−0.062	0.087
6.....	–	–	–	–	–	–	0.060	0.001	0.423	0.078	0.268	−0.115	−0.050
7.....	–	–	–	–	–	–	–	−0.048	0.366	0.214	0.032	−0.093	0.371
8.....	–	–	–	–	–	–	–	–	−0.024	−0.096	−0.130	−0.122	−0.072
9.....	–	–	–	–	–	–	–	–	–	0.210	0.323	−0.114	0.311
10.....	–	–	–	–	–	–	–	–	–	–	0.282	−0.162	0.066
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.182	0.066
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.049
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

2.2 Lower public servants and salaried employees. Provincial towns.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.250	0.001	0.023	−0.066	−0.109	0.124	−0.010	−0.101	−0.130	−0.160	−0.054	−0.007
2.....	–	–	0.127	−0.040	−0.252	−0.223	0.029	−0.075	−0.252	−0.045	−0.165	−0.167	0.113
3.....	–	–	–	0.009	−0.045	0.073	0.028	−0.132	−0.090	−0.076	−0.117	−0.112	0.159
4.....	–	–	–	–	0.018	−0.053	0.204	−0.094	−0.026	0.084	0.191	−0.055	0.129
5.....	–	–	–	–	–	0.510	0.080	0.020	0.390	0.065	0.111	−0.075	0.026
6.....	–	–	–	–	–	–	0.024	−0.008	0.397	0.167	0.138	−0.042	0.028
7.....	–	–	–	–	–	–	–	−0.044	0.098	0.157	0.104	0.014	0.019
8.....	–	–	–	–	–	–	–	–	0.052	0.002	−0.116	−0.042	−0.107
9.....	–	–	–	–	–	–	–	–	–	0.162	0.172	−0.029	−0.050
10.....	–	–	–	–	–	–	–	–	–	–	0.182	−0.032	0.078
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.148	0.058
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.139
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

2.3 Skilled workers. Provincial towns.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.278	0.026	−0.032	0.046	−0.104	−0.013	−0.064	0.000	−0.089	−0.013	0.062	−0.034
2.....	–	–	0.149	−0.135	−0.125	−0.109	−0.202	0.097	0.128	0.216	−0.274	−0.129	0.135
3.....	–	–	–	−0.077	0.061	0.024	−0.034	−0.236	−0.035	0.239	−0.101	−0.138	0.288
4.....	–	–	–	–	−0.034	0.097	0.293	−0.038	−0.009	0.085	0.255	−0.158	0.093
5.....	–	–	–	–	–	0.596	0 179	0.191	0.136	0.000	0.191	−0.396	−0.123
6.....	–	–	–	–	–	–	0.122	0.174	0.148	0.144	0.127	−0.336	−0.048
7.....	–	–	–	–	–	–	–	−0.098	0.156	0.061	0.467	−0.070	0.130
8.....	–	–	–	–	–	–	–	–	0.164	0.004	−0.141	−0.224	−0.242
9.....	–	–	–	–	–	–	–	–	–	0.309	0.086	−0.045	0.028
10.....	–	–	–	–	–	–	–	–	–	–	0.014	−0.223	0.251
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.186	0.269
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.091
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

2.4 Unskilled workers. Provincial towns.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.292	−0.065	−0.104	−0.066	−0.119	0.120	−0.122	0.012	−0.075	−0.035	−0.232	0.036
2.....	–	–	0.217	0.009	−0$_1$013	−0.059	0.099	−0.040	−0.128	0.105	−0.174	−0.288	0.108
3.....	–	–	–	0.042	−0.388	−0.327	−0.111	−0.183	−0.326	0.193	−0.209	−0.208	0.260
4.....	–	–	–	–	−0.032	−0.078	0.073	−0.135	0.017	0.211	−0.063	0.009	0.061
5.....	–	–	–	–	–	0.590	0.445	0.086	0.373	0.028	−0.006	−0.135	−0.198
6.....	–	–	–	–	–	–	0.307	0,088	0.394	0.019	0.149	−0.109	−0.115
7.....	–	–	–	–	–	–	–	−0.088	0.482	0.137	−0.096	−0.196	0.067
8.....	–	–	–	–	–	–	–	–	0.015	−0.174	−0.101	−0.191	−0.017
9.....	–	–	–	–	–	–	–	–	–	0.073	0.101	−0.081	−0.200
10.....	–	–	–	–	–	–	–	–	–	–	0.085	−0.151	0.099
11.....	–	–	–	–	–	–	–	–	–	–	–	0.411	−0.043
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.011
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

3.2 Lower public servants and salaried employees. Rural districts.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.183	0.036	−0.005	−0.112	−0.079	−0.044	−0.199	−0.037	−0.112	−0.114	−0.061	−0.011
2.....	–	–	−0.024	−0.099	−0.222	−0.227	−0.123	−0.087	−0.248	0.011	−0.263	−0.186	−0.024
3.....	–	–	–	0.046	0.001	−0.042	−0.016	−0.014	−0.047	0.085	0.124	0.037	−0.172
4.....	–	–	–	–	0.157	0.028	0.195	0.010	0.192	0.017	0.315	−0.066	0.060
5.....	–	–	–	–	–	0.428	0.152	0.251	0.359	0.042	0.090	−0.068	0.069
6.....	–	–	–	–	–	–	0.220	0.092	0.360	0.041	0.032	−0.032	−0.056
7.....	–	–	–	–	–	–	–	−0.044	0.291	0.171	−0.152	0.038	0.110
8.....	–	–	–	–	–	–	–	–	0.097	−0.076	−0.004	−0.149	−0.011
9.....	–	–	–	–	–	–	–	–	–	0.085	0.178	−0.071	−0.111
10.....	–	–	–	–	–	–	–	–	–	–	−0.081	0.130	0.052
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.022	−0.180
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.021
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

3.3 Skilled workers. Rural districts.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.341	0.005	0.021	−0.097	−0.205	0.109	−0.102	−0.004	0.062	−0.149	−0.167	0.035
2.....	–	–	0.093	0.254	0.036	−0.144	0.087	−0.197	−0.154	0.251	−0.224	0.002	0.014
3.....	–	–	–	0.231	0.145	−0.118	0.196	−0.327	−0.035	0.009	−0.096	−0.301	0.314
4.....	–	–	–	–	0.092	0.040	0.251	−0.234	−0.015	0.230	−0.010	−0.207	0.165
5.....	–	–	–	–	–	0.496	0.429	−0.292	0.082	0.057	0.084	−0.124	−0.025
6.....	–	–	–	–	–	–	0.052	−0.098	0.255	0.104	0.216	0.068	−0.025
7.....	–	–	–	–	–	–	–	−0.274	0.384	0.058	0.198	−0.305	0.027
8.....	–	–	–	–	–	–	–	–	−0.229	−0.188	−0.054	−0.265	−0.270
9.....	–	–	–	–	–	–	–	–	–	0.276	0.199	0.024	0.103
10. ..	–	–	–	–	–	–	–	–	–	–	0.087	−0.017	0.076
11.....	–	–	–	–	–	–	–	–	–	–	–	0.136	0.041
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.095
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

3.4 Unskilled workers. Rural districts.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.191	−0.174	−0.067	−0.109	0.013	−0.125	−0.083	0.075	0.066	−0.132	0.122	0.036
2.....	–	–	0.108	−0.253	−0.097	−0.027	0.080	0.095	−0.146	0.296	−0.447	−0.033	−0.011
3.....	–	–	–	−0.018	0.040	−0.101	0.165	−0.134	0.017	−0.058	−0.048	−0.173	0.060
4.....	–	–	–	–	−0.020	0.003	0.163	−0.045	0.228	0.098	0.052	0.020	0.083
5.....	–	–	–	–	–	0.447	0.043	0.096	0.398	−0.006	0.224	−0.062	−0.230
6.....	–	–	–	–	–	–	0.147	0.065	0.402	0.066	0.254	0.036	−0.066
7.....	–	–	–	–	–	–	–	0.026	0.152	0.090	0.193	−0.004	0.210
8.....	–	–	–	–	–	–	–	–	0.240	0.103	−0.057	−0.158	−0.175
9.....	–	–	–	–	–	–	–	–	–	0.087	0.216	−0.074	−0.083
10.....	–	–	–	–	–	–	–	–	–	–	−0.091	0.096	0.149
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.003	0.007
12.....	–	–	–	–	–	–	–	–	–	–	–	–	0.092
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

3.5 Agricultural workers. Rural districts.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.....	–	0.491	−0.190	0.031	0.051	0.015	0.116	−0.076	0.076	−0.062	−0.233	−0.079	−0.084
2.....	–	–	0.056	−0.050	0.014	−0.146	0.127	−0.123	−0.090	0.250	−0.228	−0.092	0.136
3.....	–	–	–	−0.060	0.046	−0.136	0.003	−0.186	−0.153	0.220	0.120	−0.165	0.045
4.....	–	–	–	–	0.055	−0.052	0.222	−0.124	0.220	0.060	0.015	0.073	−0.013
5.....	–	–	–	–	–	0.458	−0.061	0.170	0.299	−0.041	0.025	−0.195	−0.162
6.....	–	–	–	–	–	–	0.035	0.134	0.149	−0.070	0.165	−0.117	−0.124
7.....	–	–	–	–	–	–	–	−0.214	−0.013	0.262	0.333	0.322	0.990
8.....	–	–	–	–	–	–	–	–	0.290	−0.115	−0.245	0.070	−0.096
9.....	–	–	–	–	–	–	–	–	–	−0.080	−0.048	−0.104	−0.026
10.....	–	–	–	–	–	–	–	–	–	–	−0.101	−0.030	0.240
11.....	–	–	–	–	–	–	–	–	–	–	–	−0.008	0.123
12.....	–	–	–	–	–	–	–	–	–	–	–	–	−0.009
13.....	–	–	–	–	–	–	–	–	–	–	–	–	–

Appendix C. The basic material.

Disposable income, expenditures on 13 items, savings, assets and some other information separately for each of 3098 households of wage and salary earners in the year 1955.

All amounts are in Danish kroner, (respectively 100 Danish kroner). The amounts given in columns 3–16 are in kroner *per person*, all other informations are per household. The columns 1–22 contains the following information separately for each household.

Column no.	Information
1	Household number within the socialgroup in question.
2	Size of household measured in number of persons.
3	Disposable income per person of the household (i.e. total money income less paid personal taxes).
4	Expenditure per person on dwelling.
5	Expenditure per person on fuel and light.
6	Expenditure per person on food.
7	Expenditure per person on tobacco.
8	Expenditure per person on clothing.
9	Expenditure per person on footwear.
10	Expenditure per person on washing and cleaning.
11	Expenditure per person on durables (excl. own car).
12	Expenditure per person on personal hygiene.
13	Expenditure per person on books, newspapers, etc.
14	Expenditure per person on sports, holidays, hobbies.
15	Expenditure per person on transport (incl. own car).
16	Expenditure per person on union fees, subscriptions, etc.
17	Savings (net changes in assests and debts).
18	Income changes in the period 1953–55 according to the following code: 1. Rising through the whole period 1953 ↗ 1954 ↗ 1955. 2. Constant – – – – 1953 = 1954 = 1955. 3. Decreasing – – – – 1953 ↘ 1954 ↘ 1955. 4. Unknown 1953–1954, rising 1954–1955. 5. Unknown 1953–1954, constant 1954–1955. 6. Unknown 1953–1954, decreasing 1954–1955. 9. No information.
19	Type of household according to the following code: 1. Single men. 2. Single women.

3. Couples without children.
4. Couples with one child.
5. Couples with two children.
6. Couples with three children.
7. Couples with four or more children.
8. Single men with one child or more.
9. Single women with one child or more.
0. Other types of household.

20 Net assets in 100 kr.

21 Wage- and salary income in per cent of total income.

22 Year of establishment of the household (60 denotes no information).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	4	2940	225	78	925	100	370	108	88	164	72	62	95	50	91	580	1	5	25	99	50
2	5	3054	354	293	670	130	247	60	31	239	59	120	234	72	66	490	1	6	76	99	38
3	5	3061	222	144	1050	59	481	110	72	112	91	94	222	116	95	-2200	9	6	83	100	42
4	5	3093	185	113	1075	20	348	51	46	31	90	27	340	364	100	530	1	6	236	97	38
5	5	3142	316	177	960	28	168	135	53	99	75	47	252	120	61	1470	3	6	73	95	42
6	4	3205	330	134	925	173	356	35	45	97	135	67	461	69	64	1090	9	5	13	97	44
7	4	3225	252	149	917	266	321	52	44	90	79	76	108	251	182	930	1	5	18	99	38
8	4	3282	677	343	887	122	150	131	45	68	97	124	213	72	90	290	1	5	44	99	39
9	4	3301	338	265	1100	150	299	69	66	46	79	43	115	62	174	720	1	5	140	99	29
10	6	3353	226	126	886	129	230	66	56	21	86	58	332	93	36	2890	1	7	-163	99	40
11	6	3367	650	178	1020	140	331	122	69	79	109	50	241	126	78	-4090	1	7	378	99	37
12	6	3369	456	147	592	8	274	75	76	303	111	27	126	57	59	200	1	0	10	93	40
13	5	3370	258	135	1040	300	188	104	47	148	60	72	163	35	83	1490	1	6	-36	99	50
14	4	3411	402	197	1110	125	296	100	60	460	75	32	280	44	97	-310	1	5	37	98	43
15	4	3415	364	260	1424	41	65	47	183	349	56	88	50	241	97	-890	1	5	6	99	45
16	4	3425	270	187	1015	219	265	40	138	101	68	61	37	125	55	970	1	5	6	98	52
17	5	3481	653	204	964	157	73	54	57	216	40	48	167	136	64	1020	1	6	31	91	50
18	5	3495	789	143	1099	72	98	102	114	503	71	37	130	78	55	-1360	1	6	106	98	50
19	4	3506	291	125	887	121	428	160	41	33	70	27	743	95	20	570	1	5	14	98	43
20	4	3511	247	169	604	300	718	114	82	317	124	104	502	150	51	-1540	1	5	28	100	42
21	4	3526	236	135	900	411	267	89	76	233	92	45	176	97	124	1280	1	5	15	98	38
22	5	3539	218	156	1065	306	426	96	67	335	125	31	281	136	43	1030	4	6	1	99	41
23	4	3546	304	139	1300	215	274	67	108	350	110	84	261	125	62	270	1	5	-15	100	42
24	5	3563	130	146	1334	511	692	94	80	140	111	79	324	54	132	-1120	9	6	19	94	34
25	4	3587	511	301	850	450	311	95	86	55	71	109	129	142	4	1740	1	5	-19	96	38
26	4	3597	200	138	1218	105	321	69	86	204	109	54	349	55	87	1390	1	5	-4	99	36
27	4	3628	334	199	1277	70	289	69	56	96	72	58	188	412	107	690	9	5	160	97	37
28	4	3631	357	179	1187	76	423	71	55	370	118	75	320	222	54	4750	1	5	-14	93	35
29	4	3635	189	141	915	164	505	106	131	85	137	91	372	122	85	550	1	5	-14	98	50
30	4	3671	714	275	900	45	69	37	51	456	38	45	220	0	90	2140	1	5	-15	98	49
31	4	3685	388	176	1300	456	436	74	177	44	100	80	145	304	5	-1760	9	5	21	67	47
32	4	3686	305	166	910	77	420	134	40	124	237	32	343	285	62	400	1	4	2	99	48
33	4	3792	837	403	1250	112	82	23	84	49	117	70	782	216	75	-4490	1	5	-230	99	41
34	4	3803	258	176	1315	4	325	82	32	91	85	61	199	440	88	1120	9	5	-16	99	33
35	5	3856	366	216	864	100	358	100	90	83	55	59	1194	316	82	-2620	9	6	89	91	45
36	4	3861	166	168	862	6	333	75	89	111	141	15	78	73	148	600	4	5	2	99	42
37	5	3877	216	149	1166	138	527	137	60	261	151	59	398	126	54	1250	1	6	24	96	35
38	6	3878	454	246	800	50	285	59	22	108	17	92	461	1181	65	-2350	1	7	-69	99	43
39	3	3887	703	235	1150	0	237	93	100	982	132	3	39	122	143	-1440	1	4	48	98	47
40	5	3892	724	328	786	34	305	111	122	223	101	48	141	63	70	1840	9	6	24	91	47
41	4	3913	229	148	1064	132	334	103	61	166	103	27	249	192	134	2310	1	5	62	98	45
42	4	3923	0	59	1300	0	442	136	67	11	147	50	417	98	57	1800	9	5	-41	99	42
43	4	3926	279	165	1259	151	387	120	97	220	134	99	484	183	69	-660	9	5	3	99	41
44	5	3930	284	167	1164	143	342	128	94	60	112	86	237	297	69	430	1	6	-5	99	60
45	4	3936	262	242	1285	209	235	95	96	5	101	38	163	233	60	3080	4	5	197	79	46
46	4	3947	584	231	1200	305	251	64	27	402	59	31	60	85	125	1260	1	5	225	99	28
47	6	3971	417	202	873	88	205	41	135	189	104	39	287	115	97	2580	1	0	35	89	52
48	4	4034	114	192	1070	163	458	89	145	304	91	41	430	56	60	810	1	5	10	92	52
49	4	4035	228	131	1170	221	449	125	31	227	113	35	543	63	151	1280	1	5	83	98	41
50	3	4066	300	45	2000	0	265	111	108	52	112	67	95	25	63	1380	2	8	2	100	39
51	4	4105	556	176	1137	6	485	88	72	217	162	96	389	127	90	-420	1	5	79	99	48
52	5	4113	478	277	1012	131	408	131	127	143	128	37	317	90	54	2010	1	6	-375	98	46
53	3	4130	900	256	960	393	227	137	44	20	164	44	316	147	110	480	1	4	18	93	52
54	3	4146	185	212	1407	280	628	145	149	146	106	87	798	174	92	-760	1	4	0	98	43
55	4	4154	648	321	1439	279	209	119	49	171	115	49	163	431	19	-1540	1	5	329	96	28
56	5	4158	410	145	768	96	519	124	102	275	80	38	34	48	134	4210	1	0	-20	94	45
57	4	4178	327	172	1439	116	340	83	38	138	101	69	623	125	159	400	1	5	22	99	39
58	3	4218	366	145	1417	323	318	62	46	73	73	26	139	137	122	1630	6	4	-32	99	51
59	4	4228	363	141	1095	75	618	127	40	300	147	84	795	81	83	240	9	5	91	99	47
60	4	4242	722	195	855	330	146	91	80	246	127	28	102	299	102	2430	4	5	-35	84	50

1.1 Higher public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	4266	258	168	1196	576	236	59	109	59	72	126	173	131	62	3030	4	5	-51	100	53
62	4	4300	407	179	1300	100	325	57	69	175	148	50	224	123	53	1990	1	5	-16	100	48
63	4	4303	754	333	1081	0	414	109	50	1049	85	62	212	151	47	120	4	5	249	91	44
64	4	4329	330	200	922	183	130	91	49	158	71	155	630	165	91	2830	1	5	96	99	45
65	4	4345	501	211	1189	19	380	115	87	373	145	72	571	120	74	690	1	5	36	99	60
66	4	4352	309	239	1250	269	229	90	95	63	131	114	420	380	115	1230	9	5	19	100	35
67	4	4352	265	156	1170	493	539	67	111	89	120	69	538	64	107	1690	1	5	14	99	48
68	5	4371	481	121	1300	137	252	88	40	108	76	57	448	330	83	930	1	6	5	99	36
69	3	4383	476	211	1419	123	270	117	70	131	132	45	316	155	35	750	1	4	31	98	44
70	4	4401	359	169	955	188	446	116	91	731	125	56	239	178	54	1860	1	5	-60	97	44
71	8	4403	239	225	933	6	167	64	57	59	39	44	250	1725	149	-1680	1	0	471	95	41
72	5	4405	253	157	931	120	729	153	119	162	131	56	585	152	75	720	4	6	20	91	36
73	5	4431	506	227	1020	79	633	94	100	1041	110	48	286	48	90	-1390	1	6	308	99	40
74	3	4448	309	166	1230	246	457	23	220	361	225	62	301	189	81	-180	4	4	17	78	54
75	3	4458	1012	181	841	0	199	63	32	213	61	27	534	112	73	-12120	1	4	73	99	47
76	3	4488	985	265	1230	237	270	63	107	204	79	87	378	158	101	370	1	4	13	98	51
77	3	4503	539	224	1049	105	634	220	175	935	198	33	313	207	51	-1440	1	4	31	95	53
78	5	4521	448	292	1200	100	718	177	57	241	129	3	254	25	81	4340	1	6	-98	97	35
79	3	4532	363	239	1174	250	54	166	216	34	94	4	196	175	88	3020	4	4	154	96	51
80	6	4536	510	279	1400	122	440	54	91	178	104	51	260	175	48	2790	1	0	-188	99	42
81	4	4553	313	163	1062	344	219	69	74	15	105	156	573	1323	88	-250	9	5	-1	91	48
82	4	4562	288	154	1230	251	829	165	93	423	95	51	351	232	58	240	1	5	1	99	60
83	3	4568	427	238	1160	28	664	99	83	182	108	126	249	757	108	150	1	4	8	99	53
84	4	4570	335	217	1304	220	530	110	139	191	64	132	374	92	79	-900	9	5	-6	94	30
85	3	4582	1160	270	1248	432	775	101	234	449	215	99	767	5378	107	-21480	3	4	482	98	51
86	4	4601	753	302	900	5	148	70	55	429	32	59	99	204	100	3130	4	5	111	95	49
87	3	4631	1201	129	1316	45	339	88	81	117	54	43	157	187	70	1010	1	4	227	89	26
88	4	4661	361	176	1283	29	464	65	81	167	87	65	569	61	72	1440	1	5	107	98	46
89	5	4663	576	319	1400	80	222	72	78	144	88	60	230	47	136	1340	4	6	-142	99	38
90	4	4706	0	53	1200	210	340	94	77	443	82	56	771	150	61	1660	1	5	233	93	22
91	5	4737	589	216	1140	380	223	89	81	157	81	58	230	400	105	270	1	6	-57	99	42
92	3	4753	240	240	1245	107	81	68	200	141	122	51	115	2202	118	-3000	9	4	30	100	52
93	3	4771	250	171	841	72	350	54	90	242	107	77	121	2787	105	-2770	1	4	54	98	49
94	4	4775	496	288	1350	120	498	64	67	82	69	56	655	65	61	1590	1	0	471	78	19
95	3	4776	352	194	1440	400	436	134	69	1353	122	20	475	37	111	-2910	1	4	77	93	37
96	4	4779	425	220	900	282	628	183	168	623	231	35	418	270	89	2320	9	5	-36	95	39
97	3	4847	350	244	1323	211	498	158	52	156	174	55	548	193	71	-130	1	4	81	98	34
98	4	4861	315	204	1224	75	594	138	132	157	153	111	533	153	91	1440	1	5	276	93	37
99	4	4867	249	196	955	124	482	87	61	5	107	48	196	1834	63	340	4	5	2	99	48
100	4	4879	347	247	1012	161	452	150	127	260	125	56	706	162	66	310	1	5	35	97	40
101	5	4880	369	167	1188	145	396	83	88	1319	138	45	184	82	122	-280	1	6	41	98	36
102	3	4881	464	243	1133	189	627	127	61	71	149	65	1351	361	101	-850	6	4	277	92	60
103	3	4893	454	200	831	255	265	83	94	37	62	97	286	140	117	5190	9	4	80	98	51
104	4	4900	1015	309	1125	12	456	44	154	93	142	44	245	19	88	3910	1	5	-245	99	43
105	4	4903	231	182	1025	130	490	150	117	179	157	57	366	197	125	2960	1	5	261	100	32
106	4	4924	271	114	1041	19	532	94	53	409	186	59	839	186	139	1120	1	5	-18	99	37
107	3	4924	184	235	1108	140	655	178	37	163	103	60	553	10	124	3040	1	4	-13	94	27
108	1	4952	0	12	1175	166	414	105	84	148	123	143	630	622	159	-410	1	1	4	91	39
109	3	4954	1333	328	1110	22	98	39	40	298	117	65	912	235	60	840	1	4	-3	97	55
110	4	4955	387	300	1750	125	109	66	144	0	122	75	99	1720	92	510	6	5	-67	100	60
111	3	4962	365	229	1560	186	569	28	46	161	41	64	285	971	11	-390	1	4	23	99	32
112	4	4963	462	347	1555	12	294	56	67	421	82	74	201	48	58	1680	1	5	80	70	28
113	4	4964	329	210	1184	225	560	37	41	93	96	78	373	490	109	860	9	5	4	92	34
114	4	4986	484	202	1427	254	376	68	71	388	141	41	390	555	40	-210	4	5	82	98	46
115	3	5011	468	256	1075	320	392	108	69	269	216	178	458	151	14	1460	1	4	-64	99	36
116	3	5023	388	268	1360	520	647	102	88	105	109	87	483	223	193	940	1	4	3	98	35
117	4	5033	322	183	1269	136	710	159	129	265	121	65	565	215	113	1670	1	5	32	92	37
118	4	504	430	225	988	325	182	64	138	170	120	85	102	56	19	5190	1	5	177	97	52
119	5	5066	444	254	859	289	397	116	94	178	91	155	757	152	146	3110	1	6	460	90	42
120	4	5083	419	220	1250	169	839	195	175	118	194	105	1104	62	102	-440	1	5	32	95	43

1.1 Higher public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	4	5083	562	165	1250	375	607	101	109	237	127	50	571	69	114	1540	1	5	32	98	34
122	3	5084	356	266	1567	135	518	147	61	417	53	43	501	137	118	920	1	4	12	99	43
123	3	5116	396	205	1425	265	419	71	83	1089	117	105	570	107	76	-150	9	4	45	96	42
124	4	5141	505	479	706	444	644	192	183	162	288	320	490	1034	118	-4370	1	5	1151	64	46
125	3	5170	345	164	1240	167	389	83	52	631	120	36	406	163	112	2570	1	4	176	98	35
126	3	5236	733	219	1353	111	355	79	172	194	111	13	437	4918	86	-11880	1	4	271	88	43
127	4	5241	558	205	1240	150	668	125	101	202	108	66	443	225	53	700	1	5	186	97	39
128	4	5241	325	129	1282	189	712	167	131	216	112	85	624	288	117	340	1	5	18	91	46
129	3	5269	669	284	1392	848	405	40	135	333	122	72	340	405	110	2490	9	4	59	89	42
130	5	5271	660	228	1040	360	427	128	220	656	188	70	414	150	87	-300	1	6	131	100	35
131	3	5297	379	413	1408	123	673	147	156	241	137	129	412	1719	95	6890	1	4	23	98	26
132	4	5355	287	131	875	125	366	115	102	180	98	37	1160	3646	88	-9410	1	5	116	99	39
133	7	5362	114	396	1068	165	350	63	43	352	87	89	414	129	52	10790	4	0	13	53	21
134	3	5389	440	263	1533	202	273	105	**206**	5	165	46	400	48	81	1880	1	4	-39	99	49
135	4	5390	186	142	1300	15	715	156	133	212	158	70	1128	125	111	1470	1	5	44	99	35
136	5	5391	360	352	1231	252	593	175	127	175	108	83	430	1768	44	-5310	1	6	176	98	39
137	4	5403	603	310	1330	193	766	191	43	261	241	92	902	354	135	-2280	4	5	562	92	30
138	4	5447	340	352	1292	292	733	193	71	276	187	94	396	113	206	1630	1	5	229	94	34
139	4	5474	323	238	1377	225	312	149	70	197	69	53	172	599	106	5160	9	5	317	94	47
140	5	5498	286	173	1300	249	399	129	70	76	166	234	383	2978	104	-8180	1	6	530	95	39
141	4	5500	590	145	1331	283	348	104	81	414	131	34	853	134	94	-190	1	5	40	99	49
142	3	5520	349	195	950	217	337	50	72	540	94	61	444	1176	106	2420	1	4	-39	95	40
143	3	5525	914	247	1267	133	101	105	226	219	167	37	490	173	209	3540	1	4	-14	99	54
144	3	5542	406	395	1400	183	481	65	103	67	83	57	638	327	191	1670	6	4	39	99	39
145	4	5627	1024	454	1147	0	195	54	59	81	73	84	157	1863	127	-860	1	5	244	99	36
146	3	5643	454	416	937	323	371	30	42	189	109	53	670	631	130	2360	1	4	293	87	44
147	4	5714	617	347	1100	120	740	183	83	528	152	81	1446	92	133	4140	1	5	196	93	42
148	5	5721	284	171	1709	152	394	38	102	120	109	134	644	536	19	1400	1	6	15	99	25
149	4	5751	421	273	1732	727	718	143	141	309	108	58	365	94	30	-1350	1	5	1	99	42
150	3	5758	387	279	1589	344	830	138	121	338	231	157	736	583	206	-600	1	4	1	100	34
151	3	5758	301	296	1557	162	1097	141	257	324	66	69	307	88	213	1050	4	4	18	98	37
152	4	5769	600	210	1061	135	563	114	117	257	133	50	420	654	81	3200	9	5	291	95	37
153	3	5817	547	388	1391	242	423	137	92	182	153	80	615	160	197	1640	1	4	18	99	46
154	4	5818	232	190	1146	177	581	115	77	160	159	81	956	82	100	4650	1	5	46	94	26
155	3	5820	2529	510	873	17	421	65	183	147	127	81	258	581	128	-3410	1	4	467	85	48
156	2	5821	836	338	1402	541	497	55	78	389	151	232	627	87	140	1000	1	3	-8	98	53
157	3	5838	427	474	2060	367	249	167	110	69	103	53	730	353	70	570	9	9	130	47	60
158	3	5846	695	233	1596	64	190	145	51	1117	254	250	411	100	124	430	9	4	118	95	40
159	4	5873	447	190	1535	270	185	80	73	1039	150	45	81	156	78	4170	1	5	-7	61	34
160	3	5890	443	190	900	433	323	12	83	218	95	85	428	1583	70	1230	6	4	59	98	31
161	3	5943	500	274	1737	300	576	130	128	77	141	56	1244	198	102	-2070	1	4	152	75	47
162	4	5947	298	125	1302	94	437	109	38	157	65	119	761	712	151	5430	1	5	215	98	32
163	3	5948	1419	367	1740	474	599	117	42	475	189	141	689	5790	240	-20790	1	4	135	87	27
164	3	5954	482	295	1337	125	708	150	60	156	112	76	878	150	117	1150	9	4	5	99	40
165	4	5978	910	404	965	30	552	108	121	1043	68	70	733	148	117	-400	4	5	-14	76	50
166	4	5999	623	323	1220	77	617	107	46	276	145	142	185	1686	96	470	1	5	-68	99	49
167	3	6010	611	302	1384	157	468	71	152	521	201	90	630	70	162	1690	1	4	77	93	14
168	4	6013	591	440	1410	350	707	94	72	599	153	47	1234	220	110	-3130	1	5	355	97	33
169	3	6025	412	497	1000	332	193	36	116	188	26	45	355	167	95	3590	9	0	238	98	11
170	2	6070	600	311	1638	769	369	55	148	99	81	110	779	160	135	250	1	3	299	92	13
171	4	6079	649	207	1040	0	1001	211	79	257	75	56	1262	217	62	1350	9	5	1559	78	49
172	3	6136	687	441	1167	145	630	177	100	712	230	38	693	163	139	600	1	4	25	99	60
173	3	6159	300	256	1467	258	475	106	105	133	148	110	763	1158	64	-150	4	4	64	98	44
174	3	6166	271	237	1633	333	536	115	55	295	267	102	672	307	213	660	1	4	12	99	25
175	4	6181	0	61	1567	295	912	211	75	343	125	100	647	1193	28	70	1	5	136	95	33
176	2	6198	432	398	1552	324	763	172	165	250	173	100	242	78	119	1060	9	3	-54	98	31
177	3	6200	208	206	2133	667	539	64	68	116	146	64	560	388	188	450	1	4	-2	99	51
178	5	6202	671	391	988	251	448	145	69	453	105	114	835	576	141	1830	1	0	107	93	39
179	3	6203	661	361	1283	187	714	172	99	696	154	18	1039	263	139	-2010	1	4	194	99	25
180	4	6231	711	392	1258	395	620	139	57	450	112	85	416	3503	106	-10100	1	5	177	88	44

1.1 Higher public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	3	6263	398	197	1532	86	188	98	77	76	70	47	1277	549	111	3340	1	4	22	89	33
182	3	6269	1228	442	1619	372	44	77	114	453	135	73	508	287	88	-710	4	4	3	90	32
183	2	6310	791	233	1487	460	601	114	119	488	189	53	109	1191	143	-1030	6	3	3	92	54
184	3	6340	192	42	1500	98	571	160	72	147	147	116	696	622	174	4940	1	4	106	98	16
185	3	6362	1031	627	1605	355	349	99	246	101	114	104	376	274	89	1610	1	4	-212	89	47
186	2	6381	497	278	1126	181	428	54	69	984	210	573	759	317	174	640	1	3	-32	96	54
187	2	6441	446	384	1495	590	86	52	100	323	106	119	321	118	148	40	1	3	-57	99	23
188	3	6474	1060	223	978	151	664	202	161	580	233	90	329	192	168	1350	9	4	-25	99	52
189	3	6489	310	97	1000	267	555	38	118	3	182	57	760	300	113	5600	1	4	65	99	52
190	2	6530	897	441	900	10	857	96	74	264	209	125	727	1067	141	790	4	3	256	95	25
191	3	6560	1168	443	1460	400	413	105	190	222	82	28	958	80	132	-1170	1	4	140	97	43
192	2	6627	500	241	1625	180	327	168	187	390	126	135	561	422	154	1640	1	3	20	98	21
193	3	6665	1322	221	1605	459	218	59	95	1120	193	75	387	146	109	-210	1	4	203	95	31
194	3	6684	429	253	1152	120	173	62	179	1072	96	42	1008	213	150	2820	1	4	-53	99	53
195	2	6711	547	329	1860	112	610	108	151	207	207	142	1118	247	200	410	1	3	278	96	21
196	3	6717	800	370	1733	17	340	203	178	8	72	53	690	859	155	970	9	4	167	97	34
197	2	6745	395	235	1800	211	561	184	98	648	180	74	936	215	54	860	4	3	46	96	60
198	4	6769	593	352	1105	225	269	127	179	45	133	219	795	1138	85	930	1	5	93	99	48
199	3	6781	264	194	1233	127	175	51	73	6	94	64	1677	133	44	840	1	4	7	97	23
200	3	6860	392	187	1277	19	395	99	266	221	225	88	1030	76	133	3420	9	4	2	99	53
201	3	6872	560	356	1420	197	305	149	125	402	142	97	515	1288	88	2150	1	4	143	99	39
202	4	6892	325	154	1225	197	652	132	122	594	105	79	1031	191	144	7030	9	5	48	95	32
203	6	6910	237	111	1053	386	778	146	167	799	260	54	1093	89	144	3460	1	0	8	98	31
204	2	6912	675	236	1237	0	538	143	175	48	154	202	622	242	126	2500	6	3	115	99	47
205	3	6916	934	674	1384	40	512	25	201	94	258	61	1011	654	49	3200	1	4	256	93	41
206	3	6931	1468	444	1793	13	479	261	171	295	98	89	206	175	123	5030	1	4	360	67	45
207	2	6972	404	435	1350	0	361	162	104	194	73	116	1035	350	86	3800	1	8	76	98	44
208	3	6997	827	183	1150	185	410	31	69	489	160	21	245	100	73	7990	9	4	233	87	52
209	4	7037	599	379	1845	475	836	154	186	622	206	65	484	170	73	1810	1	5	230	99	44
210	4	7038	529	276	1800	256	1030	173	57	354	171	102	400	440	25	1000	1	5	19	99	28
211	2	7043	577	355	1500	115	1418	196	51	61	146	112	389	90	50	1220	6	3	102	87	24
212	5	7046	513	172	1457	309	366	90	24	28	135	46	443	693	135	10480	1	6	466	79	35
213	1	7052	860	125	2200	416	991	207	202	3	125	175	1520	555	226	500	9	1	0	100	53
214	4	7108	343	215	1298	440	775	198	239	458	162	106	1458	438	155	480	3	5	2	99	60
215	3	7142	1453	476	1300	0	341	113	55	314	192	333	873	200	106	2140	1	4	-153	95	45
216	2	7191	568	367	839	410	637	109	151	538	131	96	829	11	431	4180	6	3	451	89	6
217	2	7194	297	322	1725	450	701	90	95	261	193	114	584	218	163	1900	1	3	83	99	26
218	3	7237	385	261	1633	329	223	47	145	106	139	80	1054	1793	257	-690	1	4	66	99	29
219	3	7246	450	305	1473	87	345	94	93	118	175	48	278	190	82	8240	1	4	391	90	43
220	4	7295	617	358	1558	255	727	175	333	732	262	88	516	302	87	2020	1	5	253	98	29
221	2	7296	2657	398	1500	900	414	79	235	646	339	131	510	2925	24	-610	6	3	4	98	50
222	3	7308	859	517	1459	0	394	72	82	58	96	97	506	222	180	6270	1	4	626	90	24
223	2	7370	295	174	450	265	359	74	81	2084	174	180	1399	118	167	1400	1	3	-48	99	54
224	2	7409	600	268	1346	201	795	195	199	1886	240	226	657	193	198	270	9	3	3	99	55
225	4	7421	483	410	1405	450	859	178	90	93	269	114	1088	193	107	880	1	5	361	99	60
226	2	7454	1115	248	1872	384	586	204	126	1464	202	110	387	235	169	-210	6	3	4	99	54
227	2	7457	252	245	2020	475	825	234	302	350	462	100	982	522	170	2030	1	3	18	93	50
228	2	7487	407	352	1625	671	352	155	337	388	163	90	673	103	169	3120	1	3	21	96	48
229	2	7527	385	242	1360	350	1033	123	51	256	236	251	973	1323	163	680	1	3	4	99	46
230	2	7556	474	326	1902	173	599	78	56	172	126	80	724	4554	188	-4320	1	3	161	86	26
231	2	7572	677	441	1852	250	609	85	54	504	195	125	890	1280	172	-250	6	3	306	99	21
232	2	7588	783	356	1293	257	270	129	111	437	131	135	568	180	411	400	4	9	23	99	36
233	2	7623	761	334	1870	621	1090	212	169	736	199	41	472	203	212	350	1	3	12	100	49
234	4	7637	350	311	1512	563	494	150	156	287	134	116	654	18	44	6060	4	0	1800	79	26
235	2	7653	672	484	1800	410	360	48	119	30	80	87	1362	3472	379	-3550	9	3	59	99	43
236	2	7716	1029	384	1500	266	602	104	177	937	171	135	1119	192	96	950	6	3	9	96	53
237	2	7780	696	307	2334	284	1095	150	325	75	242	98	426	81	292	740	6	3	23	99	28
238	4	7783	874	396	1226	562	582	82	42	289	157	94	336	177	39	8710	1	5	753	84	60
239	2	7806	659	833	2837	207	507	108	284	470	127	111	192	580	93	290	9	3	394	97	20
240	2	7820	304	637	1317	17	141	14	49	1381	71	104	1699	1334	87	190	9	3	850	87	37

1.1 Higher public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	2	7821	866	332	2023	48	778	136	176	584	161	50	193	1026	171	2440	1	8	6	93	31
242	4	7863	464	180	1267	176	904	175	122	581	164	75	1051	162	177	4550	1	5	1377	84	34
243	3	7947	425	152	1450	233	742	120	50	89	106	47	842	37	114	9050	9	4	279	65	45
244	2	8018	696	281	1479	285	627	153	143	508	121	100	664	357	166	4010	1	3	-44	89	22
245	2	8037	489	156	1359	30	1152	109	92	314	215	252	906	47	203	2070	9	9	98	96	22
246	2	8037	810	352	1697	695	730	154	76	274	177	69	695	394	95	2940	1	3	25	99	46
247	3	8039	536	611	1726	892	522	141	102	627	131	132	297	349	160	1820	4	0	189	99	27
248	3	8092	805	617	1283	67	391	65	82	228	101	64	636	175	101	5360	1	4	572	98	40
249	3	8121	660	375	1317	262	750	120	130	127	123	197	896	958	97	5430	9	4	298	99	60
250	4	8165	825	286	1237	156	487	138	155	20	125	28	1445	888	101	8180	4	5	958	99	27
251	2	8179	754	743	1635	471	622	208	94	318	282	100	1730	488	108	710	1	3	495	96	36
252	2	8190	550	645	2285	87	578	80	145	116	129	600	1037	156	160	1670	1	3	78	98	35
253	2	8232	663	299	2735	474	752	100	156	199	116	215	810	745	28	-270	1	3	74	98	14
254	4	8298	240	134	1435	424	819	135	106	117	119	70	989	4499	145	-6300	1	5	105	99	31
255	3	8335	423	207	1533	500	1093	133	212	244	172	133	2008	552	379	920	9	4	35	99	22
256	2	8363	450	292	2100	507	785	214	53	1015	195	96	1290	357	123	1140	1	3	96	99	40
257	2	8379	1187	507	1680	556	327	100	325	269	79	170	323	170	165	1940	1	3	-12	97	45
258	2	8389	552	364	1770	225	806	85	347	1006	242	169	1331	515	331	-1130	6	3	-45	99	22
259	2	8392	492	319	1820	606	121	76	82	496	156	110	667	342	130	4960	1	3	192	99	29
260	2	8442	750	435	1267	498	883	82	113	285	127	52	585	4844	115	-4390	1	3	47	99	50
261	2	8610	826	277	1848	750	488	101	185	104	223	175	1265	461	147	2060	4	3	3	99	53
262	2	8692	1004	463	1878	325	921	194	173	846	378	131	575	481	116	240	1	3	15	99	52
263	2	8757	746	760	1635	550	177	27	60	404	91	262	433	150	88	2470	6	0	120	99	28
264	2	8925	604	521	1770	155	567	137	183	1328	108	140	855	278	161	4550	1	3	355	84	19
265	2	8973	1225	430	1920	236	638	162	318	302	465	205	904	368	206	2270	4	3	6	97	40
266	2	8985	693	292	2760	85	634	78	266	220	251	93	990	171	259	1670	1	3	20	99	22
267	2	9033	1038	242	1316	145	712	52	51	420	190	285	1814	265	116	3700	1	3	55	99	54
268	2	9080	1784	358	2230	362	671	177	175	65	615	212	777	546	200	1280	1	3	8	96	54
269	3	9132	779	367	1360	476	947	142	432	165	107	140	741	95	112	4160	1	0	1653	74	39
270	1	9280	1800	330	700	0	770	105	215	15	160	65	2180	55	12	1680	1	1	378	79	29
271	2	9535	682	1000	2400	550	1741	206	207	80	249	183	905	180	155	350	4	3	276	99	41
272	3	9555	811	465	2022	374	826	54	61	295	87	233	1746	301	143	-140	1	4	61	97	22
273	2	9584	460	210	1712	200	269	109	176	767	190	42	544	225	169	7430	1	3	124	96	54
274	2	9676	1352	317	1542	221	587	252	90	982	141	148	1354	421	117	2600	1	3	165	98	48
275	2	9678	600	528	1887	180	1052	112	307	210	450	125	636	563	279	1490	1	3	69	94	39
276	2	9790	845	560	2164	360	1684	293	444	806	741	175	1208	215	87	-3630	1	3	201	97	24
277	2	9802	622	470	2080	232	688	37	242	266	283	48	308	101	109	6470	1	3	176	68	24
278	2	9814	908	303	1877	57	488	68	96	505	121	96	407	225	170	6090	1	3	156	97	17
279	2	9832	930	499	1800	156	1039	151	493	0	176	215	2449	305	35	0	1	3	0	100	12
280	2	9870	1006	355	1890	705	478	65	217	231	332	295	1385	397	122	3290	1	3	-6	99	52
281	2	9945	1518	688	1969	481	788	186	132	351	269	206	1177	78	201	2110	1	3	32	98	28
282	2	9953	800	769	2330	648	563	128	188	195	267	119	1189	419	24	1990	4	3	261	99	27
283	2	9979	671	589	2205	326	403	43	109	237	129	150	1763	222	145	1770	1	3	505	86	20
284	2	10084	1249	459	1995	219	768	138	129	25	262	81	1532	25	233	3630	1	3	26	95	49
285	2	10370	2563	900	2208	441	1271	298	467	542	289	459	1689	0	41	1980	4	3	-122	99	49
286	2	10481	840	435	1895	425	1697	137	200	247	400	133	1315	435	212	2130	1	3	-16	100	60
287	2	10486	1290	430	2775	605	597	93	100	175	128	50	966	60	224	-6940	1	3	379	92	21
288	2	10539	676	420	2087	499	1711	262	281	276	198	243	546	303	288	2860	1	3	-62	99	54
289	2	10591	618	371	1648	480	1181	291	239	768	702	257	1787	302	185	660	1	3	-22	99	40
290	1	10619	720	252	2700	1280	1878	198	360	114	471	200	1152	678	12	200	4	1	0	100	60
291	2	10650	501	226	2250	941	297	80	71	144	191	564	1532	874	300	4170	0	3	30	99	47
292	2	10683	1364	630	1724	314	636	175	256	428	363	297	987	264	124	-900	1	9	341	63	21
293	2	10830	1344	126	1960	640	977	143	103	6	261	90	3240	75	117	240	9	3	22	99	54
294	2	10885	1318	710	3115	700	1178	233	340	718	526	90	1079	455	86	2300	1	3	-78	93	51
295	2	10986	417	67	1500	675	901	126	142	71	178	105	1871	585	160	7650	1	3	77	98	49
296	2	11124	1296	266	1650	303	1353	307	248	577	315	180	2098	553	162	1450	1	3	27	96	53
297	1	11162	1464	497	990	408	1080	120	74	0	224	152	2657	293	224	1140	1	2	203	97	60
298	1	11228	960	83	1960	750	1532	315	266	36	260	300	2384	1306	160	660	1	1	64	100	51
299	2	11321	690	273	1820	465	843	86	258	194	226	102	3300	292	89	3920	1	3	238	95	54
300	1	11449	1400	8	1620	566	927	100	150	148	106	185	643	546	217	2160	4	1	7	100	55

1.1 Higher public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
301	1	11643	880	552	2400	150	1275	264	198	140	202	174	585	549	113	2430	4	2	81	99	38
302	2	11678	935	236	2400	0	1818	282	244	890	218	115	1195	115	100	2300	1	3	12	99	31
303	4	11713	533	310	1430	275	657	113	179	1296	139	25	150	179	99	21410	1	5	320	64	46
304	2	11884	1147	350	1800	45	619	251	233	189	277	142	386	463	134	7040	9	3	114	97	54
305	1	11948	1208	390	2347	106	996	187	98	1730	364	93	1118	174	122	130	1	2	19	99	19
306	2	12053	1574	305	1225	235	822	181	255	719	362	219	2050	2305	184	600	4	3	57	95	31
307	1	12108	1260	255	2000	729	1463	190	84	82	288	613	1844	2165	199	2260	1	1	-55	100	60
308	2	12136	1842	772	3120	328	413	221	246	468	212	210	1652	478	120	-2900	9	3	1175	51	49
309	1	12331	780	172	2550	700	1828	286	147	118	439	105	1355	390	91	1100	1	2	208	62	50
310	2	12343	857	384	1088	990	893	270	240	2605	329	82	700	232	58	440	1	3	5	97	54
311	1	12384	900	163	2567	100	1102	320	120	867	227	176	1501	1898	238	1510	9	1	10	100	55
312	1	12441	1653	441	1700	610	1126	186	182	525	538	164	3468	176	64	80	1	2	569	87	60
313	3	12844	1531	496	1467	42	1135	114	151	90	197	56	906	1237	127	18050	1	4	-257	99	49
314	2	12865	1541	495	2311	15	411	28	276	1518	244	82	973	305	163	3140	4	3	243	96	51
315	1	12898	1000	200	2405	50	1215	126	336	410	302	539	2912	1000	262	1220	1	1	40	99	47
316	2	13390	1150	688	4060	900	1350	150	85	34	175	190	907	2093	137	280	4	3	465	99	21
317	1	13698	2110	750	3580	865	1732	146	453	956	234	274	1799	647	252	-1460	1	1	85	97	43
318	2	13835	1128	396	1761	233	633	72	282	158	175	232	1022	3991	239	5530	1	3	330	94	52
319	1	13852	1384	388	3675	1200	954	78	598	20	170	160	2750	260	98	-170	1	1	69	97	60
320	3	13986	2077	515	1905	455	1011	113	134	1185	211	129	1122	2278	67	8090	1	4	318	91	44
321	2	14103	1715	750	2150	503	400	32	395	661	149	97	2653	1966	80	5120	1	3	-148	95	54
322	2	14331	1306	504	1800	710	1541	322	313	497	491	173	903	175	268	4490	4	3	233	90	48
323	1	14773	622	578	1685	50	2255	285	284	200	453	110	2110	656	527	2620	1	2	161	99	40
324	1	15053	1130	868	2777	0	1753	340	362	135	228	154	2145	253	393	1020	1	2	76	99	35
325	1	15500	859	358	1950	30	1335	70	280	145	255	400	1555	875	257	600	9	1	72	95	40
326	1	15846	1665	249	3120	1200	1897	157	250	120	524	265	1885	482	88	-2210	1	2	833	73	45
327	1	15992	1794	560	2036	50	1252	166	59	118	212	197	2837	157	212	4400	1	2	343	91	43
328	1	16013	600	730	3193	910	1195	167	330	240	273	347	2555	574	116	2640	4	1	24	100	39
329	1	16275	2723	1238	2108	11	774	141	135	6463	177	53	1930	1239	267	-2820	6	1	-66	100	38
330	1	16396	1800	0	3048	0	1016	0	392	1348	195	50	2816	1050	694	2940	1	1	17	99	54
331	1	16891	2193	835	1850	350	773	252	274	215	433	158	1877	250	303	5520	1	2	174	93	40
332	1	17613	3073	712	2640	1513	664	36	316	23	255	260	3252	115	164	3840	1	1	-45	94	60
333	1	19226	1650	230	2640	840	1706	388	190	1274	216	350	3019	80	118	2770	4	1	-19	99	36
334	1	20015	450	123	1232	0	398	38	75	231	77	784	4404	1560	335	8030	9	1	47	97	55
335	1	29048	1871	653	1680	1200	2090	354	268	39	1145	1906	6517	1302	324	1390	6	2	269	97	44
336	1	47617	3463	2310	1370	562	640	91	80	150	44	105	885	300	211	34490	9	1	1565	54	60

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	1	828	0	0	0	0	290	201	0	0	71	29	42	6	75	60	9	2	0	90	55
2	4	1936	729	232	910	124	160	72	34	19	57	44	87	145	75	-3880	6	5	11	89	40
3	6	1989	94	88	775	67	59	71	79	36	67	30	156	60	36	500	9	7	-11	98	50
4	6	2189	193	157	625	213	212	75	20	129	41	61	243	45	109	870	9	7	-1	98	44
5	5	2305	176	121	815	87	110	71	75	71	106	35	141	32	70	560	6	6	-5	89	48
6	5	2313	194	142	823	88	453	132	44	13	109	30	268	93	67	550	9	6	3	98	46
7	4	2317	192	120	851	107	49	24	205	189	54	64	36	46	162	120	6	5	3	97	46
8	5	2341	231	118	710	85	65	58	23	5	47	7	219	254	80	1540	1	6	1	98	38
9	6	2375	227	136	844	37	170	51	106	183	36	42	118	112	56	960	1	7	77	99	40
10	5	2391	268	201	841	0	237	91	67	107	58	33	163	42	83	390	1	6	1	96	37
11	5	2401	245	197	976	160	266	52	87	97	78	43	94	202	70	380	1	6	-26	99	41
12	7	2433	216	192	884	69	200	71	30	38	54	46	157	96	38	2460	1	0	66	87	35
13	3	2457	240	244	1600	33	66	48	36	40	79	36	107	274	65	-3130	6	4	0	62	24
14	5	2547	206	126	795	0	277	90	34	112	95	65	348	51	69	940	1	6	-6	98	46
15	1	2552	0	0	0	72	233	106	40	0	346	0	21	109	147	240	2	2	74	100	44
16	3	2566	358	185	1000	0	319	91	22	22	68	9	167	84	56	280	3	9	11	73	39
17	5	2573	326	129	918	74	280	68	54	64	27	35	239	10	75	1860	1	6	501	83	38
18	4	2634	432	199	980	111	271	55	69	28	58	52	233	19	53	700	1	5	11	98	50
19	4	2678	259	183	970	166	392	65	68	242	77	39	222	214	85	-2400	1	5	5	93	46
20	5	2681	338	181	712	171	125	59	72	349	117	97	205	25	46	620	1	6	1	96	49
21	4	2688	206	140	802	50	143	57	106	267	77	5	175	35	87	660	2	5	3	99	51
22	4	2716	247	167	836	2	122	39	46	197	35	13	65	878	122	-420	9	5	13	99	48
23	5	2732	643	199	860	70	495	151	33	442	74	33	17	11	30	-480	1	6	12	98	43
24	5	2737	165	111	1040	246	190	71	29	171	66	71	108	56	87	410	4	6	-4	96	47
25	4	2745	262	132	1034	155	232	81	35	80	104	99	239	120	106	660	9	5	-6	95	40
26	4	2770	485	363	791	0	162	83	46	13	89	29	139	27	96	1480	1	5	79	93	49
27	5	2775	164	112	874	70	173	47	65	188	73	61	45	139	121	-260	6	6	-22	76	41
28	3	2860	281	66	1073	363	222	93	22	140	82	90	277	133	33	160	1	4	0	98	53
29	1	2860	336	356	1200	0	50	149	28	5	75	185	124	80	113	0	9	2	27	100	23
30	5	2887	204	149	985	102	458	108	87	244	99	47	191	70	44	-20	1	0	17	84	51
31	5	2896	415	200	1055	195	371	120	92	34	101	34	105	102	32	120	4	6	12	99	37
32	4	2913	229	219	1113	47	76	128	59	54	123	40	106	69	92	1110	1	5	4	98	41
33	5	2920	282	113	908	248	139	95	36	277	82	33	221	101	29	200	1	6	-31	99	41
34	5	2922	328	173	820	127	290	102	64	306	83	74	132	70	70	900	6	6	-38	92	45
35	4	2924	33	197	547	163	142	56	23	211	57	30	280	82	78	1150	1	5	-12	99	54
36	4	2927	315	186	877	128	151	108	84	39	94	35	192	80	73	600	1	0	19	79	53
37	3	2935	312	171	1387	269	269	91	23	12	97	58	46	99	86	370	1	4	2	98	42
38	5	2938	204	106	911	87	185	41	56	92	51	19	265	435	53	620	1	6	7	93	43
39	4	2940	349	248	1210	201	224	100	59	93	59	48	334	135	50	-2090	1	5	196	91	40
40	4	2956	427	199	750	30	245	118	110	93	114	47	156	27	32	-100	5	9	16	21	42
41	1	2960	545	2	1456	366	218	65	20	0	36	0	9	63	105	0	9	2	0	100	24
42	4	2979	175	152	975	146	391	64	127	139	84	38	361	81	99	240	9	5	-15	98	51
43	4	3001	829	116	654	300	101	76	43	219	64	61	247	58	49	-120	1	5	44	84	48
44	4	3092	356	187	750	91	340	109	62	21	105	52	165	66	133	1750	4	5	9	99	39
45	4	3095	640	227	697	154	68	19	27	285	72	38	195	71	90	330	1	5	-235	79	47
46	3	3099	397	177	1175	300	284	135	77	111	143	84	130	180	93	-1540	6	4	16	57	39
47	4	3120	257	179	971	125	347	90	78	94	98	25	90	153	51	820	4	5	-6	93	50
48	4	3129	314	150	1116	136	117	63	99	289	81	53	88	50	94	1140	1	5	64	97	41
49	5	3148	232	185	1277	0	522	60	48	46	54	44	93	124	77	300	1	6	8	99	37
50	4	3158	180	125	1243	242	168	60	53	462	169	47	280	58	96	-850	1	5	94	96	45
51	5	3166	293	178	880	60	218	93	25	41	107	42	384	140	76	1010	1	6	337	90	33
52	4	3173	210	142	1100	0	373	99	135	401	106	46	271	65	73	-510	1	5	-19	98	44
53	4	3219	459	164	925	147	576	145	34	74	148	53	230	233	52	-1200	1	5	-11	99	39
54	3	3233	497	243	1348	117	8	22	44	114	60	60	31	40	168	370	1	4	13	99	23
55	3	3277	304	230	1431	122	170	119	50	67	49	64	218	123	38	200	1	9	0	81	48
56	3	3295	345	166	1200	42	113	67	98	74	41	90	180	57	130	200	1	4	1	98	47
57	3	3298	308	152	1173	239	130	89	103	110	110	111	142	48	187	-790	1	4	3	98	52
58	4	3308	342	193	1054	137	438	89	43	1766	41	60	112	128	76	-5340	1	5	173	96	43
59	3	3321	546	311	1107	0	112	18	127	133	24	18	58	12	40	1300	9	9	76	47	26
60	1	3332	0	0	288	175	641	224	65	10	282	108	188	470	97	360	1	2	11	96	53

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	3344	144	126	1161	83	236	110	59	161	79	55	498	61	86	20	1	5	19	99	45
62	3	3347	168	195	1200	192	128	36	102	138	65	58	157	179	143	1360	1	4	60	94	50
63	4	3356	266	173	900	0	221	80	83	36	39	27	112	2314	80	-4750	1	5	31	99	44
64	3	3365	170	69	1320	280	93	58	45	6	66	53	228	234	74	630	1	4	64	99	41
65	4	3373	281	141	982	296	232	109	82	37	118	36	201	367	25	320	9	5	-13	99	47
66	4	3383	313	171	1305	225	48	66	37	247	118	35	174	51	99	-240	1	5	19	97	39
67	4	3390	394	256	1076	210	305	73	39	119	62	7	203	30	79	1370	1	5	54	99	39
68	3	3407	201	152	987	102	314	68	96	357	99	27	233	254	110	130	1	4	1	94	54
69	4	3426	259	142	1300	161	311	143	31	127	86	31	196	25	110	540	1	5	9	99	35
70	4	3426	499	201	907	132	231	100	123	292	118	45	127	86	87	1270	1	5	6	98	45
71	4	3427	165	142	1035	136	234	71	61	91	86	42	336	365	118	1460	1	5	11	98	40
72	4	3435	171	170	1064	81	436	125	101	321	160	94	101	64	159	480	1	5	58	93	46
73	3	3450	760	279	917	0	378	189	111	32	117	60	110	145	45	100	1	9	6	62	47
74	4	3453	273	226	1169	24	106	52	105	44	91	61	230	328	67	1120	1	5	-46	98	41
75	5	3470	179	137	1116	247	421	82	70	222	120	48	87	208	114	550	9	0	-4	88	31
76	3	3534	442	212	1200	200	335	125	52	158	104	75	537	112	87	-1410	9	4	44	99	52
77	3	3548	400	266	940	159	804	208	165	181	140	73	1089	1308	69	-8090	4	4	125	100	49
78	3	3554	277	88	1067	129	357	56	91	669	121	73	365	279	39	160	9	4	-30	99	54
79	3	3556	496	252	1122	117	559	134	92	25	119	65	511	163	30	0	9	9	1	100	36
80	4	3557	696	263	1146	0	465	208	49	68	49	0	196	115	39	200	4	9	26	30	36
81	3	3560	501	192	1105	111	59	140	65	191	196	65	416	308	101	-1610	1	4	17	92	48
82	3	3584	352	230	1382	181	441	120	111	58	141	52	20	8	98	660	1	4	2	98	51
83	3	3591	357	248	1020	100	277	57	110	78	86	36	200	115	88	690	1	4	-6	98	40
84	4	3602	290	143	1140	30	358	89	36	196	116	77	407	55	72	910	1	5	0	99	42
85	4	3617	279	120	1189	114	284	93	134	373	142	92	242	80	110	-210	1	5	18	99	34
86	5	3619	768	288	1300	216	773	43	69	87	50	26	208	54	59	-3240	6	6	250	62	30
87	3	3620	319	229	1200	158	508	100	40	99	81	42	160	97	102	1550	1	4	128	98	46
88	3	3621	717	198	957	13	386	134	26	11	89	54	73	463	109	890	1	9	39	91	50
89	4	3629	278	192	1029	237	326	123	60	153	115	72	201	27	86	450	1	5	-11	96	42
90	3	3640	391	235	1438	270	521	164	47	382	176	88	67	17	100	-310	1	4	3	98	47
91	4	3645	372	188	1050	38	411	79	32	137	108	54	151	119	58	700	6	5	-3	99	45
92	4	3664	253	183	1387	179	415	107	44	239	83	49	212	60	146	570	1	5	5	98	39
93	4	3667	431	227	1006	330	451	90	112	503	63	92	218	280	198	-2100	6	5	32	98	44
94	3	3694	355	216	1200	285	214	66	86	58	86	87	467	142	106	420	1	4	5	95	36
95	3	3702	411	150	1320	340	349	77	57	138	90	117	195	48	131	400	4	4	5	99	42
96	3	3708	442	127	1118	67	314	93	104	587	125	59	130	167	141	110	1	4	2	96	55
97	4	3715	210	133	1002	250	460	103	107	126	144	73	758	124	93	-110	1	5	14	99	40
98	5	3717	412	216	920	140	194	60	109	81	75	44	258	66	64	490	1	0	-94	100	44
99	3	3743	320	141	1000	304	220	50	54	320	88	100	540	82	82	970	1	4	2	98	55
100	4	3748	356	113	1182	158	239	100	39	85	76	167	55	146	123	1120	4	5	69	97	48
101	5	3782	246	107	993	106	334	101	68	198	150	70	163	227	87	240	1	0	3	95	44
102	3	3797	424	283	984	543	144	60	83	35	76	52	57	145	118	2040	1	4	-18	99	49
103	3	3802	324	191	1485	180	444	75	105	25	167	43	227	170	73	-850	1	4	41	98	43
104	3	3810	517	197	1230	203	198	60	91	355	167	50	360	104	128	130	4	4	26	98	50
105	6	3843	232	89	1104	218	430	84	92	195	60	107	394	1177	159	-5640	1	7	69	88	37
106	4	3843	322	117	976	100	167	77	74	275	42	36	332	179	71	1970	1	5	81	8	40
107	3	3854	368	62	1108	156	167	27	90	300	69	24	177	105	184	470	1	4	4	99	54
108	3	3860	340	157	917	466	224	18	94	624	93	58	417	63	73	80	1	4	1	99	54
109	2	3864	657	331	899	130	0	16	47	15	117	52	243	370	90	-140	6	9	355	94	25
110	4	3890	618	205	1200	315	441	89	52	371	138	75	287	144	168	490	1	5	7	99	44
111	3	3894	1221	409	960	120	331	118	36	322	73	48	877	57	91	-2910	1	4	-60	96	36
112	2	3898	536	290	1000	18	579	78	148	207	161	0	316	488	110	-620	1	9	-3	97	36
113	4	3910	232	114	1065	0	531	136	87	520	142	117	308	216	138	200	1	5	-34	99	42
114	3	3928	380	130	942	76	279	60	42	34	50	19	173	3436	118	-8470	6	4	143	94	46
115	6	3939	368	215	867	278	180	91	44	40	55	93	637	710	23	420	1	7	-13	71	48
116	3	3942	356	149	1107	2	399	41	50	454	84	30	316	95	140	1830	1	4	220	83	37
117	2	3945	382	209	1560	242	351	55	36	34	92	68	311	86	217	110	1	3	20	97	15
118	2	3960	336	147	1500	60	576	49	46	563	93	65	136	37	85	-450	1	3	121	97	10
119	3	3965	720	219	1113	135	290	130	71	281	112	88	138	205	87	-350	6	4	47	84	54
120	4	3987	480	150	1020	116	449	77	50	509	74	45	226	227	63	-30	4	5	60	88	51

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	4	3997	135	143	1130	261	421	118	39	167	138	130	237	82	124	940	1	5	4	90	30
122	3	4015	325	300	1293	308	309	104	152	18	42	43	246	181	131	1420	3	4	32	87	51
123	3	4018	287	148	1125	0	336	76	86	91	81	108	283	101	234	1890	1	4	54	91	50
124	4	4024	480	148	1269	150	404	147	117	635	135	30	160	107	61	-1740	4	5	-1	97	41
125	3	4030	244	168	1062	218	530	107	108	295	151	155	253	70	119	450	4	4	6	92	51
126	3	4033	386	267	914	279	189	74	101	103	133	59	288	102	134	740	1	9	10	95	60
127	4	4037	243	112	1397	226	192	93	29	295	67	33	1246	101	89	-1340	9	5	62	91	41
128	3	4039	400	175	1165	0	470	125	74	418	126	40	328	68	117	1320	3	4	58	91	39
129	5	4045	357	172	936	113	328	75	83	255	124	49	493	93	61	500	1	9	9	99	44
130	3	4054	330	64	809	110	421	76	141	453	190	60	104	144	76	-100	6	4	0	97	55
131	3	4065	267	177	1200	300	472	120	123	44	162	76	281	117	88	710	1	4	25	99	39
132	2	4067	450	363	1800	337	294	39	135	103	35	15	90	177	62	140	1	0	0	71	60
133	3	4080	446	338	1120	348	560	108	129	192	180	65	170	89	91	610	4	4	-10	98	52
134	5	4089	266	121	1036	36	74	38	24	17	50	43	64	865	63	6380	1	6	94	74	42
135	3	4090	244	187	1247	205	446	90	36	571	66	56	402	40	248	300	9	4	0	100	52
136	3	4100	308	169	1120	133	253	112	102	353	118	50	858	173	30	1240	9	9	32	62	38
137	4	4109	217	185	1040	65	306	2	97	15	191	36	163	37	166	630	1	5	86	99	33
138	3	4119	249	170	1623	406	615	145	66	222	106	58	97	116	98	280	1	4	15	92	39
139	4	4127	250	180	1337	309	577	121	75	122	196	54	576	177	53	-1710	9	5	27	99	30
140	4	4210	266	240	1325	612	589	160	67	28	74	158	56	170	3	260	1	0	2	88	31
141	2	4215	834	231	1330	45	229	74	77	131	85	108	115	120	280	40	1	9	8	85	36
142	3	4224	483	200	917	134	370	34	43	142	97	57	586	67	80	2790	1	4	115	84	48
143	4	4270	573	285	1668	125	310	56	52	347	97	87	86	65	123	580	1	0	130	81	27
144	3	4274	165	203	977	52	234	62	196	92	67	96	205	80	70	3080	6	4	49	98	54
145	1	4275	0	0	300	180	450	125	30	0	176	17	220	244	99	1910	1	2	66	93	32
146	3	4296	711	383	1560	207	284	165	115	109	186	98	93	40	91	2240	9	4	112	96	32
147	2	4298	336	165	745	425	301	34	166	284	94	110	831	172	58	290	4	8	-40	99	50
148	2	4306	302	418	1350	41	279	190	160	73	190	139	338	145	87	-700	2	0	12	77	26
149	4	4315	133	185	900	490	701	152	101	258	233	90	408	169	157	550	9	0	-7	93	20
150	3	4336	276	158	1173	367	317	31	201	67	194	92	291	112	216	600	4	4	-8	91	45
151	5	4350	219	149	869	120	549	130	49	214	172	32	693	387	90	1420	1	6	126	98	31
152	3	4352	377	210	1433	367	263	93	65	238	82	121	102	116	205	200	6	4	-2	92	54
153	4	4354	306	204	1056	0	487	131	94	135	123	47	107	183	161	750	9	9	2	97	60
154	5	4368	353	198	1026	264	219	93	88	96	123	40	558	73	112	2750	1	6	-95	90	47
155	4	4368	196	115	1173	156	331	68	165	395	98	78	797	216	136	450	1	5	-3	99	47
156	4	4402	589	222	900	180	314	96	62	419	76	94	482	102	57	240	1	5	5	99	52
157	2	4421	461	233	1108	351	405	110	91	371	134	78	64	150	0	-70	1	9	10	86	55
158	3	4423	404	252	1116	141	293	141	99	31	121	78	515	110	71	2260	1	4	150	93	37
159	3	4426	399	148	1058	196	340	64	114	373	104	147	462	81	154	1860	4	4	22	98	53
160	3	4442	399	188	1267	13	492	84	61	172	110	122	283	0	72	2260	1	4	34	96	44
161	3	4443	332	144	1394	402	218	100	40	8	120	115	488	171	61	160	4	4	-2	99	32
162	3	4455	310	155	1174	49	1057	168	40	389	129	77	997	192	99	-1800	1	9	32	99	60
163	2	4455	314	170	750	0	419	187	211	364	222	70	732	132	60	70	9	9	-1	74	50
164	2	4489	431	295	1458	210	355	108	63	417	190	32	333	69	120	410	1	9	50	93	60
165	4	4495	435	195	1245	382	261	137	72	288	171	50	365	125	111	900	1	5	6	94	41
166	3	4514	298	102	1452	453	568	51	145	1239	214	44	197	96	122	-1500	5	4	-40	97	54
167	2	4532	408	237	1250	200	460	81	130	291	193	126	351	254	235	160	4	3	2	98	21
168	2	4620	601	267	1275	65	759	73	102	40	94	127	183	75	187	-760	9	3	349	40	60
169	3	4626	349	221	1750	619	391	66	115	113	75	168	529	48	109	-370	1	4	9	91	31
170	3	4628	225	169	1693	487	304	93	95	60	114	65	363	17	102	2080	6	4	-46	99	37
171	3	4638	439	181	1060	167	377	82	109	55	141	53	301	1879	83	-3050	1	4	49	98	50
172	3	4667	385	229	1733	173	246	102	118	515	92	45	239	17	50	860	6	4	29	99	27
173	4	4669	198	76	1030	22	979	124	26	1839	55	144	684	79	91	-6230	1	5	327	82	55
174	1	4687	756	342	1500	0	549	196	37	137	180	133	115	75	141	160	4	2	190	55	19
175	2	4695	533	287	1225	130	1350	330	106	85	223	88	371	200	150	270	1	9	-7	86	36
176	2	4702	543	291	2148	442	438	120	137	119	109	52	1032	130	322	-3300	1	3	373	98	19
177	3	4743	648	207	1000	133	407	52	152	137	288	43	67	317	47	700	1	0	22	88	47
178	2	4745	560	273	1089	0	461	171	70	480	101	50	863	79	88	-390	1	9	9	98	43
179	3	4764	320	130	1200	5	399	83	36	489	85	107	360	174	92	1760	1	4	7	86	44
180	3	4767	261	147	1231	280	169	159	104	358	157	156	347	107	108	4800	1	4	-59	99	48

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	3	4787	400	213	1387	33	576	125	99	250	157	50	780	133	64	20	1	9	27	92	60
182	4	4799	386	115	1290	84	749	64	141	154	101	32	582	439	138	2330	1	5	42	99	38
183	1	4805	804	220	1200	437	66	12	40	255	52	125	96	100	75	1000	4	2	14	100	46
184	3	4819	399	171	1127	352	918	167	93	230	198	121	622	250	166	-1530	1	4	256	92	46
185	3	4824	441	154	1219	7	565	147	95	91	68	68	284	154	104	2640	4	4	189	84	49
186	4	4826	467	192	1037	197	534	109	161	144	153	26	946	110	59	640	9	5	10	99	42
187	4	4829	317	160	1080	6	563	129	102	85	153	105	798	947	94	-2780	1	5	33	99	44
188	3	4833	437	219	1288	58	559	96	48	556	147	46	287	79	104	520	9	0	3	90	51
189	2	4849	540	403	1690	153	437	44	42	17	97	100	86	252	211	160	4	3	1	99	14
190	2	4849	372	397	2065	917	1042	217	221	2866	287	205	610	330	142	-9150	1	9	251	85	60
191	3	4857	480	347	1080	431	141	135	177	43	112	87	132	229	135	1540	4	4	3	83	49
192	2	4878	347	172	1050	25	51	97	88	10	125	85	667	20	184	2710	4	3	141	88	53
193	3	4886	589	563	1125	80	182	31	39	293	94	112	656	392	85	1650	1	0	224	75	52
194	3	4904	355	323	1587	207	679	139	186	20	178	71	73	313	180	490	6	4	28	99	42
195	1	4915	1920	567	2100	410	137	38	85	54	56	90	520	120	122	270	9	1	25	62	30
196	2	4930	496	227	1275	327	372	96	91	144	158	165	266	176	53	790	9	9	3	99	53
197	2	4940	1972	408	1440	25	151	104	32	1295	108	58	629	153	186	-4490	1	3	-320	98	51
198	5	4965	259	206	1085	272	521	101	49	313	172	80	394	59	141	2610	9	6	10	99	29
199	2	4991	340	254	1755	400	162	60	126	270	208	39	217	2558	202	-3930	6	3	300	82	42
200	2	5019	582	328	1820	250	450	116	135	242	124	0	320	25	59	440	1	8	6	98	42
201	2	5023	1030	300	685	12	279	49	22	223	74	58	741	222	120	1670	1	0	244	70	46
202	2	5028	471	260	951	103	448	103	88	132	136	30	355	110	112	1380	4	0	6	92	42
203	4	5040	332	180	1362	91	483	103	95	562	167	52	379	502	100	1080	1	5	-27	58	39
204	2	5043	967	394	1690	130	205	77	82	187	22	0	25	576	276	710	1	3	112	86	19
205	3	5062	638	335	1300	667	239	67	51	10	98	110	217	230	86	430	1	4	2	95	39
206	3	5069	490	461	1050	254	303	54	164	160	127	137	411	457	166	520	2	0	51	95	17
207	2	5077	612	721	1200	240	221	82	73	444	121	55	184	112	151	-80	1	3	270	97	25
208	3	5080	698	235	1263	23	336	50	181	447	168	175	395	109	120	300	1	4	-1	99	49
209	2	5086	378	203	1755	210	273	49	110	13	140	46	582	47	189	1020	9	3	6	98	27
210	3	5091	423	232	1432	293	611	102	95	38	141	158	423	183	81	1140	2	4	1	99	38
211	3	5108	368	192	1163	115	490	178	67	49	179	36	735	123	119	3110	1	4	94	98	47
212	1	5118	890	246	960	50	250	100	48	0	97	100	905	0	105	500	6	2	509	57	9
213	2	5170	362	306	1820	717	625	106	191	61	178	49	862	337	93	-1540	4	3	151	93	60
214	3	5185	324	264	1200	347	367	170	88	11	98	66	927	764	101	980	1	4	-24	100	45
215	3	5196	404	189	1613	0	348	105	137	202	127	51	1330	64	129	1480	1	4	67	98	38
216	2	5217	666	383	1687	50	703	42	82	424	75	32	197	105	115	70	1	0	116	96	30
217	1	5227	1321	378	765	0	147	82	167	350	429	132	195	271	140	120	6	2	14	100	21
218	1	5248	0	0	0	1070	286	110	270	0	129	66	2565	0	183	360	6	1	78	98	60
219	1	5260	840	60	1200	200	775	120	390	0	115	0	780	525	0	0	9	1	-2	93	54
220	3	5288	349	252	1853	207	300	50	161	43	141	99	555	138	269	800	1	4	5	99	40
221	3	5289	490	177	1233	287	631	165	99	654	101	76	212	692	133	430	1	4	6	94	54
222	2	5302	507	321	1920	57	417	66	40	12	68	216	733	112	195	460	1	3	5	98	20
223	2	5336	679	277	1552	51	176	104	88	600	124	87	337	176	170	1300	1	3	218	92	20
224	3	5344	212	137	1533	217	429	170	190	567	151	58	433	70	89	510	1	4	44	98	32
225	3	5369	653	81	1150	375	355	65	387	267	319	96	373	85	63	2130	6	4	152	98	53
226	3	5373	912	313	1063	261	366	56	86	363	97	81	338	84	96	1880	1	4	-19	98	51
227	2	5380	720	225	1560	498	563	71	99	575	110	99	34	181	49	200	0	3	4	98	22
228	3	5397	489	241	1068	215	638	192	134	225	196	67	448	128	107	4740	1	4	84	77	48
229	1	5410	600	136	2400	900	0	70	50	30	180	50	170	532	96	-1130	6	1	265	73	51
230	1	5440	0	0	500	25	756	126	177	560	100	93	653	540	148	490	3	2	190	99	36
231	2	5453	533	193	1403	466	405	96	77	405	105	152	608	95	218	490	1	3	5	98	28
232	2	5467	471	330	2010	170	1102	156	93	112	196	159	179	139	218	-1090	1	3	32	96	16
233	2	5480	684	67	1860	300	455	146	147	475	152	50	120	312	133	1830	4	3	-13	99	54
234	2	5481	544	301	1740	364	356	48	147	380	209	75	141	196	421	200	4	3	8	84	52
235	2	5502	468	308	2220	260	142	75	41	195	91	103	218	87	121	1480	1	3	1	98	21
236	2	5510	367	149	1690	500	395	50	13	0	144	40	362	1137	135	-200	1	0	6	85	43
237	3	5543	436	181	1253	188	601	80	83	89	231	67	927	62	84	2070	1	4	790	80	36
238	2	5572	900	760	1848	250	439	136	205	110	168	97	230	356	87	-3580	1	9	76	76	48
239	2	5591	534	365	1750	50	475	97	123	32	134	80	242	265	42	650	1	9	105	61	28
240	2	5595	412	328	1655	986	399	186	80	591	119	91	237	349	288	240	6	3	1	98	53

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	2	5621	345	236	1100	350	599	90	250	160	136	49	443	635	170	1320	4	8	-7	99	54
242	1	5629	720	75	1350	0	0	10	55	10	141	200	808	345	114	1100	4	1	-229	75	49
243	2	5635	339	556	1380	55	731	88	42	265	101	89	112	23	179	3300	1	3	412	89	24
244	3	5642	427	245	1317	753	415	140	88	56	185	72	497	346	204	190	4	4	25	99	39
245	2	5691	531	306	1509	80	571	192	160	1642	199	167	177	207	91	-3290	6	3	132	95	35
246	2	5695	707	276	1470	394	227	10	52	176	58	84	139	2034	180	-430	1	3	23	98	44
247	2	5709	669	444	1650	314	308	75	192	172	176	199	260	800	214	200	1	3	107	93	25
248	2	5709	849	325	641	413	296	60	171	194	268	197	63	846	194	670	1	3	-18	98	48
249	3	5722	522	226	1547	240	845	162	122	546	75	160	436	246	285	560	1	4	243	98	25
250	1	5745	800	103	1150	103	306	36	317	6	132	55	1738	490	86	290	1	1	5	99	52
251	3	5754	1126	237	1300	185	498	37	80	43	216	117	97	168	64	3210	9	4	160	100	45
252	2	5769	877	92	1465	341	720	319	113	328	193	35	471	222	157	160	0	3	0	63	55
253	4	5786	345	139	1144	365	587	103	71	596	80	92	678	466	22	890	1	5	-24	99	43
254	3	5794	806	168	1200	111	581	83	179	136	138	192	213	164	115	2270	1	4	-34	99	54
255	2	5815	900	380	2409	262	240	39	193	203	67	109	905	123	77	0	4	3	0	78	19
256	3	5823	419	235	1961	158	728	164	85	431	218	121	410	193	177	990	9	4	-8	99	25
257	2	5845	691	410	1500	300	514	131	126	548	108	111	534	147	242	840	1	3	87	98	19
258	1	5853	840	180	1370	530	755	160	163	717	284	336	242	100	89	120	1	2	-2	93	54
259	2	5872	520	253	1764	477	534	182	122	139	222	68	559	325	134	530	1	3	9	99	23
260	2	5876	335	270	1930	520	384	125	104	151	129	165	761	172	153	540	1	3	65	79	20
261	2	5898	349	325	977	66	131	68	37	104	168	109	246	67	9	6180	9	0	9	80	53
262	3	5907	422	240	1399	250	183	56	106	200	69	50	367	3566	195	-6660	4	4	56	85	54
263	2	5953	826	322	1524	100	893	176	86	209	279	45	513	80	230	120	9	9	27	99	25
264	2	5955	1026	437	900	25	641	117	125	126	112	92	359	70	42	2810	1	9	39	94	46
265	2	5980	402	340	1525	903	290	75	80	358	162	119	958	157	296	-300	1	3	9	62	16
266	2	5992	580	280	2432	0	476	76	37	201	183	165	227	143	97	1250	1	3	442	82	27
267	1	6000	0	0	0	265	1287	276	69	51	238	294	1740	444	122	580	6	2	0	96	53
268	2	6023	605	316	1752	363	392	75	187	245	259	115	650	115	225	230	1	9	24	92	28
269	3	6069	311	237	1220	247	929	130	112	106	316	73	652	174	125	3460	9	4	22	98	33
270	2	6101	252	207	1950	600	437	144	176	450	196	434	253	57	67	230	1	3	-1	99	32
271	2	6114	701	57	1237	492	930	107	34	147	90	177	380	278	73	2630	4	3	8	85	54
272	1	6122	795	363	1770	365	418	160	386	780	270	190	470	300	237	-910	1	2	12	99	38
273	1	6160	960	9	1500	314	772	199	102	534	271	96	325	205	199	10	1	2	0	96	60
274	1	6166	900	462	798	360	738	160	70	11	382	128	535	98	120	430	9	2	1	99	45
275	1	6175	976	356	1720	402	321	76	160	109	232	137	145	343	243	280	1	2	4	98	45
276	2	6178	563	229	1240	17	679	62	110	467	252	91	618	1168	248	-1050	6	3	105	93	43
277	1	6194	940	489	2000	670	556	106	265	109	225	318	190	178	149	-560	1	2	7	98	42
278	2	6205	258	212	1620	0	1044	213	225	739	218	83	701	91	65	240	9	9	-4	63	49
279	1	6205	607	152	1488	1035	880	154	179	18	352	156	121	250	146	40	1	1	1	99	46
280	1	6205	636	506	2436	416	628	101	110	58	214	150	335	163	198	0	1	2	0	100	23
281	1	6225	316	169	1530	0	1489	215	186	62	234	130	433	163	398	40	1	2	0	99	51
282	1	6225	0	36	1000	700	1586	115	110	14	403	85	215	334	248	140	4	2	2	99	54
283	1	6266	300	40	2620	0	495	255	95	534	228	108	448	160	277	0	1	2	0	100	55
284	3	6278	304	210	2062	229	513	102	164	987	140	77	285	175	173	380	1	4	22	70	24
285	3	6291	293	176	1503	343	420	23	94	66	59	164	820	215	138	4610	1	4	119	87	23
286	2	6293	387	177	1237	275	880	170	135	615	305	90	1315	2482	235	-3700	6	3	41	97	53
287	1	6307	542	5	1035	5	955	249	140	495	342	80	957	679	166	240	1	2	8	94	55
288	1	6316	600	8	1810	35	1421	276	177	143	468	36	704	250	91	0	1	2	0	94	54
289	3	6395	956	269	1000	142	874	187	324	1155	68	148	167	1369	142	-3020	1	4	35	91	54
290	2	6398	259	279	1500	362	945	110	90	157	257	409	662	163	372	590	1	3	-1	99	51
291	2	6413	310	281	1222	126	461	124	68	368	156	95	918	390	144	1930	1	3	18	75	17
292	2	6448	504	302	1425	776	873	140	140	266	161	75	528	102	168	980	1	3	116	96	46
293	1	6465	0	0	2460	546	657	283	19	98	811	195	244	200	167	40	1	2	0	99	52
294	1	6479	0	0	0	600	765	143	34	33	408	0	606	2410	173	140	1	2	0	99	60
295	3	6485	360	197	1584	538	718	145	168	69	201	153	1218	120	86	-1060	1	4	29	99	40
296	2	6508	860	288	2055	682	352	86	152	345	146	105	955	6278	130	11230	4	0	117	83	51
297	2	6525	340	219	1805	1290	44	40	109	357	163	102	862	125	126	860	1	3	51	95	60
298	3	6548	392	260	1576	704	731	108	98	94	160	112	935	1144	242	-790	9	4	-8	98	29
299	2	6566	1120	409	1500	150	368	136	75	309	104	62	222	480	123	1120	1	3	11	99	54
300	2	6601	795	484	1560	146	772	55	121	331	149	152	414	155	298	1900	1	3	223	95	10

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
301	3	6615	180	201	1300	320	1087	350	137	100	216	87	530	929	299	0	9	4	3	100	49
302	1	6618	690	278	1800	0	465	73	66	1537	207	151	26	50	262	620	1	2	81	95	22
303	2	6679	716	359	1810	281	314	145	55	868	102	86	736	67	162	1070	1	3	124	89	15
304	1	6698	550	2	1740	302	740	90	8	175	425	85	1890	662	24	-110	1	2	0	99	49
305	3	6712	390	194	1863	302	658	144	139	72	175	185	692	114	100	1760	4	4	-22	96	47
306	3	6721	286	165	1120	140	361	116	72	272	101	67	212	120	80	9060	1	4	70	99	48
307	2	6724	540	295	1612	302	387	131	110	351	239	84	664	72	95	1920	1	3	34	99	21
308	1	6747	900	85	2013	1200	275	61	137	324	442	144	480	41	11	120	1	2	-2	82	44
309	1	6748	900	226	1250	322	1673	342	155	147	357	133	555	165	224	-170	9	2	2	94	49
310	2	6775	352	210	1020	0	880	121	132	533	75	72	667	305	294	4160	1	3	215	93	47
311	1	6783	640	0	1297	0	639	182	73	687	250	26	1985	98	91	40	1	2	0	99	46
312	2	6794	481	312	2450	938	386	60	127	386	110	217	444	166	281	200	1	3	-4	99	49
313	2	6839	809	171	1700	82	861	159	84	3313	243	77	275	225	76	-6530	6	3	73	98	55
314	1	6839	600	261	1175	753	255	149	146	1272	449	118	545	285	110	-510	1	2	72	91	40
315	1	6890	1200	406	806	932	799	160	223	126	381	10	542	212	22	500	1	2	0	98	54
316	2	6895	600	483	1359	420	538	138	198	85	180	129	1030	115	38	1170	1	9	-27	93	34
317	1	6957	728	1483	2499	14	259	66	222	20	203	135	280	255	133	-770	1	2	36	42	54
318	2	6973	339	381	2131	1123	289	99	180	240	122	18	174	178	269	680	6	3	3	99	53
319	3	7008	578	138	1385	720	842	218	69	165	126	44	611	291	122	2920	4	4	-18	88	51
320	1	7020	750	477	1560	780	1201	65	185	630	459	273	513	675	330	-60	1	2	4	99	54
321	1	7045	0	55	1280	260	1080	189	205	333	505	150	95	337	153	940	9	2	0	89	55
322	1	7060	924	417	2146	260	824	86	615	50	242	193	607	54	122	-660	4	2	19	88	39
323	3	7077	456	258	2267	860	432	109	77	29	153	151	1052	277	457	870	9	4	108	97	21
324	2	7097	687	222	1425	642	526	164	174	2683	207	179	701	228	262	-1850	1	3	24	99	54
325	1	7097	607	220	1820	30	257	117	255	140	202	30	1101	386	125	720	1	2	52	96	53
326	1	7134	1260	560	1848	630	766	63	166	143	252	156	45	310	279	170	4	2	4	99	53
327	1	7176	900	101	1830	0	647	338	130	572	396	144	396	899	236	30	9	2	0	100	54
328	2	7180	417	231	1763	867	1096	165	133	117	311	80	1016	150	263	390	1	3	116	97	23
329	2	7237	931	781	2261	512	217	54	78	71	111	103	559	601	127	2810	9	3	487	86	20
330	1	7254	1080	14	1804	0	1195	144	91	112	275	146	993	150	184	90	9	2	0	100	60
331	1	7270	1280	84	2199	370	482	103	329	70	145	70	1090	235	186	770	1	1	4	99	60
332	4	7287	277	225	1128	36	1538	282	81	1015	190	52	1320	352	149	-1270	1	5	17	98	35
333	1	7297	1431	401	2250	69	357	77	144	17	342	115	948	194	124	-1210	6	2	318	78	26
334	2	7330	291	303	1470	0	305	130	150	273	118	75	1360	676	306	2180	1	3	248	99	31
335	1	7350	960	155	1500	0	900	139	112	86	644	186	868	70	96	590	0	2	23	100	44
336	1	7380	720	46	1566	170	910	269	302	220	541	128	1150	670	91	80	1	2	0	75	54
337	2	7403	377	229	2163	961	1124	110	120	143	185	163	1288	120	268	-550	1	3	1	100	49
338	1	7409	900	0	1575	100	1414	378	96	141	409	75	757	200	259	510	9	2	62	96	49
339	2	7437	264	236	2176	720	708	16	164	854	107	200	837	135	250	1260	1	3	2	99	45
340	1	7460	1320	15	1992	277	655	110	262	0	338	89	1699	217	96	40	1	1	46	96	52
341	2	7463	745	745	1300	112	212	76	117	91	128	40	923	1680	305	430	4	3	23	95	22
342	1	7496	555	237	1080	0	1057	249	190	2570	366	57	1116	396	238	-1410	1	2	17	99	55
343	2	7563	273	344	2020	590	657	144	87	147	275	237	651	1166	293	50	1	9	-2	97	36
344	1	7572	1084	375	1210	117	1459	219	282	151	315	157	403	579	92	80	9	2	0	72	41
345	1	7593	800	12	1846	45	1018	230	120	40	195	300	750	247	103	1070	9	2	64	96	49
346	1	7605	670	299	2041	1081	1015	248	70	224	270	196	520	195	97	160	1	2	1	100	53
347	2	7627	358	221	1620	12	646	224	145	379	199	62	1378	297	204	3120	1	3	-6	99	54
348	2	7639	612	367	2280	192	448	269	58	172	153	125	38	161	165	2630	4	3	145	97	18
349	3	7657	450	266	1674	406	1057	164	98	139	237	147	1166	127	154	1980	1	0	15	99	36
350	1	7681	1020	530	1485	364	1243	240	175	481	213	225	330	95	174	330	1	2	0	100	51
351	1	7697	828	215	2300	240	863	245	230	117	526	465	392	396	249	440	1	2	18	99	46
352	1	7714	604	542	2080	0	667	179	356	155	344	148	226	450	119	0	1	2	45	100	15
353	1	7740	1000	510	2250	250	645	92	112	30	217	0	320	211	125	1320	9	2	3	100	20
354	1	7756	960	370	2022	785	408	167	116	137	452	180	320	129	379	320	1	2	5	99	35
355	3	7779	304	292	1033	530	182	87	142	42	178	125	808	1434	134	6040	1	4	146	54	49
356	1	7830	1045	493	1300	120	759	140	112	134	172	114	1830	260	21	420	1	2	31	97	28
357	2	7868	910	385	1746	325	450	139	103	1607	178	173	478	568	119	460	1	3	8	98	53
358	1	7874	1504	369	2370	14	671	80	95	189	146	158	417	268	154	1080	1	2	301	88	48
359	1	7890	217	110	1799	40	380	255	100	3924	360	280	658	515	182	-2140	9	2	26	100	42
360	1	7925	840	12	2190	0	479	101	238	0	257	132	1033	360	247	1580	9	1	16	99	53

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
361	1	7932	780	0	1800	360	1925	300	430	28	690	50	995	280	100	-560	3	2	-2	100	52
362	1	7948	1450	690	1710	300	221	118	170	36	221	120	393	245	222	1240	6	2	158	61	54
363	2	7972	405	241	2676	648	467	61	164	1414	139	240	202	250	95	530	1	3	-15	99	22
364	2	8001	355	272	1450	318	1047	228	165	188	144	165	1763	234	173	2440	1	3	4	99	53
365	2	8037	1283	434	968	839	919	133	107	398	228	489	387	55	413	290	4	3	5	95	43
366	1	8043	0	21	1100	40	835	143	72	235	483	151	1584	308	218	1300	9	2	135	96	37
367	2	8059	2405	405	550	122	339	113	194	73	192	46	328	111	65	3870	1	0	110	64	50
368	1	8080	978	650	1250	400	867	175	123	60	306	205	270	625	31	80	1	2	0	92	60
369	2	8093	300	257	1834	0	1345	290	297	55	329	25	2180	75	114	1350	1	3	53	99	53
370	1	8120	900	69	2322	674	687	167	121	1314	213	20	1423	716	120	-800	1	1	13	96	47
371	1	8122	1132	300	2820	0	690	225	100	650	382	100	70	200	174	-150	1	2	16	100	48
372	2	8182	1239	406	1775	351	728	146	167	297	235	130	670	310	47	240	1	3	4	50	19
373	2	8251	302	219	2012	544	835	119	222	11	441	175	1098	526	104	1750	1	3	21	94	50
374	2	8255	440	256	1105	514	757	103	106	650	115	50	958	2075	242	550	1	3	13	98	54
375	1	8268	494	327	2470	632	216	10	250	32	52	20	56	166	0	10	4	2	2	72	30
376	3	8275	303	194	1538	323	1316	158	47	585	173	100	1820	828	141	790	9	4	35	99	60
377	1	8303	1044	0	1845	0	771	77	112	73	147	28	619	4493	113	-1530	1	2	19	100	48
378	2	8319	385	214	2340	890	191	39	101	628	184	96	417	1907	280	250	1	3	-7	94	30
379	1	8329	1560	5	1350	55	1177	200	173	110	508	67	410	544	200	770	1	2	106	93	60
380	2	8366	550	470	1690	10	285	50	128	15	102	74	110	90	166	7970	1	3	243	57	16
381	2	8407	961	787	1960	310	166	54	56	48	145	90	185	41	171	5150	4	3	1369	75	16
382	1	8463	840	261	2400	188	1113	272	117	12	237	208	605	605	138	1080	1	2	100	96	36
383	1	8468	540	405	1150	0	527	168	99	791	210	32	1302	410	316	1780	1	2	98	94	40
384	1	8494	450	265	2300	10	429	29	218	33	558	62	1165	1565	55	440	4	2	-19	89	40
385	1	8652	800	0	1295	666	906	204	91	0	126	28	170	2556	231	160	4	1	-16	100	53
386	1	8740	1079	477	1896	620	590	90	383	1159	235	240	156	265	383	360	9	2	0	98	18
387	1	8758	840	217	1920	0	1037	155	116	206	250	252	595	90	173	1890	1	2	5	99	53
388	1	8778	1200	10	1725	665	738	135	276	401	278	152	1532	456	265	250	1	2	30	99	53
389	2	8803	410	247	2165	347	888	125	297	153	247	137	1438	265	87	2230	1	3	164	96	33
390	1	8840	780	15	3525	1800	1010	160	130	0	265	60	970	360	266	-810	6	1	0	100	50
391	1	8964	504	169	3430	250	238	114	157	237	175	162	786	146	37	940	1	1	43	99	47
392	1	8992	818	298	2100	720	1013	155	260	711	360	237	703	265	264	350	1	2	91	96	33
393	2	9044	654	347	1566	415	688	114	101	1415	178	51	879	263	123	2580	1	3	230	94	40
394	1	9069	649	254	1847	0	1146	152	143	851	232	213	1009	130	118	1130	1	2	33	99	51
395	1	9085	1364	653	1560	68	814	279	257	481	298	126	132	881	101	160	1	2	5	98	14
396	1	9106	660	233	2250	0	2076	260	292	6204	554	120	625	397	217	-4730	1	2	52	94	46
397	1	9143	780	20	1776	435	949	105	230	0	111	60	920	3070	232	80	4	1	0	100	51
398	2	9149	434	277	1296	780	1318	56	343	51	116	68	125	3380	83	-1660	6	3	675	59	47
399	1	9153	540	734	2267	30	1649	299	68	225	174	200	561	754	174	130	4	2	6	99	44
400	2	9154	423	243	1250	209	339	48	290	184	302	84	1198	4812	382	-2320	9	3	40	88	42
401	2	9222	680	534	1816	274	369	91	39	361	121	114	584	173	189	5930	1	3	954	49	20
402	2	9230	1005	326	1924	411	1113	356	124	320	297	193	819	457	145	1080	1	3	31	98	47
403	2	9243	1144	340	1950	907	768	135	210	385	211	142	676	1544	125	-260	1	3	181	95	51
404	2	9252	565	285	2020	660	1017	174	135	754	317	118	741	247	536	1910	1	3	24	98	25
405	2	9264	541	308	2500	441	1295	245	317	331	246	150	1581	297	82	250	1	3	43	100	32
406	1	9266	1328	277	1406	0	165	183	22	167	304	130	1311	350	357	900	1	2	282	91	20
407	1	9268	596	238	2244	769	190	143	291	177	287	0	830	2993	127	200	9	1	0	99	53
408	1	9302	1056	29	1980	300	1108	99	480	20	221	133	2256	165	100	840	1	1	13	99	45
409	1	9310	1600	223	838	956	442	52	60	807	107	90	1124	540	95	1530	1	1	304	89	54
410	1	9395	622	418	1500	225	954	260	157	2151	260	90	895	205	216	1030	9	2	10	81	36
411	2	9404	750	385	2016	364	1223	240	210	294	310	377	1567	175	198	1080	4	3	47	99	44
412	1	9414	5516	1052	1200	0	630	383	144	1036	386	124	1399	387	89	-2840	9	2	-216	98	44
413	1	9462	1300	785	2400	840	1069	121	112	175	323	237	1757	240	146	-800	3	2	145	92	48
414	1	9470	2054	518	1800	175	556	178	102	413	79	130	1072	250	260	-720	1	2	84	98	54
415	1	9471	648	438	1725	1020	1081	228	135	1055	200	154	1611	641	137	-100	1	2	4	98	40
416	2	9485	379	261	1170	680	520	190	83	67	184	80	532	4146	150	500	1	3	26	100	54
417	1	9498	720	57	1210	463	709	300	212	306	316	214	1926	759	18	2030	9	2	109	94	44
418	1	9540	1060	715	1800	200	700	250	70	0	500	120	330	200	160	710	1	2	9	98	30
419	1	9546	1320	19	2580	84	402	35	58	65	122	124	773	147	123	1190	1	2	12	60	54
420	1	9590	750	455	2600	10	1042	331	244	86	357	238	650	220	288	360	4	2	8	99	34

1.2 Lower public servants and salaried employees. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
421	1	9593	1080	3	2480	0	295	117	108	22	107	0	185	180	134	4490	1	1	212	93	50
422	1	9603	1065	418	1709	313	1408	198	151	1088	317	120	727	271	125	370	1	2	2	98	55
423	1	9608	1280	140	3120	600	635	127	81	1989	201	109	480	50	169	240	4	2	0	100	54
424	1	9724	1220	201	1440	10	975	184	82	556	153	35	600	275	125	2410	1	2	259	88	26
425	1	9729	1374	792	1800	1005	1154	274	308	418	208	140	697	340	151	40	4	2	0	86	48
426	1	9776	675	25	2254	350	540	163	234	200	122	372	1667	94	175	2560	1	1	60	81	47
427	1	9789	1431	469	2224	365	798	160	88	1620	220	373	305	300	169	270	1	2	-30	99	21
428	2	9838	1015	305	1500	481	1148	140	198	532	250	209	1244	393	192	1710	9	3	67	99	49
429	1	9838	1018	433	1440	182	1986	192	222	12	288	448	1780	477	237	-230	0	2	103	99	47
430	1	9844	960	547	2400	360	1227	97	174	1205	196	180	1189	264	113	-120	1	2	5	98	40
431	3	9847	492	232	1405	429	1101	191	44	430	326	217	1301	503	127	5550	1	9	107	83	28
432	1	9870	2723	152	2597	700	863	321	316	0	105	105	1492	278	212	210	1	1	58	99	41
433	2	9928	1573	390	1445	47	1139	195	121	83	375	81	643	133	139	4900	1	3	145	96	49
434	1	9964	1266	444	1360	200	1907	253	306	254	643	124	432	220	156	1000	4	2	31	88	47
435	1	9991	18	41	1520	911	1008	233	156	1665	558	252	1535	592	175	170	1	2	12	93	60
436	1	10085	720	294	2265	581	856	142	387	12	328	190	792	438	364	170	1	1	5	99	54
437	1	10100	1713	446	2545	675	1148	250	345	6141	226	190	710	305	300	-5620	4	1	76	99	50
438	1	10136	1500	185	2012	222	589	199	309	130	190	276	1609	2330	276	-20	1	1	-18	98	50
439	2	10157	1102	442	1949	420	712	44	67	100	118	87	588	289	230	5010	1	3	509	79	17
440	1	10165	1300	0	2200	750	1001	110	200	0	437	330	1825	625	150	-500	1	2	27	100	42
441	1	10168	820	153	2328	400	1269	204	283	0	292	70	1500	740	246	1370	1	1	22	99	48
442	1	10198	965	496	1500	109	841	145	85	1600	178	211	904	293	197	2170	4	2	10	97	55
443	1	10253	1499	6	1595	190	839	343	54	77	339	145	1497	509	187	1930	9	2	7	99	47
444	1	10396	1020	169	2580	761	1194	202	360	0	299	155	1397	505	402	1200	6	1	2	98	60
445	1	10502	870	406	2300	716	829	83	145	553	252	230	1025	334	121	240	1	2	9	100	43
446	1	10536	1135	390	1856	143	511	71	114	500	267	129	2685	297	192	1070	2	2	49	99	35
447	1	10545	1120	316	1920	480	1162	188	196	1235	369	460	1027	395	221	660	1	2	7	99	42
448	1	10740	3192	2229	2400	0	48	138	390	215	53	104	285	504	284	500	1	2	1	100	50
449	1	10771	1008	282	1925	25	2061	141	106	190	250	162	305	310	247	-170	9	2	79	97	60
450	1	11061	771	466	1818	136	1228	94	94	435	412	146	1322	220	150	2230	1	2	116	97	40
451	1	11231	996	357	1650	21	1945	230	110	475	409	313	1669	260	231	110	1	2	171	95	43
452	1	11311	1152	549	2000	0	1479	165	198	765	313	158	1796	160	101	180	1	2	16	99	34
453	1	11463	555	248	750	32	117	215	175	226	253	300	562	225	92	520	4	2	-23	98	42
454	2	11651	1130	475	2145	820	797	140	237	115	197	165	746	238	123	470	1	3	315	74	42
455	1	11676	1154	466	2400	75	1456	224	243	1266	509	158	585	283	136	1740	1	2	30	99	42
456	1	11976	821	414	1474	50	732	106	255	104	699	112	889	200	219	3780	1	2	5	84	30
457	1	12131	1650	330	2506	900	95	390	361	938	241	180	2681	320	270	200	9	2	3	97	60
458	1	12290	1265	36	2460	10	1533	269	289	108	221	194	1231	284	102	-260	1	2	14	99	46
459	1	12354	1398	535	2400	1112	854	85	248	382	135	347	1160	465	392	720	1	1	-15	95	53
460	1	12660	900	345	1200	1320	2166	256	189	289	329	178	1714	701	520	160	4	1	0	88	28
461	1	13075	1702	148	2300	364	558	87	180	2369	400	840	1340	315	1039	-1930	1	2	-4	75	34
462	2	13508	837	402	1831	500	1187	145	135	305	331	82	2721	805	208	5350	9	3	634	72	40
463	1	13583	1200	534	3890	895	1403	251	500	263	185	138	420	390	328	1530	1	1	22	75	54
464	2	13610	1792	443	1995	762	1662	244	255	805	297	160	655	2863	392	710	6	3	21	99	50
465	1	13953	1543	548	2538	0	2222	162	147	0	253	163	3576	212	140	470	1	2	26	57	42
466	1	14025	770	453	2445	760	1797	203	194	147	660	164	3064	77	177	700	1	2	8	85	30
467	1	15420	1800	1185	2200	50	1521	247	347	1274	512	180	2246	1480	61	120	4	2	1250	50	25
468	2	20192	876	447	1820	357	3693	206	213	92	217	75	2307	35	30	12970	4	3	9	33	40
469	1	36222	756	314	1076	45	847	103	16	543	366	80	463	97	154	29340	1	2	300	27	54

1.3 Skilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	6	2024	194	120	732	356	134	34	58	51	69	38	16	53	78	200	1	0	3	89	23
2	4	2081	223	126	780	41	132	45	33	294	68	73	105	28	125	160	4	5	-19	96	53
3	5	2124	131	96	842	105	210	41	82	94	65	35	113	21	157	260	1	6	0	96	48
4	9	2152	164	91	693	69	111	52	34	168	41	23	331	137	58	0	1	0	-21	63	30
5	5	2168	132	136	841	118	116	24	56	47	56	43	35	94	152	530	1	6	3	90	46
6	5	2282	203	138	701	104	157	48	52	304	25	38	103	35	95	410	1	6	-10	93	52
7	5	2297	196	92	993	147	140	54	59	91	55	14	177	45	142	-120	9	6	14	97	40
8	4	2300	332	296	585	250	35	50	59	20	64	32	144	20	191	530	9	5	3	98	45
9	5	2398	281	135	780	2	125	81	30	45	85	41	252	246	114	-320	1	6	9	90	40
10	7	2409	93	118	833	184	144	69	121	195	103	56	237	92	165	40	1	7	0	95	45
11	4	2473	201	122	975	159	323	176	66	88	115	41	94	42	3	240	1	5	-6	100	43
12	5	2526	218	136	783	201	204	124	68	78	86	95	122	20	132	350	1	6	0	99	44
13	5	2604	257	162	986	204	113	58	67	7	71	36	89	166	106	1680	4	6	-16	99	47
14	4	2606	223	139	1312	6	250	78	87	40	67	7	62	5	186	370	2	5	6	96	32
15	3	2611	250	177	1081	140	133	87	106	44	104	61	61	28	68	130	9	9	1	73	36
16	4	2683	232	152	1207	329	60	83	71	44	46	53	80	66	141	-190	4	5	7	84	33
17	4	2704	293	217	935	170	231	49	93	49	118	143	69	30	126	270	1	5	-3	99	50
18	4	2711	217	194	982	49	92	47	32	26	86	57	277	65	163	180	1	5	-1	99	41
19	4	2756	158	171	712	174	264	117	128	292	123	51	272	90	157	-770	6	5	19	98	39
20	5	2786	204	115	871	68	314	40	67	172	74	52	246	142	126	400	1	6	2	92	43
21	4	2870	205	118	875	70	344	87	84	265	97	60	351	83	152	-1100	6	5	14	51	40
22	4	2872	150	126	1300	326	202	78	138	121	117	96	224	62	0	200	1	5	-2	98	47
23	4	2880	252	150	885	137	187	96	49	248	43	21	97	288	121	230	1	5	9	95	46
24	5	2975	389	123	1050	130	118	54	129	26	60	38	138	83	80	290	1	6	5	88	42
25	4	2990	332	156	910	180	107	55	110	270	36	107	284	100	101	690	1	0	11	98	53
26	4	3006	387	198	870	142	299	122	107	43	121	71	180	167	138	500	1	5	1	98	51
27	4	3046	256	83	1104	260	174	56	86	39	90	42	126	391	128	750	1	5	20	94	39
28	4	3067	248	134	1149	44	210	51	86	325	66	42	171	24	109	1630	1	5	17	98	50
29	4	3160	480	204	910	196	113	73	79	52	81	59	379	107	183	610	1	5	51	99	45
30	4	3169	591	165	937	76	109	77	39	247	73	43	85	72	177	1200	1	5	54	98	44
31	5	3197	254	142	1274	178	65	90	57	82	29	52	213	259	141	200	1	6	9	89	41
32	4	3209	833	243	845	0	253	97	42	170	102	43	158	104	171	-130	1	5	-96	99	45
33	4	3245	545	227	975	225	208	82	30	240	75	102	80	23	113	2980	6	5	7	98	42
34	4	3252	228	58	1105	107	284	56	69	148	80	45	253	320	147	-750	1	5	82	100	34
35	4	3309	444	158	1104	145	159	90	30	93	78	64	97	263	131	900	1	5	19	96	49
36	5	3349	168	133	991	260	201	47	66	100	71	55	238	82	93	2200	1	6	50	97	43
37	4	3365	215	304	1125	277	409	76	147	146	115	50	180	20	113	460	1	5	-1	98	53
38	4	3381	381	168	942	92	136	62	106	302	135	57	295	86	195	640	1	5	-6	97	44
39	3	3381	251	125	1805	260	391	62	39	50	239	81	165	224	120	-3500	6	0	53	91	28
40	5	3412	139	185	1136	379	353	76	56	144	105	71	226	171	111	480	1	6	1	99	42
41	3	3425	511	330	1527	298	130	50	49	7	39	49	70	85	223	-1150	4	4	158	79	5
42	3	3447	367	262	965	513	283	31	115	430	49	92	47	36	131	160	4	0	-19	86	21
43	4	3479	114	102	1637	150	446	132	84	225	54	31	354	90	85	180	1	5	-11	99	53
44	4	3486	299	131	1076	383	400	144	82	136	115	51	325	185	118	1520	1	5	-7	99	42
45	7	3498	0	93	703	269	449	80	83	134	139	78	648	102	76	1510	9	0	-114	94	44
46	3	3507	335	282	1462	133	249	78	109	169	78	70	117	41	189	-370	1	4	18	98	48
47	4	3513	181	58	1155	155	589	78	49	740	59	17	62	8	64	240	1	5	1	98	51
48	4	3520	313	171	1220	275	298	123	134	87	105	91	256	54	160	-120	4	5	2	99	40
49	4	3542	434	184	980	254	332	101	54	67	70	56	86	919	181	420	6	5	-28	97	49
50	4	3542	265	153	903	0	319	118	100	84	97	64	328	85	181	1540	1	5	59	98	47
51	3	3605	227	183	953	166	106	96	107	280	153	74	133	32	202	1830	4	4	5	98	53
52	4	3616	406	271	1142	247	341	81	119	190	112	70	376	156	34	1490	1	5	121	98	46
53	4	3690	252	193	1201	269	313	81	75	29	96	25	472	124	260	480	1	5	16	99	40
54	5	3733	290	205	869	167	513	113	39	47	90	36	223	123	162	1710	9	6	215	96	34
55	4	3747	494	175	1455	406	217	65	100	55	78	32	209	12	218	300	9	5	173	92	34
56	3	3787	312	172	1693	225	440	122	62	61	237	65	81	32	159	-190	1	4	7	95	37
57	3	3806	350	273	1400	62	331	101	187	118	91	50	89	121	168	490	1	4	23	98	52
58	3	3816	407	261	919	97	520	97	119	126	88	63	573	80	152	200	1	4	1	99	25
59	3	3833	220	190	1300	377	441	109	57	57	61	110	278	85	80	440	1	4	3	99	50
60	5	3835	180	167	1248	122	593	101	102	86	193	6	343	1530	166	-5450	1	0	70	92	60

1.3 Skilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	3	3918	646	312	945	250	387	124	78	98	151	102	160	146	80	280	1	4	6	98	53
62	3	3941	17	220	1391	151	121	71	47	47	129	42	740	420	240	-1130	6	4	16	98	21
63	3	3961	285	249	1668	337	119	57	57	63	77	157	307	82	106	550	4	4	3	99	36
64	4	3984	304	189	1235	253	190	97	55	399	164	61	253	112	275	200	4	5	6	98	48
65	3	4002	220	139	1058	394	259	104	190	375	145	78	366	35	236	30	4	4	9	99	52
66	3	4013	0	161	1540	236	522	81	109	405	80	78	398	32	141	1200	1	4	-4	98	54
67	4	4015	532	175	1007	153	604	134	80	489	76	61	209	60	149	310	4	5	1	100	42
68	4	4020	384	336	987	58	297	92	121	158	119	18	259	909	102	390	1	5	8	99	49
69	2	4030	491	209	1300	77	449	149	62	63	129	68	330	336	219	170	1	3	259	78	18
70	3	4034	340	190	1440	307	347	82	157	221	88	64	217	10	163	-70	1	4	3	82	34
71	4	4048	604	193	1162	456	492	98	79	121	159	53	374	145	221	-720	3	5	65	95	48
72	3	4069	447	249	1008	210	286	98	103	370	195	71	361	71	211	-50	6	4	19	98	37
73	5	4075	305	165	1220	360	231	95	20	240	79	25	260	318	249	540	6	6	7	94	43
74	2	4086	381	262	1429	150	181	39	100	114	81	56	290	205	183	160	6	3	6	53	39
75	3	4098	390	387	925	295	135	81	82	78	62	86	206	548	259	730	1	4	-1	95	48
76	4	4119	307	190	1225	476	333	121	53	61	76	54	397	153	161	500	1	5	5	81	45
77	4	4123	585	175	806	270	130	97	76	452	102	94	187	1314	146	-2410	1	5	79	99	46
78	5	4187	473	167	1301	381	533	124	127	315	71	36	375	241	167	-1800	1	6	10	98	36
79	3	4221	404	201	1350	353	423	98	62	225	137	82	269	81	218	840	1	4	1	99	38
80	3	4224	200	478	1200	358	231	138	164	48	147	133	526	1050	139	-2940	1	4	40	96	35
81	6	4240	164	153	1666	626	179	43	98	35	146	26	196	66	194	160	9	0	0	85	31
82	4	4319	283	245	1059	219	496	126	98	285	172	50	107	93	232	650	4	5	-7	99	46
83	3	4323	141	190	1647	452	256	143	154	142	119	112	283	25	182	380	1	4	-6	99	52
84	3	4363	303	201	1360	417	274	89	100	200	154	60	433	110	261	460	4	4	6	99	53
85	3	4404	379	225	1335	447	143	77	130	283	126	111	320	161	235	-220	3	4	2	97	51
86	3	4439	0	231	1387	219	235	21	116	74	86	48	53	107	89	3090	1	4	240	88	50
87	4	4505	195	174	1206	37	388	107	105	146	140	102	428	473	136	530	6	5	76	99	48
88	3	4553	267	258	1000	203	335	100	225	149	129	92	400	190	166	260	1	4	-2	99	51
89	4	4573	348	122	468	715	407	71	116	354	155	75	285	137	83	1800	1	5	115	99	32
90	1	4581	780	190	2350	385	388	70	225	95	443	120	271	806	456	-2290	6	1	24	99	44
91	4	4631	426	124	1035	148	589	167	138	141	154	129	245	197	201	1210	1	5	-48	97	51
92	5	4700	207	128	1508	300	982	256	58	80	129	5	592	80	200	490	4	6	3	99	35
93	3	4749	440	214	1041	101	428	126	89	777	118	0	74	75	297	460	1	4	6	99	52
94	2	4755	378	402	1430	50	690	114	205	210	115	54	85	200	385	160	1	3	0	99	18
95	3	4781	504	199	1150	273	345	78	106	219	133	48	596	200	220	520	1	4	11	92	49
96	2	4829	288	230	2100	236	356	78	68	153	54	80	347	260	207	200	6	3	2	90	16
97	3	4832	517	241	1374	436	312	122	62	217	146	140	388	55	217	820	1	4	23	99	40
98	2	4872	406	357	2112	68	193	43	150	139	143	97	15	282	446	160	1	3	22	98	19
99	3	4874	292	192	1570	181	403	165	69	100	233	119	418	185	206	710	1	4	-5	99	45
100	1	4884	811	446	1200	200	480	70	59	207	248	76	365	210	120	-590	4	2	38	98	26
101	4	4887	347	107	1110	505	352	99	111	438	291	88	487	92	109	1640	9	5	12	94	37
102	3	4902	339	146	1431	116	484	138	118	470	105	65	384	101	153	840	4	4	0	99	49
103	3	4933	358	259	1590	225	362	98	82	249	177	82	446	152	289	300	1	0	7	87	33
104	4	5033	219	186	1413	180	1115	89	84	325	223	73	560	193	250	-1500	1	5	13	99	35
105	2	5043	812	314	1577	481	220	153	83	377	125	42	168	202	323	290	4	3	158	86	16
106	3	5051	817	269	1334	414	72	22	115	62	57	73	156	607	80	1000	4	4	-39	85	50
107	2	5066	0	6	1470	380	402	82	186	54	71	108	567	376	261	220	6	3	0	99	55
108	2	5080	488	253	1566	452	173	96	70	283	72	40	681	91	259	200	1	3	8	97	20
109	3	5096	233	144	1363	409	872	122	135	192	150	73	522	125	248	240	9	4	0	99	44
110	3	5132	443	366	1419	355	194	39	73	325	145	67	374	504	210	3290	1	4	3	99	53
111	3	5137	760	282	1192	184	330	92	61	315	150	75	248	2066	219	-2720	1	4	-42	98	53
112	3	5173	324	219	1708	110	135	68	153	905	136	61	315	90	311	530	1	4	4	99	35
113	4	5192	555	231	810	316	464	109	126	192	216	36	412	667	132	380	9	0	13	97	53
114	2	5211	465	210	1730	25	285	134	103	44	81	120	1217	126	239	700	9	9	2	94	33
115	3	5244	481	228	1067	383	386	99	94	884	79	7	96	103	107	-90	1	4	0	86	55
116	2	5300	560	340	1716	91	406	83	59	648	141	112	272	217	415	-300	1	3	11	98	40
117	2	5316	504	300	1742	289	334	105	119	790	202	105	284	251	253	-710	4	3	11	98	0
118	4	5321	837	208	1185	155	435	89	86	419	112	75	967	90	218	1960	1	5	173	93	25
119	3	5323	353	153	1457	633	529	147	96	175	119	13	735	232	230	450	4	4	1	94	41
120	2	5342	436	273	1521	160	926	151	168	88	235	156	191	211	357	10	1	3	37	98	49

1.3 Skilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	1	5384	1020	66	1820	174	338	62	168	0	147	24	524	240	128	40	2	1	0	63	52
122	5	5512	308	161	1646	320	551	147	69	234	96	80	380	354	290	2190	9	6	187	94	31
123	2	5541	687	316	1950	0	543	69	136	41	71	78	373	190	217	330	1	3	72	99	51
124	3	5598	380	198	1941	380	549	114	77	72	84	72	294	129	232	1490	1	0	140	97	23
125	3	5668	260	228	1557	707	441	79	155	618	121	98	379	62	358	400	1	4	-26	98	44
126	4	5684	287	208	1315	512	649	226	128	351	110	29	557	255	134	-370	1	5	6	79	41
127	2	5684	507	312	1490	832	483	69	83	259	88	89	827	50	228	200	1	3	24	99	21
128	3	5689	264	220	1782	445	566	153	105	533	176	62	271	43	240	1240	1	4	26	99	39
129	2	5690	552	233	1373	203	79	23	119	12	85	96	35	2631	228	270	1	3	-51	98	48
130	2	5730	562	235	1850	305	267	86	112	570	212	110	539	92	494	-470	4	3	9	92	46
131	3	5774	343	146	1907	36	491	113	71	291	138	43	555	593	271	1600	1	4	54	77	39
132	2	5838	456	251	1937	261	449	112	80	41	70	51	620	184	234	530	6	3	182	95	28
133	2	5847	321	444	1795	17	334	127	26	237	65	67	673	148	204	1810	1	3	275	94	21
134	4	5867	192	154	1423	119	739	88	71	478	161	39	364	254	206	3880	9	5	77	99	32
135	2	5891	358	283	1787	221	374	36	180	420	202	104	630	125	328	300	1	3	35	99	42
136	2	5925	500	288	2400	218	458	141	136	0	59	68	260	166	197	900	2	3	61	99	29
137	3	5952	330	210	1506	277	857	195	61	541	275	141	353	135	245	620	1	4	-8	97	34
138	3	5994	403	293	1928	148	522	120	72	736	85	95	101	225	191	1480	1	0	-33	95	17
139	3	6022	613	273	1785	353	755	155	45	132	176	63	1001	663	189	-3460	1	4	86	75	37
140	2	6028	459	244	1950	312	534	58	89	458	70	115	202	171	293	300	1	3	3	99	31
141	2	6032	1003	503	1740	382	248	118	113	193	144	95	395	239	313	170	4	3	270	80	12
142	3	6196	261	160	1487	827	840	92	215	81	175	185	765	236	291	470	1	4	12	99	35
143	3	6214	418	201	1699	487	626	111	42	1237	79	62	420	198	162	0	1	4	-9	95	52
144	3	6253	220	148	1460	140	659	109	36	86	153	111	674	168	354	3760	9	4	13	83	31
145	2	6273	1112	213	1950	225	273	62	38	32	241	124	84	367	279	1210	3	3	22	98	60
146	2	6299	578	238	1743	636	537	138	96	1	130	151	1759	272	27	-1600	1	3	73	99	46
147	2	6574	216	627	1329	620	471	125	173	431	160	88	622	186	438	670	1	3	65	90	23
148	2	6629	1665	220	1350	827	141	59	27	235	201	112	313	220	335	-460	4	3	109	97	15
149	3	6757	404	221	1300	283	699	113	135	945	114	125	1719	150	115	500	9	4	-13	99	37
150	1	6921	674	610	2340	522	127	29	219	868	167	213	858	141	496	-1780	6	1	45	97	21
151	3	6934	240	225	1504	988	656	174	147	120	160	193	964	171	294	860	1	4	19	84	44
152	2	6948	377	269	1762	823	822	86	56	172	168	150	500	252	327	1630	1	3	42	98	21
153	3	6965	540	130	1587	101	472	191	73	224	186	92	670	1763	345	-510	1	4	62	99	31
154	1	6992	0	10	3833	279	797	92	550	96	165	78	759	170	362	30	1	1	0	100	55
155	2	7217	300	317	2192	500	584	80	26	190	312	84	985	145	250	1390	9	3	33	99	35
156	2	7272	996	370	1862	325	593	44	76	975	248	88	488	94	321	900	4	3	-8	90	50
157	3	7330	742	281	1889	550	681	166	134	278	188	74	723	281	261	970	1	4	-12	96	23
158	2	7339	792	459	1950	424	626	91	73	391	91	26	1368	311	309	-560	1	3	76	97	19
159	3	7438	357	285	1998	121	1181	126	119	90	243	136	1168	138	213	2000	1	4	6	91	53
160	4	7467	266	217	1488	443	543	94	220	68	218	62	414	685	227	5860	1	0	124	75	33
161	2	7471	972	706	2026	247	764	131	65	81	134	86	756	1166	358	-1200	4	3	451	97	20
162	2	7487	614	264	1956	1116	474	142	162	1412	231	100	752	137	250	-950	1	3	-5	99	20
163	2	7546	566	379	1860	520	233	142	64	893	97	77	420	235	523	2680	1	3	300	87	15
164	2	7594	763	499	2455	0	581	171	99	50	151	73	110	1279	290	200	1	8	1	98	60
165	1	7669	0	0	1785	0	625	213	20	531	57	0	457	100	407	3430	1	1	0	98	48
166	2	7758	534	391	1985	507	911	222	117	3214	239	152	1272	247	284	-8120	4	3	227	94	41
167	2	7809	457	212	1750	561	754	167	167	918	193	306	802	280	406	290	1	3	10	99	19
168	2	7900	464	260	2158	192	412	111	132	415	219	69	920	187	419	1300	1	3	111	97	24
169	2	8152	0	40	2167	0	932	149	180	664	124	103	751	143	239	1850	4	3	9	93	55
170	2	8230	845	303	1975	512	935	113	115	1280	276	633	476	275	422	-1140	1	3	68	98	48
171	3	8279	322	154	1677	337	824	98	36	455	78	91	726	757	283	5310	1	4	88	98	17
172	2	8304	632	286	1610	212	893	163	169	487	177	207	180	497	199	2450	1	3	3	99	50
173	1	8560	1349	398	3157	20	170	121	402	774	122	260	1543	113	561	-850	1	1	-5	93	46
174	2	8582	433	245	1622	30	1230	85	60	238	197	128	341	3207	303	290	4	3	50	98	38
175	2	8711	656	267	2180	473	617	102	80	807	116	103	996	348	362	2240	1	3	13	99	40
176	1	8721	0	26	2842	413	952	325	182	0	108	40	602	1116	271	1630	1	1	5	97	53
177	1	8730	800	200	3385	396	101	138	190	28	340	115	1717	300	14	680	1	1	-10	99	36
178	2	8881	1154	376	2090	139	717	205	140	544	133	135	711	1226	438	600	1	3	-24	99	52
179	1	8960	1773	310	1894	230	289	25	61	1061	180	125	2012	250	325	-600	1	2	145	89	17
180	1	8988	1500	235	1111	404	1046	87	200	778	117	292	1782	685	193	120	6	1	0	79	54

1.3 Skilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	1	8990	540	147	1685	1062	1208	167	158	376	312	55	1327	880	336	530	1	1	1	100	52
182	2	9047	460	572	2378	1001	440	140	130	332	281	112	592	1190	318	410	6	3	1	94	43
183	1	9064	948	562	2118	1100	190	107	360	20	73	75	755	220	318	1140	1	1	43	95	18
184	2	9120	353	192	3021	973	341	101	138	917	346	170	1084	321	287	430	1	3	-11	99	53
185	2	9280	512	187	1560	210	1330	199	135	565	290	97	1292	3510	294	-2430	1	3	325	93	41
186	2	9350	466	244	1993	659	834	249	66	811	210	108	833	230	379	1990	1	3	72	99	31
187	2	9353	2017	620	1560	457	515	55	47	668	160	87	503	42	593	5970	4	3	182	92	47
188	1	9354	948	560	2466	624	797	122	97	74	161	236	863	370	399	160	3	1	7	99	27
189	2	9361	766	233	1865	372	1288	270	140	672	402	169	817	180	303	510	1	3	40	99	51
190	2	9425	423	228	2780	310	432	127	81	31	120	147	506	272	392	5560	1	3	110	99	38
191	2	9588	522	161	2217	534	642	60	208	114	237	125	976	229	600	4380	9	3	234	97	32
192	2	9874	612	232	2542	786	768	224	121	110	210	78	1008	173	427	520	1	3	33	99	44
193	2	9937	778	230	1998	181	697	77	101	33	294	106	349	3519	336	600	1	3	-12	99	51
194	1	10076	780	120	3032	1266	272	43	230	885	200	146	906	212	377	980	1	1	78	99	46
195	2	10448	984	458	1668	279	675	66	131	1177	125	256	357	3722	273	240	1	3	-43	99	48
196	1	10825	1020	63	2791	1250	1078	152	252	860	157	288	2028	388	466	-1770	4	1	-7	90	45
197	2	11123	710	85	1905	654	757	144	321	1643	155	23	1140	155	337	230	1	3	9	100	55
198	1	11220	375	17	850	480	501	86	190	390	87	72	985	2585	336	1350	1	2	-17	100	54
199	1	11260	800	0	2600	1448	668	85	609	1001	273	0	1039	1330	514	-850	1	1	9	100	54
200	1	11273	660	461	4200	566	367	86	319	12	124	126	1214	210	514	80	1	1	2	99	34
201	1	12262	830	162	2394	321	987	291	142	954	186	120	1420	1112	569	1130	1	1	2	97	60
202	1	12928	1287	348	2695	340	499	115	158	190	62	104	553	43	599	6320	1	1	26	82	35
203	1	13116	906	493	3570	637	751	152	585	579	305	428	3116	178	423	360	4	1	4	99	52
204	1	14178	1512	566	3168	1450	902	140	390	1097	125	216	2624	508	676	-60	4	1	210	92	20
205	1	14220	1320	15	2290	1000	457	115	470	85	154	120	1686	4871	788	-1300	3	1	-65	100	52
206	1	15952	810	53	2340	1235	1508	207	298	1241	379	132	3698	2180	149	1280	1	1	14	100	38

1.4 Unskilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	6	1268	68	107	607	126	82	26	23	115	13	22	3	0	56	0	4	7	-9	100	49
2	6	1547	235	100	673	49	101	47	78	32	16	29	37	41	84	200	1	7	0	98	44
3	3	1715	210	350	38	133	35	22	34	4	33	13	72	33	3	200	1	4	0	87	53
4	5	1735	341	164	832	0	6	30	90	35	23	16	1	80	45	440	6	9	1	44	30
5	7	1752	164	73	757	93	156	46	38	85	21	39	95	132	10	-50	6	0	-1	82	60
6	2	1773	0	6	452	135	259	69	43	145	114	21	251	110	48	-400	9	9	24	71	50
7	6	1897	76	56	867	171	191	67	32	17	55	59	140	37	68	-880	9	7	-1	84	40
8	5	1957	120	133	912	220	181	83	43	34	61	38	49	56	61	160	4	6	0	85	43
9	5	1988	131	115	828	166	392	137	73	63	76	19	42	9	94	370	4	6	1	97	45
10	5	2044	100	115	823	186	83	57	54	111	80	66	107	46	109	450	6	6	-1	93	44
11	4	2076	12	158	804	309	69	30	53	131	46	61	48	61	158	2560	1	5	-46	98	48
12	3	2154	232	193	1250	81	392	106	50	237	120	69	395	155	66	-4960	3	9	293	81	36
13	4	2167	207	168	650	317	158	96	85	11	74	65	31	397	7	120	9	5	0	100	43
14	4	2167	209	150	669	200	41	67	41	224	42	58	152	75	107	290	3	5	0	71	49
15	4	2212	114	147	1040	63	171	44	82	125	71	42	49	11	141	0	6	5	0	100	39
16	7	2238	99	113	960	107	338	83	25	1	59	15	31	140	70	160	9	7	0	99	41
17	5	2243	312	178	1040	0	62	50	57	165	48	0	8	3	6	130	9	0	-10	27	45
18	7	2251	151	131	631	176	141	27	77	43	68	42	102	171	95	300	1	0	-1	59	19
19	5	2283	113	164	800	344	175	47	83	101	89	48	58	26	172	-130	1	6	-1	99	46
20	5	2293	105	86	1212	244	41	38	56	164	36	22	24	34	93	420	1	6	1	69	48
21	5	2409	154	177	811	126	160	42	129	98	193	36	113	122	88	380	1	6	2	98	47
22	3	2429	307	201	867	187	186	100	141	11	124	43	59	52	130	500	1	9	0	76	42
23	4	2487	392	199	845	301	40	30	29	4	105	0	27	194	108	1110	1	5	-115	95	49
24	5	2507	143	129	1236	263	75	39	57	56	136	62	44	21	80	-230	2	6	4	99	36
25	4	2515	180	116	1000	150	110	70	96	60	67	45	154	14	138	200	6	5	-37	90	53
26	5	2537	156	173	603	267	182	31	122	111	118	40	175	111	89	0	4	6	2	96	52
27	1	2572	611	332	1040	60	45	19	32	13	99	12	56	36	130	0	9	2	0	100	32
28	5	2594	184	128	1062	272	202	25	48	55	85	86	205	85	120	380	4	6	42	94	42
29	4	2655	287	137	1024	145	145	81	86	166	74	38	139	61	157	420	1	5	13	100	46
30	4	2664	240	126	1148	237	154	104	60	152	43	47	27	45	169	120	1	5	-6	49	46
31	4	2680	300	193	1009	46	263	77	62	160	69	15	300	40	97	400	4	5	0	88	52
32	5	2705	59	169	1040	40	266	77	44	236	23	14	77	0	109	470	1	6	9	89	24
33	4	2721	581	161	1040	12	257	47	41	62	80	63	160	224	143	-1580	1	5	50	96	36
34	4	2746	256	155	845	160	174	72	63	251	130	82	81	252	75	-80	6	5	0	93	49
35	5	2791	216	119	936	88	195	81	29	21	81	129	204	68	119	390	6	6	-5	98	44
36	5	2844	351	131	1092	250	119	66	31	221	99	37	110	74	40	0	1	6	-543	100	33
37	4	2905	126	128	804	149	230	88	96	103	61	58	158	76	83	1130	4	5	-2	99	53
38	4	2905	200	154	974	177	270	122	95	243	79	91	185	39	145	610	1	5	1	98	49
39	4	2945	293	276	975	57	173	56	38	96	40	30	369	327	147	-940	6	0	394	82	40
40	5	2960	414	157	624	192	369	92	47	142	103	85	326	45	61	570	2	6	10	98	45
41	5	3023	212	117	850	374	376	112	31	263	78	65	277	78	72	160	4	6	-23	99	60
42	3	3049	0	310	867	151	469	64	162	351	93	118	48	18	215	130	6	4	-6	100	47
43	5	3061	174	237	1196	294	326	116	68	159	103	86	51	48	80	400	1	6	-1	94	33
44	4	3072	303	116	675	0	276	83	57	118	104	51	715	33	181	1150	1	5	0	99	47
45	3	3101	292	279	867	223	268	74	60	118	69	39	395	265	126	0	1	4	0	100	51
46	2	3135	457	268	780	93	332	154	78	0	128	56	285	50	124	160	4	9	2	89	21
47	6	3172	143	138	894	409	320	100	49	93	70	85	198	136	176	250	9	7	11	97	33
48	1	3215	525	87	750	180	535	131	44	5	121	20	70	170	110	-180	9	2	28	96	42
49	3	3224	200	207	1200	520	60	14	100	58	153	60	205	275	56	120	1	4	0	99	50
50	2	3285	414	182	1560	306	45	1	106	6	65	39	46	12	208	0	4	9	2	86	44
51	2	3286	1051	420	1820	600	39	62	149	0	48	26	60	25	338	-3370	6	3	-108	94	22
52	5	3299	278	202	1009	171	222	113	44	357	85	106	153	589	88	210	1	6	-54	99	45
53	4	3316	187	153	923	241	159	109	178	90	149	87	249	82	205	280	1	5	-1	95	44
54	3	3316	273	310	1169	63	310	35	62	30	193	56	86	12	243	900	6	4	2	99	45
55	3	3354	298	184	827	680	45	72	76	190	49	85	265	32	215	340	1	4	-6	99	42
56	4	3366	186	141	1187	221	402	157	103	74	227	56	170	144	206	-410	1	5	7	100	35
57	4	3384	153	172	1283	327	343	91	121	124	54	26	160	9	134	120	9	5	-14	99	51
58	2	3386	276	331	1267	63	700	106	99	127	344	113	293	51	55	220	1	9	-2	80	53
59	2	3428	390	199	1800	0	0	4	23	5	19	0	15	2	48	2050	9	9	6	29	24
60	3	3450	4	268	1414	195	157	107	77	98	123	48	120	1581	187	-3300	1	4	45	98	41

1.4 Unskilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	3	3485	379	191	1169	17	316	111	164	475	69	67	346	105	64	160	1	0	0	57	60
62	5	3492	267	155	1098	191	378	85	45	40	92	72	211	105	138	820	9	6	-21	94	45
63	4	3521	180	161	1160	197	339	82	54	90	94	44	99	121	181	300	1	5	2	99	35
64	4	3543	102	222	1336	261	136	54	98	313	87	46	281	74	194	570	4	5	-9	99	47
65	3	3565	257	184	1127	43	104	32	66	469	52	50	335	55	195	930	6	4	5	98	54
66	5	3568	316	201	1400	113	352	57	58	144	82	60	223	54	127	-330	1	6	71	97	40
67	5	3574	229	159	1440	74	380	99	26	46	88	68	242	62	233	290	1	6	3	99	38
68	4	3588	244	154	1074	325	369	91	120	197	155	58	266	60	172	200	6	5	2	99	32
69	3	3604	1125	301	1134	109	331	71	72	69	44	38	129	518	129	-950	4	4	184	81	49
70	3	3606	0	0	1300	200	189	55	136	645	97	56	212	33	108	290	4	4	62	96	42
71	6	3619	238	162	1185	127	459	100	54	213	111	54	318	91	146	160	9	7	2	93	32
72	3	3626	247	142	980	0	395	148	111	151	77	0	669	50	37	230	1	9	2	94	36
73	4	3638	181	146	1254	424	259	62	61	71	36	22	154	381	149	360	1	5	-2	98	50
74	1	3651	0	0	120	225	954	110	52	0	322	170	200	116	111	120	1	2	0	100	50
75	3	3667	854	190	953	0	153	115	79	14	56	29	214	55	69	1370	3	4	101	76	35
76	5	3671	312	159	934	59	222	9	42	197	61	49	259	49	174	1980	9	0	38	93	29
77	4	3679	192	204	1300	310	384	48	119	173	93	66	286	50	96	80	9	0	2	56	53
78	4	3684	339	183	931	314	288	98	58	158	137	127	218	155	162	1060	1	5	-46	99	46
79	4	3699	210	62	1101	325	205	96	158	515	71	80	347	187	145	460	9	5	0	99	54
80	6	3713	170	119	1412	152	386	89	69	380	69	42	330	74	91	-700	1	7	5	67	30
81	3	3714	411	240	1785	276	500	55	112	360	135	53	304	135	158	-4000	3	4	66	83	39
82	4	3721	284	186	892	168	492	89	65	436	161	50	364	419	181	-1740	1	5	13	74	42
83	4	3786	405	219	910	150	217	21	79	338	80	6	51	53	134	170	1	5	0	91	60
84	4	3791	194	137	1040	212	805	197	170	73	231	62	270	92	125	50	6	5	5	92	45
85	2	3842	436	211	1890	135	271	64	140	14	100	92	196	12	111	80	1	3	119	99	24
86	4	3866	256	153	1248	156	218	97	22	357	102	89	230	280	226	310	1	5	4	99	33
87	3	3896	193	151	1667	96	196	39	18	40	35	8	372	753	84	230	1	0	33	87	34
88	4	3956	266	169	1438	92	469	99	63	315	188	81	340	240	195	-1630	1	5	23	92	15
89	5	3958	334	179	1370	124	421	84	77	72	95	54	367	302	142	430	9	6	1	97	32
90	4	3998	254	150	1166	64	548	126	31	167	123	51	432	288	201	440	1	5	5	99	35
91	4	4019	310	202	1050	123	220	115	45	64	76	95	915	106	173	760	9	5	30	99	31
92	4	4029	277	158	1115	162	355	81	79	403	87	131	922	110	293	-1000	1	5	25	96	42
93	4	4036	219	172	887	215	455	122	94	319	131	69	507	56	228	160	1	5	-5	97	46
94	2	4058	361	377	1230	21	325	72	45	673	150	56	111	176	169	-190	1	0	26	87	50
95	3	4077	691	182	958	239	251	86	70	150	93	66	97	956	187	440	1	4	1	96	50
96	4	4096	240	272	910	300	582	156	76	387	243	100	241	82	142	-340	1	5	5	83	36
97	2	4099	541	246	1300	602	49	82	38	218	189	181	109	50	357	320	1	3	-1	98	22
98	1	4120	1524	625	1560	50	0	22	60	0	15	0	20	50	48	0	9	2	0	100	25
99	3	4126	683	281	1060	207	614	83	62	354	120	106	77	30	151	100	1	4	-17	95	35
100	4	4128	228	153	1371	436	437	104	91	172	78	76	969	129	227	-3630	1	5	50	95	49
101	2	4134	512	350	1950	60	49	53	58	559	101	150	12	135	49	80	1	0	1	63	25
102	5	4173	484	152	928	301	448	109	101	283	81	41	371	94	130	430	1	6	15	90	46
103	3	4176	463	375	1127	104	23	32	33	24	70	141	27	423	136	680	1	4	148	99	16
104	1	4196	1020	603	1144	420	0	72	88	12	110	31	0	287	152	0	9	2	3	56	22
105	4	4201	357	137	828	405	430	53	49	110	161	31	546	513	132	1520	1	5	12	99	27
106	2	4225	366	349	2080	182	260	105	93	22	303	72	89	37	46	0	4	9	9	72	60
107	3	4235	492	260	1058	368	324	66	183	561	90	30	142	235	85	480	6	4	-29	98	53
108	3	4288	508	192	1255	467	147	30	81	370	108	210	482	204	218	530	1	4	15	99	50
109	3	4319	839	253	1313	155	495	63	57	69	173	87	234	33	165	410	6	4	182	92	47
110	3	4325	365	202	1633	184	495	111	100	390	116	60	103	209	148	380	1	4	-22	99	52
111	2	4360	482	253	1250	884	179	82	79	290	136	121	112	56	297	160	3	3	6	98	24
112	4	4374	238	212	1353	325	646	137	50	290	149	75	108	151	214	-710	4	5	0	99	35
113	4	4403	435	155	1375	116	488	158	43	237	115	42	384	109	166	600	9	5	9	95	45
114	1	4410	908	313	0	80	452	146	322	2000	207	52	560	10	442	-1250	9	2	21	100	55
115	2	4418	399	261	1942	171	451	71	92	396	121	84	232	60	324	-740	1	3	-15	98	26
116	1	4478	120	5	1525	506	298	50	85	169	111	35	812	226	274	0	1	1	-6	96	48
117	3	4525	414	242	1411	489	263	94	25	40	122	130	299	305	226	340	1	4	-6	79	49
118	3	4569	388	236	1117	269	479	40	54	136	144	154	745	290	33	380	9	0	-15	87	14
119	2	4572	234	201	1704	52	59	30	42	71	88	47	43	155	251	2980	4	3	-25	98	17
120	3	4594	435	269	1820	400	466	79	149	209	72	55	138	130	219	200	4	0	4	86	33

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	2	4705	471	305	1125	0	247	198	117	93	81	136	543	70	265	580	1	9	18	91	36
122	2	4716	352	208	1550	204	489	119	30	631	122	142	275	183	329	210	1	3	36	99	23
123	3	4738	348	198	1333	625	590	111	59	239	133	84	166	305	175	-1180	6	4	2	89	51
124	1	4742	900	34	1597	20	629	164	37	163	263	0	240	75	97	110	1	2	1	99	54
125	2	4771	453	348	1297	420	263	51	206	393	174	205	147	236	400	410	3	3	2	93	60
126	3	4776	685	314	1786	430	178	42	75	58	102	93	317	98	72	860	1	4	43	83	35
127	3	4785	357	168	1462	219	542	127	132	420	154	85	437	252	179	320	4	4	-10	99	50
128	2	4788	381	156	1595	0	338	137	87	701	138	92	50	94	67	910	9	9	0	87	24
129	3	4858	423	197	1449	233	445	88	180	538	139	67	122	110	106	420	1	4	1	99	48
130	4	4878	285	127	1290	84	405	130	64	41	89	81	1123	152	260	1190	9	5	57	99	25
131	5	4896	178	113	1257	92	528	151	59	182	208	79	305	267	145	3970	9	6	171	81	34
132	3	4914	592	347	1457	362	83	75	194	297	121	50	95	112	218	1800	1	0	26	78	18
133	3	4952	720	290	1208	309	285	50	195	87	128	42	171	1100	192	400	1	4	1	99	49
134	3	4955	250	208	2307	240	630	138	131	202	138	102	170	97	128	200	1	4	-7	90	52
135	2	4990	300	5	2600	480	280	40	85	44	82	100	142	170	134	0	1	9	0	58	60
136	3	4999	276	157	1213	542	622	184	110	235	255	0	804	125	228	620	1	4	1	100	39
137	1	5097	1200	347	1200	100	609	140	104	0	247	50	653	60	137	-200	9	2	2	85	60
138	3	5103	331	242	1300	159	984	94	137	518	107	48	287	66	181	560	6	4	2	99	50
139	2	5125	310	242	1373	250	18	12	42	0	88	123	184	195	238	3340	5	3	54	98	32
140	3	5152	303	138	1283	494	476	135	99	199	135	156	792	148	230	620	6	4	10	69	28
141	1	5160	942	318	735	10	619	126	150	411	108	144	155	273	117	660	4	2	41	81	26
142	3	5238	578	268	1387	367	292	64	147	302	129	152	450	93	234	2240	4	4	3	61	30
143	4	5304	393	213	1176	532	201	97	120	549	95	44	122	355	190	2940	9	5	-7	52	55
144	2	5305	480	261	1685	422	470	49	137	127	151	95	527	37	316	1160	4	3	26	99	37
145	3	5356	260	245	1420	403	673	164	117	331	182	48	485	269	90	70	9	9	-9	90	60
146	4	5381	565	236	1554	670	302	90	57	183	100	74	498	123	172	420	1	5	11	95	46
147	3	5503	194	138	1644	555	674	277	67	378	157	95	497	41	162	580	9	9	5	71	39
148	2	5505	345	281	1518	1237	435	105	165	219	163	165	415	365	71	110	1	3	0	100	53
149	2	5556	326	370	1951	741	555	105	93	275	97	140	58	203	294	290	1	3	-2	98	24
150	2	5576	198	326	1715	371	206	82	99	238	98	95	635	135	271	1850	1	3	30	98	16
151	2	5579	578	329	1480	209	340	83	67	802	64	52	802	77	80	35180	6	3	154	667	60
152	2	5641	454	233	1836	350	191	112	49	281	152	82	262	21	352	-1600	4	3	99	100	8
153	2	5691	117	412	1890	440	656	105	247	279	210	216	330	177	441	-20	4	3	61	84	19
154	2	5729	562	339	1950	639	237	42	44	63	92	73	22	17	1097	0	1	3	3	93	24
155	2	5755	409	398	1710	365	333	32	44	252	98	114	642	181	125	1080	1	3	3	94	31
156	3	5774	400	286	1158	0	583	83	36	162	281	89	399	2342	217	-1570	1	4	70	99	34
157	2	5791	375	254	1695	165	1179	206	167	170	139	89	480	50	515	190	1	3	2	95	55
158	1	5795	795	0	1125	525	932	84	89	330	154	156	565	294	466	-360	1	2	-2	99	47
159	3	5801	481	240	1367	828	321	156	124	97	120	93	698	710	164	100	1	4	-1	93	47
160	3	5853	1040	391	1200	414	280	62	96	795	70	36	300	27	260	-70	1	4	16	93	52
161	3	5864	490	119	1300	725	902	112	126	287	191	77	573	117	255	420	1	4	269	99	30
162	2	5875	240	190	1170	320	326	24	80	10	138	39	10	0	54	6470	4	9	0	15	52
163	3	5890	328	186	1483	177	1182	125	105	315	131	0	305	508	236	1640	1	4	140	98	36
164	6	5966	201	310	1804	464	159	71	48	125	115	110	1020	312	358	2110	9	0	9	99	23
165	1	5983	600	77	2340	536	726	250	350	77	164	128	45	223	424	-20	6	1	1	81	29
166	1	6022	622	262	2282	774	418	62	185	160	223	116	379	105	398	-1030	1	2	121	91	44
167	2	6041	642	227	1690	648	276	39	86	524	143	157	728	110	282	160	1	3	8	84	49
168	3	6048	395	179	1550	0	899	258	58	812	174	78	234	178	341	860	1	4	16	99	49
169	2	6059	306	493	2391	27	540	129	207	804	307	112	254	110	314	100	1	3	3	97	23
170	2	6064	368	282	1886	427	241	79	62	28	75	78	479	463	234	2070	1	3	128	96	24
171	2	6078	150	236	2600	173	305	102	122	191	47	62	903	150	449	200	2	3	30	81	26
172	2	6097	502	288	1696	331	217	109	54	113	101	103	825	197	180	1500	1	9	2	100	20
173	2	6114	495	238	1947	600	452	72	171	336	164	92	387	252	278	0	9	3	0	100	54
174	1	6119	660	234	1326	43	438	169	205	1842	466	167	113	340	277	-310	1	2	5	99	53
175	2	6139	410	561	1772	223	70	92	49	15	113	124	294	94	512	1600	1	3	15	88	18
176	1	6139	564	461	2107	680	483	50	231	34	194	39	477	152	297	80	1	2	1	99	54
177	5	6144	379	185	1762	505	638	108	32	325	43	51	906	151	212	1730	9	6	71	99	30
178	2	6148	794	327	1644	475	751	126	169	114	559	114	444	92	346	0	2	3	1	100	48
179	1	6189	240	29	1672	365	555	146	12	0	441	0	205	1463	426	100	1	2	0	100	55
180	2	6214	720	287	1925	381	441	65	135	215	200	102	646	259	413	140	1	3	2	100	24

1.4 Unskilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	1	6240	1020	261	2352	260	448	82	88	10	216	43	753	144	97	-250	1	2	3	100	51
182	3	6259	370	360	1106	374	519	96	142	236	118	44	258	1473	343	1250	1	4	4	97	51
183	1	6302	420	385	2132	372	500	150	126	242	200	170	545	260	381	240	6	1	0	99	53
184	1	6313	1272	402	780	530	98	112	143	1410	256	0	100	96	304	240	1	2	4	99	27
185	2	6324	269	378	2487	46	209	36	102	676	153	210	340	124	297	150	1	3	1	98	23
186	1	6327	1100	124	1000	858	632	168	58	370	233	267	797	327	107	-160	1	2	13	99	34
187	2	6396	936	262	1212	137	399	105	37	49	137	116	453	169	377	3620	4	3	-39	84	25
188	2	6398	714	447	1480	144	190	143	34	37	155	108	402	51	300	4290	1	3	397	91	21
189	1	6479	556	393	895	0	522	104	48	149	234	195	2402	60	505	250	6	2	28	99	26
190	1	6565	384	382	1718	833	206	42	43	287	287	389	327	827	586	-470	1	2	1	91	38
191	1	6583	945	0	3900	96	1106	198	527	50	282	273	736	477	244	50	9	2	0	100	54
192	2	6598	914	100	2187	695	623	196	159	174	203	118	450	399	100	1000	6	3	2	98	52
193	1	6621	520	0	3072	0	295	111	282	0	59	185	289	2720	82	40	1	1	0	99	55
194	3	6638	158	166	2240	623	617	102	88	95	197	58	1401	106	133	-480	1	4	2	99	42
195	2	6639	278	424	2025	546	372	137	223	829	268	194	85	146	289	570	4	3	-5	96	36
196	1	6684	886	422	1941	468	599	120	84	932	354	468	307	205	465	-280	1	2	9	98	30
197	2	6719	318	203	1835	173	373	91	72	139	97	114	363	249	323	3860	1	3	124	96	38
198	1	6858	630	566	1610	440	314	22	174	4	79	132	784	1326	541	-720	3	1	14	97	53
199	1	6869	800	126	1470	700	1374	122	170	500	457	32	236	43	267	140	1	2	0	95	54
200	1	6898	565	201	1300	990	57	340	397	246	205	226	100	208	97	80	1	1	13	88	46
201	2	7023	337	256	2185	411	418	74	263	300	134	165	631	1200	333	-40	1	3	-2	94	49
202	1	7051	720	250	1730	420	833	208	160	43	323	0	653	611	102	120	1	2	15	99	54
203	1	7074	2114	373	980	296	642	169	215	216	339	20	400	51	239	150	1	2	2	99	30
204	2	7082	520	202	2145	935	250	79	101	20	134	79	522	147	342	290	9	3	1	99	54
205	1	7092	632	259	2215	454	456	141	107	738	122	170	792	143	179	310	1	2	1	98	28
206	2	7107	526	251	2000	755	224	30	139	1683	151	89	211	103	419	360	1	3	11	99	26
207	2	7215	369	242	2040	520	867	203	90	184	172	115	1441	212	431	440	1	3	19	99	26
208	2	7271	654	230	2003	744	463	167	162	39	236	104	1183	831	424	-860	1	3	82	99	28
209	2	7405	468	328	2145	0	380	62	123	108	216	55	320	142	186	3940	4	3	83	100	47
210	1	7410	973	496	2200	416	607	89	211	876	287	83	321	206	251	330	1	2	2	99	43
211	2	7411	360	270	2350	658	466	57	95	535	307	100	702	164	350	520	6	3	-26	98	53
212	2	7435	215	332	2168	572	450	80	49	401	146	99	459	2417	357	10	1	3	17	95	43
213	1	7513	396	351	1957	0	137	121	52	240	161	223	557	30	458	620	1	2	1	100	34
214	2	7610	300	143	2195	121	861	98	170	319	171	155	268	220	303	300	1	3	30	98	34
215	2	7642	501	179	1723	250	769	66	52	1940	196	252	607	130	477	-140	1	3	21	94	37
216	2	7656	475	297	2115	662	928	165	45	153	214	119	1009	102	341	540	1	3	-3	99	36
217	2	7686	747	249	2574	790	836	142	242	369	192	99	573	474	298	-1120	1	3	30	96	30
218	1	7689	906	329	2107	75	2055	224	127	1012	291	114	1017	381	507	-2140	1	2	26	100	35
219	1	7736	360	250	3120	260	382	117	205	448	66	86	140	626	452	80	1	1	220	71	60
220	1	7792	636	198	1820	338	486	121	260	559	231	146	1639	320	364	80	1	1	0	99	54
221	1	7839	37	195	2000	296	110	2	72	32	22	112	65	0	553	4100	1	1	-7	60	34
222	1	7920	849	533	2450	1319	428	183	220	14	406	127	433	3825	607	27000	6	2	9	934	29
223	2	7963	538	396	2259	376	1227	132	162	249	283	114	955	331	572	190	1	3	16	99	21
224	3	7965	313	346	2023	816	452	138	87	798	93	66	623	345	172	4420	4	4	8	81	37
225	1	8058	906	329	2107	324	1414	277	119	1049	291	114	1037	477	489	-1820	1	2	24	99	35
226	2	8137	328	185	2817	432	300	37	199	926	165	154	1366	103	398	820	1	3	27	100	22
227	1	8141	300	36	3456	464	415	71	204	40	149	188	1597	26	536	80	1	1	0	99	50
228	1	8188	1127	731	1715	1440	762	128	212	874	150	0	641	129	195	-30	4	2	151	97	16
229	1	8405	1020	192	2160	780	352	76	62	852	142	71	1298	270	623	220	1	1	-7	97	54
230	1	8449	520	260	2100	909	32	102	260	0	94	0	405	3456	514	190	3	1	-41	100	46
231	2	8524	610	285	2030	530	678	170	61	353	211	189	1061	756	378	2740	9	3	184	89	40
232	1	8552	418	184	1768	0	279	110	218	162	97	187	262	75	469	2930	4	1	72	95	21
233	1	8580	784	0	2805	2185	685	224	312	182	175	131	225	323	576	80	6	1	1	99	19
234	1	8627	717	803	1518	120	220	199	238	81	420	215	548	801	186	590	4	2	-7	99	36
235	2	8661	1296	313	2210	673	1217	140	109	941	100	159	435	167	115	600	1	3	41	98	40
236	1	8761	813	371	3340	1241	245	53	67	52	193	295	235	66	582	620	6	1	1	99	55
237	1	8802	840	330	1560	780	498	107	365	0	136	242	1555	527	448	540	4	1	3	99	25
238	2	9273	1237	362	1950	204	1672	388	433	1155	57	133	428	168	277	750	9	3	-11	99	54
239	1	9286	1838	553	2500	364	769	180	190	406	269	101	1724	168	386	-1060	4	2	12	37	44
240	1	9392	720	81	3350	697	726	255	240	44	320	367	1165	356	519	200	6	1	0	98	60

1.4 Unskilled workers. The capital.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	2	9431	371	325	1500	409	891	212	93	912	267	150	1332	171	384	2490	1	3	121	98	50
242	1	9435	1080	405	2500	1200	255	45	290	50	100	410	1700	135	382	250	1	1	3	96	38
243	1	9720	960	42	2653	829	1036	171	195	37	268	200	1801	493	497	160	9	1	4	90	48
244	1	9869	1116	608	656	625	1015	156	139	569	84	590	476	110	448	140	1	1	7	98	19
245	1	10407	830	338	3100	941	1058	189	269	680	173	185	1195	1662	590	-660	1	1	16	98	35
246	1	10856	900	84	3106	416	1259	122	362	248	253	207	455	138	481	1730	4	1	-14	100	12
247	4	11400	190	175	1625	259	174	110	31	284	110	73	86	5033	232	10440	1	5	126	27	33
248	1	11703	840	56	3186	1506	749	140	390	130	299	440	1342	170	586	260	1	1	4	94	45
249	1	12061	1456	0	3445	669	1967	217	350	65	340	1058	1270	100	544	380	1	1	1	78	48
250	1	12683	360	55	3120	1874	832	119	300	36	205	107	775	1235	24	40	9	1	0	100	53
251	1	16489	780	63	1884	80	528	110	155	136	140	102	517	240	136	0	9	2	82	94	48

2.1 Higher public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	7	1685	90	111	700	0	108	45	13	286	29	10	8	46	57	240	1	7	5	98	39
2	7	2083	0	163	752	149	222	67	21	59	53	21	73	28	47	1020	1	0	5	98	41
3	5	2173	346	237	880	84	189	63	48	38	60	20	139	44	14	-190	6	6	10	90	40
4	5	2303	154	226	600	144	214	63	33	31	69	74	168	47	59	1180	1	6	-34	99	38
5	5	2518	267	157	655	20	116	46	33	139	46	53	265	13	70	3670	1	6	152	94	44
6	6	2610	183	117	687	299	343	94	52	360	82	29	40	72	42	30	1	7	6	93	41
7	5	2739	425	148	875	84	195	82	4	25	35	32	91	168	58	1530	9	6	-216	93	34
8	4	2822	369	211	612	79	212	30	62	218	65	72	327	257	80	-390	1	5	-27	97	47
9	5	2964	269	164	861	208	378	104	55	232	99	35	178	149	48	2570	1	6	-11	99	40
10	4	3053	290	285	1200	10	406	128	60	104	80	32	78	70	87	500	1	5	10	99	40
11	6	3107	408	281	650	82	417	125	66	50	74	27	100	273	60	2660	1	7	-19	78	60
12	4	3133	324	191	937	12	274	88	108	70	164	39	314	82	94	1780	6	5	342	84	48
13	6	3138	385	146	850	54	207	66	122	78	46	43	137	1432	52	-4410	1	7	47	97	43
14	4	3145	225	232	900	75	329	57	80	31	110	33	20	52	79	880	1	5	-37	99	46
15	4	3164	405	213	1025	189	243	65	100	146	93	75	122	16	75	200	1	5	16	97	48
16	4	3237	338	214	875	120	216	103	42	10	77	22	199	72	62	2060	1	5	97	96	47
17	4	3280	291	206	975	168	225	82	63	209	84	28	133	70	100	1160	1	5	-12	99	42
18	4	3305	444	171	900	169	143	36	50	322	65	76	118	101	127	1530	6	5	-327	99	49
19	4	3323	271	323	792	144	380	108	89	15	84	59	6	899	222	3490	1	5	-253	100	44
20	5	3336	355	265	1000	75	149	37	28	30	57	24	202	821	96	-190	1	6	153	91	35
21	5	3344	255	137	936	170	331	67	79	113	94	37	295	57	54	1680	1	0	11	99	49
22	5	3344	518	313	960	35	351	56	44	419	100	54	130	50	83	1000	2	6	-12	99	32
23	3	3365	340	300	910	255	322	120	71	225	85	83	169	54	99	510	1	4	10	89	46
24	4	3455	309	155	1020	75	391	129	56	160	147	40	271	127	91	470	1	5	56	98	40
25	4	3489	249	174	937	171	276	152	50	250	115	101	222	65	74	2010	1	5	20	95	46
26	4	3496	412	365	969	109	252	53	58	89	130	32	96	96	59	2270	1	5	25	97	47
27	4	3536	400	255	975	149	458	103	124	310	74	41	75	81	70	650	5	5	65	99	48
28	4	3537	372	419	857	142	249	71	81	342	117	40	215	94	140	630	1	5	-16	97	50
29	5	3592	322	291	1144	185	120	86	67	142	131	35	217	73	119	2330	1	6	58	98	38
30	3	3594	552	235	920	200	138	20	12	318	57	40	182	82	92	490	1	4	13	94	53
31	4	3596	388	255	650	12	305	60	68	148	88	87	138	16	50	3490	1	5	-111	90	40
32	6	3603	160	174	772	233	717	90	118	65	125	39	378	170	44	680	1	7	-10	92	38
33	4	3624	405	267	1102	117	269	91	42	64	67	48	294	30	113	2490	6	5	86	97	46
34	4	3632	420	160	975	0	782	104	15	39	100	31	252	95	105	920	1	5	0	99	38
35	4	3659	527	245	862	225	573	217	73	431	242	70	899	168	95	-5600	1	5	239	93	37
36	4	3671	367	274	1050	135	340	101	38	19	99	55	127	56	135	1530	6	5	5	99	38
37	4	3678	666	316	825	112	354	117	40	268	58	47	420	34	137	-50	1	5	340	95	36
38	4	3695	250	227	787	480	354	105	42	14	112	47	344	99	63	1080	1	5	-26	99	38
39	3	3701	527	205	953	253	210	76	46	185	89	97	437	113	87	-210	4	4	75	92	54
40	3	3719	342	294	880	461	58	47	49	119	35	63	183	514	154	-820	1	0	15	98	40
41	4	3733	607	259	1170	26	284	76	90	147	101	41	234	96	119	-420	4	5	66	82	37
42	5	3753	132	358	936	46	273	117	43	501	83	221	100	75	45	890	1	6	-33	99	46
43	4	3755	520	339	1000	127	418	104	37	685	83	20	513	98	49	-2530	1	5	50	84	34
44	4	3756	201	279	750	27	446	141	64	1115	121	47	405	200	175	-2560	9	5	37	99	33
45	4	3768	523	259	1260	209	293	94	66	218	81	84	153	10	80	550	1	5	64	92	43
46	4	3812	180	134	795	150	364	81	113	763	75	32	132	508	131	1320	1	5	14	99	51
47	4	3825	0	3	910	129	201	131	112	38	62	48	463	361	152	3270	1	5	126	95	35
48	4	3854	426	323	1050	219	348	121	69	198	110	35	213	49	80	1700	1	5	38	99	37
49	4	3877	430	203	1265	300	287	62	125	54	75	61	180	25	161	470	4	5	53	98	51
50	5	3899	447	257	904	115	525	104	68	206	73	24	355	14	73	1700	1	6	338	75	41
51	6	3929	422	174	748	133	794	167	86	1039	126	77	144	11	44	-2680	1	7	101	91	47
52	3	3932	613	154	1180	142	403	94	104	60	101	56	559	41	109	-180	1	4	30	99	53
53	4	3939	570	188	900	67	382	107	37	485	128	44	314	167	88	230	1	5	59	97	47
54	4	3941	353	159	675	119	454	63	42	185	93	52	168	559	82	3080	1	5	20	99	52
55	4	3977	369	472	1005	150	275	77	79	333	112	200	384	200	57	250	1	5	113	96	28
56	4	4008	397	440	1050	380	528	115	90	97	154	65	326	296	136	-1420	6	5	124	93	32
57	3	4043	360	212	944	59	728	112	91	67	91	123	187	170	75	1020	1	4	74	96	52
58	4	4072	339	282	900	158	514	87	37	157	90	27	320	11	77	1430	9	5	50	94	32
59	4	4092	275	265	803	165	462	111	78	365	116	42	145	858	92	340	1	5	1	96	47
60	4	4098	170	289	1083	0	275	88	80	74	65	18	215	214	102	3970	1	5	332	97	45

2.1 Higher public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	4157	349	191	795	177	345	137	98	425	121	48	255	53	161	3410	1	5	2	90	44
62	4	4170	501	275	885	124	209	47	63	26	75	75	405	2630	85	-6220	1	5	-137	99	51
63	5	4177	381	169	1040	148	319	76	100	173	85	47	161	31	43	4990	9	6	-218	96	35
64	4	4188	581	427	1366	177	748	140	71	139	80	40	364	30	82	-16120	1	5	-75	99	38
65	5	4191	279	174	863	106	456	145	33	215	85	27	386	148	38	3300	1	6	68	97	41
66	4	4204	300	309	825	262	856	110	52	81	81	52	547	25	91	1510	1	5	169	98	38
67	3	4243	248	120	905	325	457	83	80	993	188	17	91	158	52	1120	4	4	-17	99	53
68	3	4266	528	261	1000	240	219	116	92	948	176	114	70	35	99	520	1	4	-25	99	53
69	3	4276	328	276	1200	220	846	149	67	73	139	93	176	10	75	1060	1	4	-18	98	44
70	4	4282	339	131	975	245	747	133	89	405	190	52	290	34	73	770	6	5	20	97	41
71	4	4287	391	207	862	214	164	118	38	82	90	131	372	80	90	3960	1	5	-62	99	38
72	3	4289	383	251	1540	191	220	27	29	83	66	55	771	45	125	-220	1	0	116	98	24
73	3	4333	560	253	980	193	584	74	64	152	94	51	436	267	147	420	1	4	0	99	53
74	5	4340	372	228	1040	180	577	76	34	363	85	40	157	150	77	3460	1	6	-109	98	35
75	4	4359	1093	317	1080	91	590	121	48	322	97	85	236	42	138	4480	4	5	-185	86	40
76	4	4361	319	156	862	260	729	122	64	125	120	25	186	654	64	750	1	5	79	99	31
77	3	4408	400	270	1473	40	229	83	97	203	54	67	314	80	154	660	1	4	3	99	32
78	4	4412	300	281	835	153	511	183	54	131	117	13	453	536	80	1210	1	5	-68	100	30
79	5	4443	67	12	441	141	591	112	24	725	90	52	595	81	123	4380	1	0	292	90	23
80	4	4448	436	323	935	192	322	109	103	154	114	112	327	106	79	2860	1	5	1	98	45
81	3	4453	307	328	1380	400	534	95	84	50	117	73	20	20	103	2070	1	4	-8	99	48
82	5	4516	139	173	1811	73	327	92	74	55	54	26	204	1206	66	240	1	6	-28	99	35
83	5	4579	443	310	1063	213	482	126	49	261	110	33	370	58	80	2920	9	6	-3	99	39
84	3	4597	740	394	1000	145	134	95	45	56	65	84	189	6	116	3810	1	4	-9	90	45
85	4	4600	733	267	1050	25	199	51	35	545	97	462	392	0	138	1560	1	5	15	99	44
86	4	4682	292	211	1105	403	174	110	42	251	135	26	185	446	170	2670	9	0	101	97	54
87	3	4696	448	171	1000	52	403	64	42	175	141	105	439	18	114	2920	1	4	115	98	51
88	3	4708	414	282	1247	140	305	110	130	12	157	69	421	33	80	2940	1	4	4	99	48
89	3	4718	463	215	1100	100	683	110	64	237	73	57	111	129	91	3800	1	4	-17	99	50
90	3	4720	530	322	1273	165	114	48	34	228	62	51	292	50	61	3740	1	4	-100	95	52
91	4	4752	684	513	910	300	543	66	134	148	99	68	339	62	67	1120	1	5	659	82	39
92	3	4783	490	582	1712	100	465	52	172	456	80	26	156	77	102	-250	1	4	57	93	25
93	3	4824	668	220	1130	233	515	59	87	141	93	82	79	91	164	2140	1	4	117	96	53
94	5	4831	643	292	918	161	402	121	102	408	100	52	336	1893	70	-4550	1	6	60	99	42
95	4	4909	327	208	1050	200	565	138	31	321	86	84	277	124	135	3570	1	5	39	98	33
96	4	4973	643	219	1329	506	382	100	105	364	93	155	204	727	93	-2540	4	5	3	98	52
97	4	4989	119	487	881	142	671	170	63	430	99	125	699	30	103	2120	1	5	178	99	35
98	3	5014	297	273	1387	0	318	76	79	233	101	155	274	57	122	2260	1	4	26	99	48
99	4	5030	446	316	1200	30	409	93	46	659	94	91	361	143	91	-1850	1	5	225	95	38
100	4	5086	280	210	919	6	376	183	103	27	193	187	1055	0	44	560	1	5	4	99	29
101	3	5093	532	347	1020	346	400	21	99	324	119	179	208	65	116	2820	1	4	93	99	60
102	5	5144	248	284	1248	406	428	124	107	54	109	70	1370	32	120	1330	1	6	30	99	28
103	5	5163	0	114	1332	26	670	165	83	277	103	54	470	345	205	-650	4	6	106	99	36
104	4	5166	1604	669	1200	120	122	61	104	412	60	56	257	176	112	-3410	1	5	465	99	28
105	4	5179	278	215	1043	180	832	121	37	384	214	87	637	2668	124	-7630	1	5	134	100	35
106	3	5183	491	402	1185	242	541	131	58	136	81	59	541	515	120	1150	1	4	164	99	32
107	3	5256	485	332	1550	143	222	105	32	138	129	117	458	197	121	1980	6	0	131	91	26
108	3	5287	400	368	933	83	387	80	34	235	138	73	358	999	103	160	1	4	-98	96	30
109	5	5376	288	160	1250	120	202	104	195	630	201	156	360	182	134	2190	1	6	523	89	60
110	3	5390	365	271	1045	194	464	90	28	502	105	174	360	33	70	2060	1	4	-67	99	54
111	3	5433	787	447	1022	268	568	78	76	751	98	53	306	24	86	800	1	4	167	92	45
112	4	5446	292	541	1437	250	182	25	150	18	55	73	735	128	101	-2100	1	5	48	97	27
113	3	5467	772	358	800	230	541	81	118	282	123	65	361	1180	109	-5350	1	4	38	93	50
114	3	5509	400	453	1577	163	462	68	124	81	115	61	857	57	134	1010	1	4	20	99	22
115	3	5512	248	287	1400	8	960	150	57	53	201	88	245	119	178	1280	1	4	75	99	35
116	4	5571	225	323	1150	156	987	114	123	81	188	94	525	102	87	4100	1	5	154	64	46
117	3	5580	771	409	1267	197	387	109	65	77	165	49	483	63	96	2410	1	4	-208	83	31
118	4	5686	0	23	287	324	780	157	30	907	137	110	407	2052	80	900	1	5	125	98	35
119	3	5712	177	267	1700	567	755	139	105	614	60	53	438	77	125	240	1	4	9	99	60
120	2	5717	0	410	1950	90	1023	107	100	359	171	75	241	4220	84	-7340	9	3	73	99	32

2.1 Higher public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	3	5734	640	206	1200	289	614	145	45	16	112	47	430	653	122	2620	1	4	268	83	37
122	3	5739	1456	467	1473	414	503	95	55	1676	187	66	133	78	198	-3020	1	0	144	84	38
123	3	5759	394	188	1067	8	541	69	66	571	91	104	1139	352	52	-140	9	4	88	98	54
124	4	5801	342	212	900	162	340	71	37	133	73	66	247	2413	79	2840	1	5	128	98	46
125	3	5898	465	427	1355	36	448	96	49	96	140	73	278	176	88	4340	4	4	-18	93	28
126	3	5934	337	509	1533	8	738	106	61	179	147	75	250	352	120	3950	1	4	398	98	34
127	4	5953	510	405	1020	211	538	109	55	596	97	86	563	2291	90	-3380	1	5	-111	65	47
128	3	6003	340	557	1875	411	528	108	62	209	100	51	257	120	185	1770	9	4	27	99	33
129	3	6044	565	231	1275	200	927	158	50	521	131	54	381	403	116	1820	1	4	170	96	49
130	4	6069	257	531	975	474	590	186	159	189	127	118	981	50	180	2300	1	0	408	96	44
131	2	6172	959	407	1200	90	1130	154	97	1007	181	106	315	0	222	940	1	3	175	98	24
132	3	6196	444	332	1600	356	869	188	113	170	229	90	1175	72	99	230	1	4	183	97	35
133	2	6270	379	472	1225	245	831	244	87	133	157	145	632	137	131	2440	1	3	6	99	60
134	4	6310	555	204	1170	113	386	90	46	4	84	49	244	1721	63	3620	4	5	-56	99	49
135	4	6380	348	289	900	100	274	45	42	99	67	41	184	2618	66	-1420	1	0	252	82	29
136	5	6461	444	198	1081	300	687	110	78	108	77	75	787	574	94	8010	1	6	201	96	39
137	2	6662	695	235	1275	283	766	101	122	3758	130	21	477	101	100	-3990	1	3	59	99	50
138	2	6693	690	567	1500	390	185	47	26	330	117	145	645	0	161	3530	1	3	71	97	42
139	2	6816	591	275	1032	154	1106	127	23	3916	99	60	605	171	124	-5060	1	3	58	89	55
140	2	6938	441	279	1798	636	747	101	69	579	88	59	462	290	149	680	1	3	35	99	21
141	2	6952	735	277	1200	375	531	81	98	182	156	0	836	1279	174	590	1	3	-20	98	42
142	2	6970	535	75	750	250	1488	234	0	0	214	20	947	100	98	3420	1	3	0	99	54
143	2	7015	1069	326	1450	265	87	20	65	1147	79	53	136	103	88	1660	1	3	288	100	55
144	4	7054	300	267	2040	300	284	88	196	57	171	60	825	416	73	3990	1	0	175	94	53
145	3	7076	592	447	1342	208	795	151	41	30	280	67	2028	238	219	1180	1	4	20	99	25
146	3	7189	473	437	1200	71	504	65	67	28	132	64	396	1800	114	14430	4	4	72	77	28
147	2	7272	870	492	1380	100	449	60	61	3	100	82	146	175	173	2390	1	3	283	92	20
148	2	7358	840	355	1300	35	667	82	185	20	175	150	1000	4460	168	-4650	1	3	38	98	54
149	2	7402	647	472	1500	300	930	100	55	162	275	145	610	0	225	2910	1	3	97	97	19
150	3	7629	1470	599	1700	450	864	96	93	154	97	73	385	121	126	2090	4	0	-189	99	54
151	2	7637	615	385	2002	738	398	83	74	116	167	177	406	167	172	1370	1	3	-4	99	38
152	2	7642	407	439	1430	50	366	58	73	188	108	50	361	116	90	3150	1	3	617	85	23
153	1	7649	540	114	1353	30	913	229	92	1165	214	180	383	680	140	310	1	2	13	100	52
154	2	7700	821	179	1300	136	707	46	110	3652	175	72	369	33	142	-540	9	3	22	98	55
155	2	7753	739	460	1406	386	873	73	260	257	96	135	1210	11	188	1800	1	3	90	99	30
156	3	7816	564	268	960	184	438	77	112	277	62	52	1031	1889	362	1650	1	4	-9	75	49
157	1	7874	720	3	1400	200	969	158	19	125	380	260	1489	370	186	610	1	2	13	99	49
158	2	7886	730	403	1828	70	931	116	109	56	277	100	1178	136	291	1130	1	3	191	95	51
159	4	7943	1049	232	900	62	1205	191	147	1432	243	56	763	266	79	3420	1	5	222	88	43
160	3	7967	1030	578	1000	239	480	159	110	318	135	84	902	242	71	5990	1	4	106	92	48
161	2	8011	1416	808	3380	303	140	80	83	100	178	136	105	605	261	1160	4	3	279	97	19
162	5	8084	279	214	1174	364	1064	189	47	439	173	32	1430	213	121	2490	1	6	9	99	30
163	2	8242	333	504	1320	540	119	40	68	581	99	0	336	381	234	6570	1	3	290	86	53
164	2	8265	1020	357	1467	25	744	68	110	15	150	76	671	60	195	3920	9	3	487	87	34
165	2	8308	468	497	1800	400	710	145	31	140	114	71	1136	101	141	3720	1	0	493	93	33
166	2	8595	446	465	1200	203	365	230	137	1270	216	55	279	260	228	4800	1	3	165	98	31
167	2	8659	585	952	2475	250	390	152	216	597	91	245	446	852	109	40	1	3	17	99	25
168	1	8768	0	0	450	1200	1486	150	12	666	429	207	1930	162	110	950	6	2	-17	99	60
169	2	9066	573	350	1320	275	880	195	170	125	374	287	530	405	189	2480	4	9	-27	91	45
170	1	9115	1524	344	1505	195	1240	126	69	741	281	237	665	193	163	1410	1	2	1	95	53
171	2	9173	1108	625	1500	223	396	88	137	698	122	27	632	47	100	5790	1	3	-58	99	54
172	2	9298	567	668	1523	150	476	83	133	161	171	100	1265	813	162	1280	1	3	66	82	28
173	3	9334	400	270	1733	100	700	129	59	772	120	45	487	7	182	9960	1	4	321	86	32
174	2	9338	502	414	1500	480	588	99	125	44	155	295	1096	2252	150	1890	1	3	63	99	47
175	1	9345	725	0	1438	462	907	102	12	1326	51	30	913	385	91	2720	1	1	0	98	55
176	2	9383	1176	712	1275	566	554	59	35	1158	80	46	584	3178	107	-560	9	3	36	99	23
177	2	9411	798	342	2250	25	352	89	151	282	62	125	547	175	143	3420	1	3	45	99	15
178	2	10113	698	598	1750	600	830	137	77	90	200	555	3415	0	217	610	1	3	66	90	42
179	2	10207	739	848	2500	284	673	106	150	293	137	81	957	145	109	440	1	3	116	99	18
180	1	10253	840	0	1800	742	1510	154	308	891	180	180	1153	1011	134	390	9	1	0	99	60

2.1 Higher public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	2	10260	445	268	3253	292	529	63	161	227	278	47	177	1332	161	2970	4	3	501	94	21
182	1	10385	1116	10	1122	85	659	237	60	882	233	292	2030	120	160	2480	1	2	5	99	49
183	2	10438	738	416	1754	858	1655	287	118	704	321	201	1050	279	251	1810	1	3	17	99	48
184	2	10507	721	360	1762	450	599	139	240	334	275	108	1972	322	369	3720	1	3	15	96	49
185	1	10512	765	803	2340	0	1159	82	193	2335	201	72	228	185	193	-210	1	2	38	99	53
186	2	10581	477	404	1968	35	673	133	87	0	167	122	460	7521	140	-6630	1	3	122	97	48
187	1	10633	1406	590	1820	600	760	327	200	110	415	340	1748	400	160	910	1	2	-6	99	49
188	2	10823	864	410	1555	153	573	100	97	1387	123	253	1376	238	144	5910	1	3	-33	98	54
189	2	10979	897	400	2125	632	1203	173	252	307	251	141	1348	5747	205	-6920	1	3	89	99	51
190	2	11026	918	634	2840	900	971	178	89	329	207	240	1266	16	78	-260	1	0	504	87	20
191	2	11229	1855	689	2230	604	626	80	260	769	353	70	827	242	475	4710	9	3	97	95	45
192	1	11234	1058	38	2391	700	284	58	280	300	149	205	1515	350	258	2750	1	1	76	96	44
193	3	11293	513	74	1100	100	841	78	57	2057	124	151	749	2382	173	8080	1	4	-51	99	51
194	1	11354	1550	781	1718	282	1199	132	164	159	143	357	412	151	290	390	1	2	56	97	26
195	2	11435	779	210	1042	450	882	105	50	645	110	57	302	9129	201	-7320	1	3	141	95	55
196	1	11576	1300	580	1200	604	1015	180	107	1453	255	276	3050	550	195	-280	1	2	87	98	34
197	2	11592	967	704	2380	329	809	102	178	1256	180	161	428	171	233	0	1	3	261	97	26
198	3	11639	547	798	1335	600	713	111	70	306	141	53	981	530	111	13210	1	4	363	78	28
199	2	11812	1225	745	2212	167	1159	101	298	1447	152	197	1442	1098	372	1960	1	3	172	98	25
200	1	12051	480	60	1920	300	1145	199	81	63	300	112	1680	525	196	3960	1	1	171	99	42
201	2	12305	851	745	1437	315	962	143	130	37	251	124	1255	6875	249	-3670	1	3	-82	99	42
202	2	12451	937	812	3300	250	804	154	89	2190	187	192	817	1522	227	160	1	3	293	78	23
203	2	12969	750	516	2012	350	1182	167	254	411	125	105	789	1418	235	7940	1	3	539	92	26
204	1	13057	1304	966	2160	1341	1918	178	413	153	366	254	2925	590	362	-2730	1	1	181	94	40
205	1	13276	484	730	1200	720	1245	95	190	665	127	280	1785	80	148	4400	4	1	-20	93	60
206	1	13394	420	260	1685	7	778	85	175	65	82	295	995	2406	212	3880	1	1	121	95	39
207	2	14522	456	369	1800	55	675	105	148	177	202	62	890	129	221	8820	4	3	106	96	53
208	1	14640	1410	66	1568	1750	2299	218	718	664	690	300	1555	1560	530	260	4	2	0	99	39
209	1	14736	550	601	1200	116	1885	292	415	1851	489	270	2199	356	166	3390	1	2	-17	82	34
210	1	14922	1326	629	1800	80	1523	113	400	622	210	820	1290	390	254	4540	1	1	-32	99	52
211	2	17251	1350	645	1637	0	830	333	125	1072	39	65	1504	1555	161	12120	1	3	853	77	54

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	5	1339	120	375	408	45	83	26	18	14	45	29	47	12	61	110	1	6	27	98	49
2	4	1461	90	130	600	90	160	52	19	11	27	17	17	24	81	80	4	5	0	99	47
3	8	1553	64	98	820	44	46	22	16	6	28	29	49	9	45	1020	1	0	24	85	32
4	2	1560	227	99	800	21	114	64	7	951	46	25	63	5	54	-2000	9	9	30	44	34
5	7	1617	129	155	653	91	173	87	27	69	34	31	86	14	28	-1700	1	7	66	98	42
6	6	1629	273	89	477	91	43	23	31	337	13	31	44	27	43	-520	1	7	-3	98	50
7	6	1669	191	200	433	77	258	58	28	78	47	17	20	86	53	240	9	7	13	98	46
8	6	1678	235	190	500	82	260	81	10	274	28	19	59	41	29	1120	1	7	-46	98	44
9	1	1744	0	0	180	320	617	48	0	45	329	70	100	36	82	-150	1	2	2	92	47
10	1	1760	0	0	78	540	200	90	20	51	140	225	63	57	99	-410	6	2	3	49	50
11	3	1808	127	167	400	0	233	179	97	5	48	0	131	78	54	410	6	9	58	71	39
12	6	1844	197	194	660	38	174	42	35	54	60	26	36	29	64	940	6	7	39	96	40
13	5	1862	160	151	714	0	103	82	5	74	15	24	52	23	110	670	1	6	-48	99	46
14	6	1879	154	131	750	65	177	75	64	115	53	19	47	28	46	480	1	7	14	99	51
15	6	1910	220	170	776	62	107	38	27	55	28	9	30	11	44	1890	1	7	61	95	49
16	6	1930	260	138	433	106	61	16	27	48	38	11	217	14	57	1830	1	7	-45	98	46
17	2	1989	213	134	714	0	112	59	42	5	46	100	170	42	66	310	1	0	9	88	60
18	2	2016	416	306	780	92	20	13	17	3	11	15	37	0	93	-300	4	3	0	100	22
19	3	2029	253	151	1140	210	221	59	41	40	39	20	11	12	41	-950	5	9	5	56	50
20	7	2069	165	174	857	66	318	78	25	98	55	19	144	19	36	500	1	7	9	94	40
21	5	2116	132	168	1060	142	89	47	19	16	40	14	101	20	101	440	9	6	19	98	46
22	4	2161	216	223	715	219	121	3	64	162	78	28	95	62	110	-940	6	5	11	97	48
23	6	2217	258	183	800	107	124	65	28	93	55	39	191	41	94	450	1	7	-18	99	39
24	4	2220	150	220	600	150	296	47	50	171	95	8	70	19	84	510	6	5	17	97	54
25	7	2251	39	129	943	73	340	66	74	68	88	9	119	6	43	340	1	7	59	99	39
26	5	2293	156	149	990	89	178	81	49	258	50	29	59	15	67	210	1	6	-25	99	48
27	4	2320	520	200	801	106	50	42	119	105	62	22	95	183	71	-1500	1	5	0	98	47
28	1	2331	0	0	0	120	535	59	10	0	161	36	311	235	78	570	6	2	117	63	54
29	4	2345	403	258	720	175	130	72	92	142	57	35	35	44	44	390	1	5	92	98	53
30	4	2403	350	206	1200	39	215	82	33	83	43	16	72	261	66	940	1	5	-41	98	46
31	4	2404	175	152	675	96	315	100	52	334	67	25	84	56	58	570	9	5	0	98	52
32	7	2429	218	133	571	105	225	90	20	82	72	22	243	36	58	2950	9	7	-40	99	60
33	4	2449	185	296	970	75	207	98	35	125	57	48	111	41	68	460	1	5	225	96	37
34	6	2459	389	220	653	17	175	62	39	131	91	27	187	41	39	2200	1	7	-169	94	43
35	4	2464	0	73	919	74	198	40	61	231	69	49	262	1393	77	-5030	1	5	59	88	42
36	5	2513	310	215	690	150	377	66	34	50	73	23	54	258	50	600	1	0	18	94	42
37	3	2529	108	135	910	59	333	115	65	111	138	49	137	49	39	0	9	9	0	25	44
38	4	2540	445	321	780	12	281	75	29	231	55	21	91	45	63	-660	1	5	10	96	47
39	4	2560	196	178	975	0	283	95	17	230	70	28	65	56	25	180	1	9	-6	77	37
40	3	2593	207	253	825	100	102	32	74	128	55	64	272	108	131	310	6	4	2	97	54
41	4	2607	172	174	900	168	91	69	47	74	76	16	147	37	64	860	1	5	28	97	47
42	2	2609	341	412	780	238	129	32	53	22	66	37	100	68	89	-40	3	3	-38	97	30
43	4	2614	245	210	725	83	342	63	37	20	40	13	74	79	78	2170	1	0	-111	86	20
44	3	2634	376	216	1040	90	162	39	139	91	119	38	29	0	72	-830	1	9	18	83	60
45	5	2641	273	286	934	22	338	77	29	78	71	39	107	52	54	730	1	6	23	99	41
46	4	2645	164	219	975	187	271	92	17	32	85	46	117	99	122	360	1	5	38	92	36
47	4	2702	315	267	840	156	128	85	54	189	76	53	55	157	70	530	1	5	5	98	44
48	5	2724	500	196	600	16	317	77	60	43	59	28	40	32	47	2820	1	6	-217	69	44
49	4	2738	183	244	650	236	232	69	60	322	104	39	48	143	118	650	1	5	8	98	51
50	4	2747	201	227	880	125	302	97	56	268	114	76	197	39	60	-1300	1	5	294	98	38
51	6	2767	414	250	800	126	228	78	42	379	36	33	69	189	52	430	1	0	168	56	28
52	4	2775	129	363	612	262	139	94	110	96	73	31	171	54	136	850	1	5	7	90	52
53	4	2804	575	152	1000	69	318	96	12	466	60	27	129	126	48	-750	1	5	-2	98	43
54	5	2810	302	158	866	80	286	82	75	31	38	19	112	789	35	-330	1	0	41	78	46
55	4	2823	276	269	750	127	122	67	83	91	97	6	35	55	59	1450	1	5	89	98	60
56	4	2825	309	246	845	120	424	122	52	11	128	30	249	24	102	330	1	5	12	99	44
57	4	2839	290	136	900	182	341	77	32	83	51	55	89	51	72	1300	1	5	-23	99	43
58	3	2862	539	305	1000	33	277	77	40	178	55	32	119	13	100	480	1	4	2	98	51
59	4	2894	253	201	1159	330	505	132	44	1228	113	41	182	7	96	-7000	9	5	120	97	39
60	5	2896	386	192	746	6	229	48	51	128	40	12	294	40	44	90	1	6	-75	98	48

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	2910	230	134	1080	149	266	129	24	162	56	84	221	45	121	790	1	5	4	98	60
62	5	2938	280	168	898	79	164	86	22	112	62	40	198	17	58	2730	1	6	-53	84	41
63	4	2941	406	275	973	253	199	81	68	91	50	37	142	27	67	930	1	5	-21	98	50
64	3	2942	100	174	842	350	50	22	82	400	59	29	199	86	186	420	1	4	-19	99	54
65	4	2946	285	188	894	116	173	108	38	70	48	49	428	57	46	930	2	5	5	98	45
66	4	2955	305	201	1000	132	296	73	49	126	90	22	284	17	102	490	1	5	13	99	60
67	1	2957	305	28	690	50	871	198	27	123	232	0	339	0	22	-200	1	2	4	95	60
68	3	2962	632	263	1150	83	101	38	45	155	93	58	141	13	109	-940	1	4	-7	98	45
69	1	2966	208	105	680	266	705	22	0	112	37	8	245	168	119	160	4	1	41	100	52
70	4	2968	188	135	900	194	486	86	29	197	101	51	151	36	70	500	1	5	3	98	45
71	4	2970	241	228	913	47	254	87	128	274	170	41	288	66	106	260	1	5	7	99	36
72	4	2987	247	154	900	374	319	49	40	264	51	29	219	503	163	-1600	6	5	11	98	50
73	4	3008	131	188	750	123	453	85	41	109	98	65	240	39	201	1800	1	5	-41	99	40
74	5	3025	216	202	1035	20	391	120	69	201	74	39	170	25	48	80	9	6	6	84	19
75	5	3029	400	281	774	79	104	47	43	297	52	26	36	6	85	830	6	6	-130	99	41
76	4	3043	212	179	657	313	606	58	100	51	67	42	107	103	49	410	1	5	8	50	52
77	5	3058	266	130	984	58	220	107	39	273	108	58	86	189	6	310	1	6	5	99	39
78	4	3062	100	158	900	176	574	154	63	170	60	31	81	80	45	50	1	5	4	99	40
79	3	3065	244	176	1058	303	24	11	30	277	111	41	176	62	56	960	1	4	-43	98	53
80	4	3070	270	245	750	156	275	122	75	43	83	70	175	52	63	1110	1	5	17	99	49
81	3	3083	280	273	767	200	423	47	92	80	117	90	95	77	124	350	1	4	1	95	53
82	3	3098	347	252	720	17	168	101	24	937	73	2	126	20	98	210	1	4	21	97	51
83	3	3102	337	193	780	165	262	72	81	45	99	87	341	27	64	840	1	4	-8	98	51
84	3	3154	203	229	992	48	234	97	65	405	197	41	103	77	147	450	1	4	-26	98	51
85	3	3174	308	254	980	200	262	110	87	57	91	32	44	2	183	520	1	4	-4	98	60
86	4	3176	181	240	825	0	210	30	49	20	83	48	262	1389	57	-1440	5	5	18	99	44
87	3	3185	188	240	1167	365	319	138	64	37	90	43	131	36	118	440	6	4	1	98	44
88	6	3192	541	239	933	177	367	66	33	137	151	15	156	161	72	-3510	9	0	58	96	34
89	4	3192	150	333	1320	285	175	67	29	15	110	41	127	44	97	760	1	5	0	94	37
90	5	3202	602	191	900	20	336	107	55	70	64	22	205	65	47	1600	1	0	-240	83	42
91	4	3212	347	184	910	151	269	99	31	272	88	92	108	51	147	1030	1	5	12	94	44
92	3	3212	348	320	1040	237	314	106	62	58	99	58	124	75	91	490	1	4	21	98	40
93	4	3215	419	256	910	134	286	96	112	97	109	42	25	109	53	440	1	5	204	99	45
94	5	3232	143	307	1140	168	282	87	27	92	68	93	183	132	69	770	1	6	123	83	60
95	6	3269	400	246	833	200	287	95	22	163	100	40	292	87	84	410	9	0	178	84	33
96	1	3289	600	0	153	500	1083	239	41	9	224	5	198	175	81	10	4	2	11	99	54
97	1	3311	720	493	832	0	192	110	40	6	61	140	457	191	123	1920	4	2	233	69	54
98	4	3325	223	230	885	175	236	110	20	408	35	25	422	39	63	1200	1	0	228	92	40
99	4	3334	508	306	922	126	258	124	37	181	83	20	253	98	81	460	1	5	-46	93	46
100	3	3337	643	566	797	256	117	27	121	19	67	77	187	92	64	190	1	4	139	80	53
101	4	3342	267	186	812	167	147	126	19	178	73	61	281	42	120	-290	1	5	94	98	60
102	4	3348	618	251	734	61	387	86	44	163	77	31	295	55	121	860	1	5	121	91	26
103	5	3350	233	166	600	183	225	75	35	82	65	88	757	85	100	2070	1	6	-26	85	43
104	3	3376	462	315	1000	67	236	66	29	68	86	33	337	62	167	1070	6	4	46	95	29
105	5	3377	1311	420	676	131	179	60	61	21	39	12	171	20	77	1570	4	6	-145	59	41
106	3	3388	225	155	333	0	256	80	45	1621	76	33	28	95	33	120	9	4	0	95	55
107	4	3391	319	239	950	100	221	66	57	5	77	15	70	541	57	2280	1	5	-11	89	50
108	3	3423	0	59	717	421	347	55	178	262	99	46	245	253	64	-600	6	4	93	87	52
109	4	3430	225	183	830	179	207	89	46	233	108	57	300	67	89	2800	1	5	48	96	45
110	5	3487	258	266	960	218	365	103	117	71	101	53	98	163	92	2750	1	6	-207	97	46
111	4	3487	419	285	882	16	291	56	110	162	104	44	146	61	89	2950	4	5	71	89	43
112	3	3499	454	323	898	0	329	88	57	302	66	16	124	13	118	840	1	4	8	98	51
113	4	3510	318	202	982	72	500	107	40	235	94	40	87	18	119	910	1	5	41	96	40
114	5	3531	370	175	780	70	279	118	58	275	90	39	340	91	61	2870	1	6	14	83	42
115	4	3558	335	289	1350	290	259	106	51	39	72	39	101	56	57	910	1	5	166	86	42
116	4	3566	216	202	925	155	382	116	95	337	82	74	188	50	167	1040	1	5	7	96	44
117	3	3566	552	374	1213	61	329	87	31	91	84	78	144	100	94	650	1	4	-32	99	24
118	1	3566	0	0	155	25	611	107	29	121	286	116	478	347	112	330	1	1	4	100	41
119	3	3568	0	208	917	276	356	77	44	67	62	53	395	266	141	1480	1	4	16	97	47
120	2	3602	312	382	1300	422	165	56	147	30	139	71	109	0	258	80	1	3	0	90	20

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	1	3605	480	33	720	0	758	139	0	430	119	30	110	50	73	0	1	2	0	100	55
122	4	3615	145	211	958	326	313	73	72	53	98	58	190	21	223	1980	1	5	-38	99	48
123	3	3626	871	257	1114	455	147	41	46	84	77	33	0	42	169	1770	1	4	89	92	42
124	3	3642	432	301	1167	0	497	126	60	390	112	27	264	165	151	-1410	4	4	41	98	50
125	3	3646	382	176	900	169	643	75	62	240	56	48	448	12	119	100	1	4	13	99	52
126	3	3655	480	166	867	55	349	88	67	63	94	13	19	1746	80	-1960	1	4	33	99	51
127	3	3656	0	191	1250	467	352	135	78	156	137	47	298	342	82	600	1	4	-25	91	47
128	4	3673	779	382	1050	39	168	76	22	242	36	58	99	409	121	2350	1	0	212	88	47
129	3	3682	328	184	1400	105	416	169	45	465	128	117	150	33	85	-1520	9	4	0	92	54
130	2	3694	360	244	1200	420	360	134	65	0	181	37	221	350	36	80	2	0	5	74	50
131	4	3696	405	196	1484	191	444	115	106	21	106	70	110	298	74	180	1	5	-125	98	32
132	3	3697	283	128	851	7	345	105	54	72	132	32	507	41	137	1880	1	4	145	93	45
133	3	3702	322	246	1200	0	434	101	70	284	118	52	145	78	88	720	1	4	129	67	43
134	3	3703	308	166	1217	92	464	79	52	1657	125	43	669	50	95	-5160	1	4	227	91	26
135	4	3709	325	196	975	100	582	94	55	407	61	60	186	17	144	570	1	5	19	94	50
136	4	3710	392	300	900	120	225	44	94	137	94	38	236	102	82	-90	2	5	-98	99	52
137	4	3715	327	592	1000	257	102	58	41	15	84	39	364	45	73	2430	1	5	60	74	39
138	4	3732	304	185	975	600	626	65	97	336	75	60	190	27	99	80	9	0	-6	94	33
139	3	3756	112	168	1037	141	107	54	35	32	14	25	79	10	91	5130	1	4	349	84	37
140	4	3771	155	193	1250	148	358	89	45	134	90	32	370	57	128	1360	1	0	4	87	21
141	3	3783	230	300	1033	8	615	95	38	199	120	142	308	75	185	250	1	4	11	96	48
142	3	3791	183	393	1040	120	534	63	85	234	101	83	280	217	79	600	6	4	10	98	53
143	2	3860	900	344	600	387	17	50	120	9	27	54	540	125	83	640	4	3	-27	94	27
144	4	3865	239	237	1245	96	631	94	87	140	101	26	69	67	113	360	9	5	1	100	32
145	5	3918	336	153	1020	216	443	86	53	26	96	67	115	16	101	2850	9	0	14	96	44
146	2	3930	198	347	1300	130	395	179	125	62	178	65	165	77	64	120	1	9	0	99	35
147	2	3933	0	3	1000	0	343	34	80	652	195	72	53	0	104	2180	1	3	345	82	54
148	4	3967	346	206	1087	225	312	133	35	209	85	28	150	986	154	-1230	1	5	39	99	38
149	3	3989	331	437	1300	318	344	87	24	68	116	35	91	151	111	550	1	4	97	98	41
150	4	3993	305	175	910	209	812	217	35	375	151	72	271	12	141	640	9	5	-12	96	60
151	4	4011	360	194	1080	89	542	129	30	264	99	51	419	78	175	440	9	5	22	99	60
152	3	4018	77	13	1150	440	1036	229	81	499	145	96	1091	58	117	-2620	1	4	81	98	44
153	4	4028	92	187	1312	303	604	90	62	133	177	21	374	19	165	530	9	5	17	99	31
154	3	4031	151	227	945	12	201	82	52	48	72	27	614	5	96	3110	1	4	277	72	45
155	3	4055	433	292	1440	59	384	73	152	253	152	58	177	80	51	1940	1	9	-45	91	36
156	5	4061	269	241	960	103	237	50	74	207	66	22	8	310	161	4140	6	0	78	98	48
157	3	4074	648	328	1027	399	268	101	82	122	70	45	149	91	100	1580	1	4	-178	98	50
158	3	4104	624	322	1320	133	262	51	80	272	52	88	110	242	138	-390	1	4	-90	95	47
159	3	4151	338	188	1417	124	138	101	37	53	63	42	310	279	284	1540	4	4	709	74	24
160	4	4167	506	364	1147	153	428	62	33	108	91	46	226	17	87	1830	1	5	-48	99	36
161	1	4178	530	79	1125	181	727	124	65	450	217	31	265	125	94	50	1	2	3	95	54
162	4	4240	392	223	1020	141	429	161	35	68	111	65	330	2158	162	-6540	1	5	-132	72	38
163	3	4246	725	253	867	526	530	112	78	21	116	93	176	67	111	1520	9	4	47	97	50
164	2	4349	756	221	1060	450	423	51	89	0	173	70	167	30	167	330	6	3	9	98	25
165	3	4393	187	426	1040	255	340	44	196	332	116	83	23	521	112	1520	1	4	-13	76	54
166	3	4410	535	277	1000	367	566	129	75	8	110	77	298	31	165	590	1	4	4	78	33
167	4	4423	337	168	1050	318	253	94	21	21	27	61	878	105	245	-310	1	5	25	99	30
168	2	4438	411	635	645	260	488	124	179	540	179	96	333	147	145	70	1	9	-8	76	46
169	3	4448	272	231	1850	267	253	71	114	47	60	67	420	191	163	530	4	4	3	99	34
170	4	4499	274	161	929	482	657	81	107	164	118	30	559	56	190	470	2	5	18	88	31
171	2	4514	745	462	1710	0	545	107	64	78	80	92	32	90	138	1380	9	3	53	98	27
172	3	4525	389	245	1053	222	714	101	69	24	150	60	383	152	146	590	4	4	49	95	29
173	2	4549	315	297	1338	52	454	102	104	236	95	69	177	130	97	510	1	9	-12	92	49
174	3	4557	167	204	1460	347	248	47	32	28	107	35	133	13	145	1400	1	4	0	80	26
175	3	4563	756	341	1153	375	317	79	73	97	104	65	316	64	124	1760	1	4	-63	99	42
176	4	4565	457	222	1222	202	588	129	61	2152	198	39	495	37	101	-5270	1	5	181	97	33
177	2	4587	762	520	1712	303	415	125	67	266	110	59	228	43	147	-1120	1	3	210	95	22
178	3	4600	402	228	882	222	311	46	41	3333	116	23	270	13	101	-5080	6	4	124	99	54
179	1	4610	600	130	1799	440	543	54	2	0	113	130	503	174	170	30	1	1	-1	95	53
180	1	4636	0	0	100	20	292	259	25	413	149	0	40	10	130	630	1	2	68	100	60

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	3	4692	500	285	1258	198	353	144	65	61	143	76	202	460	140	640	1	4	13	99	46
182	2	4705	360	310	1425	150	425	75	53	871	137	79	60	0	116	250	1	3	4	98	49
183	3	4710	216	68	950	199	215	73	75	740	138	42	574	830	84	540	1	4	9	92	36
184	2	4726	520	389	600	7	355	132	37	721	143	253	257	42	136	1030	1	9	149	96	41
185	2	4733	604	508	2250	17	358	254	81	42	108	49	80	162	129	-530	1	3	147	98	60
186	4	4736	292	277	910	99	643	204	56	373	131	32	404	61	123	2960	6	5	398	96	25
187	1	4781	540	80	1406	0	218	45	9	0	129	85	649	346	167	780	1	1	24	97	60
188	2	4797	272	340	1620	110	522	85	57	330	114	133	389	136	148	730	1	3	24	99	23
189	4	4805	406	255	1375	395	313	113	40	90	70	75	297	491	286	1140	1	5	1	93	26
190	2	4826	277	441	2080	260	449	73	127	466	57	50	222	38	167	220	4	3	63	97	17
191	2	4839	345	212	1250	10	369	100	62	2562	111	15	551	7	172	-1910	1	3	63	98	54
192	1	4867	0	0	360	190	1098	135	0	211	215	255	565	850	195	0	9	2	26	100	54
193	1	4880	570	25	1380	291	641	121	0	0	52	52	971	432	112	0	4	1	0	90	54
194	1	4890	480	6	1823	198	461	147	82	35	111	57	1083	406	17	-10	1	1	0	53	52
195	3	4896	389	210	1185	17	779	108	84	478	98	42	390	258	105	770	1	4	29	99	52
196	2	4923	421	336	1820	161	196	83	66	145	67	68	87	74	122	1040	1	3	90	99	25
197	3	4966	200	218	1540	370	798	165	56	132	93	43	881	18	241	360	4	4	0	99	38
198	2	4972	876	411	1069	261	559	134	88	433	120	54	694	189	190	-350	1	3	176	98	20
199	2	5068	312	385	1527	80	876	128	67	105	197	71	447	150	250	80	1	3	8	98	12
200	2	5075	430	402	1565	205	539	129	51	334	106	44	66	508	158	1200	1	3	166	90	20
201	2	5105	574	568	1860	17	579	133	58	251	191	54	452	51	137	1220	1	3	144	91	27
202	2	5173	667	311	1347	20	640	29	115	108	139	126	373	128	97	660	1	3	64	97	49
203	2	5232	532	91	1075	210	928	113	153	2780	86	41	559	116	65	-5210	1	3	19	95	55
204	2	5233	330	486	1430	518	394	49	221	490	179	83	192	20	197	200	1	3	30	88	33
205	1	5267	1104	105	230	230	600	46	311	133	151	66	277	161	107	1050	1	1	116	87	25
206	2	5314	529	346	1470	75	320	68	209	42	188	42	339	100	254	900	1	3	34	97	43
207	3	5334	446	234	1300	123	824	130	146	523	148	92	287	85	159	1620	1	4	48	89	39
208	2	5339	1246	463	1130	79	192	47	99	51	73	111	55	80	164	120	4	3	107	82	24
209	3	5342	253	168	2167	315	551	119	338	655	238	133	451	13	122	-1210	6	4	-36	99	52
210	3	5346	273	215	1153	184	311	36	23	348	110	52	186	2147	53	840	9	4	11	68	49
211	1	5352	780	14	1536	0	793	139	46	94	456	0	750	345	114	-300	9	1	3	98	54
212	2	5372	328	390	1820	610	717	104	35	946	133	270	732	150	292	-1460	1	3	47	90	35
213	1	5373	648	20	1590	190	921	196	80	18	522	135	393	406	206	-350	6	2	37	93	46
214	2	5376	389	388	2210	275	407	87	39	0	77	154	236	108	184	210	1	3	2	100	52
215	2	5379	819	421	1530	188	316	79	64	203	220	75	360	35	180	780	4	3	5	99	28
216	1	5400	540	191	1200	1644	227	125	0	0	119	150	692	420	192	0	9	1	0	85	60
217	3	5426	587	300	1205	286	276	63	181	334	80	125	369	0	154	1400	1	4	-99	99	53
218	1	5428	720	49	1500	0	1132	149	147	361	308	143	115	180	112	290	4	2	3	99	50
219	2	5446	544	350	1662	145	539	91	82	122	90	98	215	15	138	1660	1	3	86	96	19
220	2	5454	924	413	1500	208	180	179	97	480	95	55	630	27	150	1060	1	3	-17	99	54
221	1	5460	480	120	2070	400	707	17	57	357	266	8	175	337	88	-330	1	2	22	100	60
222	1	5466	1020	173	1776	0	155	3	0	311	67	21	509	15	176	660	9	2	10	85	20
223	2	5471	754	479	1250	196	611	79	109	207	178	122	636	173	299	-70	1	3	138	93	25
224	2	5504	531	276	1300	89	419	49	53	373	48	41	424	74	84	1650	1	3	283	94	26
225	1	5539	440	207	1560	520	852	282	167	463	185	78	44	215	85	90	9	2	18	98	54
226	2	5564	954	412	1635	280	335	62	44	306	79	79	287	38	123	940	4	3	268	93	8
227	3	5584	387	280	1121	12	813	108	52	221	189	105	488	242	128	2320	2	4	75	99	20
228	1	5596	600	10	1980	300	279	85	8	75	200	18	910	120	101	420	1	2	77	91	51
229	3	5689	572	94	833	227	569	104	125	1592	126	38	201	107	73	2270	1	4	-90	100	55
230	2	5704	757	329	1000	20	535	131	26	3731	94	146	325	85	103	-3340	6	3	41	79	55
231	1	5707	970	518	1225	260	75	49	90	673	102	75	230	187	121	50	1	2	3	67	19
232	1	5748	0	21	0	296	248	16	70	0	77	33	1496	32	133	2580	1	1	392	70	35
233	1	5751	600	484	1200	30	813	183	105	5	110	165	245	100	228	740	1	2	145	99	38
234	2	5770	770	391	1200	180	601	56	108	430	274	107	330	189	115	1250	9	0	317	73	60
235	3	5803	226	201	1383	210	503	82	106	83	81	85	210	120	102	2220	1	4	6	96	31
236	2	5809	454	129	1184	262	758	221	162	2025	189	240	755	0	308	-2720	1	3	30	79	55
237	2	5811	520	413	1350	45	509	71	74	223	92	59	436	240	188	2400	1	3	216	94	20
238	3	5818	653	346	1100	322	276	80	167	1191	117	107	364	132	159	44280	9	4	-192	745	53
239	1	5874	305	256	1750	620	683	167	143	484	340	0	101	0	208	690	1	2	5	99	54
240	2	5889	570	290	1150	79	693	201	178	206	325	87	1201	96	137	660	1	0	64	98	38

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	1	5908	240	81	1440	623	1014	382	81	416	467	44	1105	93	66	-250	1	2	-3	100	55
242	2	5917	300	273	1820	168	454	102	31	68	114	130	202	921	200	1230	1	3	-9	99	52
243	2	5981	533	585	1925	225	157	132	52	267	60	240	155	2	147	1520	1	3	128	96	17
244	2	6040	150	270	1350	366	720	108	47	10	118	49	166	1722	257	-1180	6	3	62	84	52
245	2	6072	1409	486	600	175	1004	121	81	81	144	88	216	147	84	1930	1	3	-138	72	41
246	2	6097	382	264	1800	725	549	182	60	1006	141	94	486	65	168	320	1	3	22	94	47
247	2	6185	617	496	1950	386	422	89	52	130	152	96	567	13	192	1500	1	3	196	96	22
248	1	6186	645	431	1500	20	690	155	140	30	275	100	570	90	138	1250	9	2	309	83	34
249	3	6261	205	406	1446	510	758	158	55	439	196	103	985	411	267	960	1	4	-8	96	46
250	1	6310	720	240	1813	41	830	105	36	66	293	87	467	497	156	250	1	2	0	100	53
251	1	6365	720	135	2143	504	719	170	13	169	143	50	340	10	213	400	1	2	2	94	53
252	1	6381	840	168	1250	536	783	139	50	503	158	55	284	0	225	1350	1	2	7	100	54
253	2	6412	1599	650	1950	200	210	50	132	254	126	57	785	593	355	-630	1	3	-518	99	41
254	2	6417	876	436	1512	53	540	81	97	429	53	62	957	55	145	1610	1	3	238	95	22
255	2	6475	766	194	1351	275	528	115	98	4991	134	69	278	266	119	-5870	1	3	61	89	55
256	2	6537	507	676	2000	311	801	119	80	1209	188	60	130	5	149	120	1	3	64	94	24
257	2	6541	899	355	1560	17	673	55	159	83	103	45	354	5866	109	-8190	1	3	-32	71	53
258	1	6576	280	2	1328	0	718	211	4	2201	299	171	257	445	107	-90	1	1	2	100	55
259	1	6621	540	164	1056	300	1319	195	240	154	567	127	986	432	107	80	1	2	63	97	54
260	1	6699	1020	163	1740	74	762	190	63	39	257	56	431	59	169	580	1	2	8	99	48
261	2	6702	340	418	1250	125	475	86	61	204	94	32	121	12	98	5970	1	3	715	74	38
262	1	6765	460	316	1944	10	1350	289	208	124	226	15	960	80	95	1900	1	2	50	99	51
263	1	6807	685	340	2400	0	1007	310	193	478	424	225	330	267	170	-720	1	2	1	100	54
264	1	6824	816	385	1715	15	795	269	105	605	255	309	844	329	230	10	1	2	48	100	48
265	2	6832	462	378	1380	311	392	79	54	483	217	62	223	275	191	3080	1	3	-12	99	43
266	2	6980	1203	586	1300	407	498	95	66	164	105	33	429	0	431	5530	1	3	108	90	28
267	1	7021	600	30	1080	462	904	289	95	144	181	130	958	860	231	-130	1	1	18	94	52
268	3	7114	616	383	1184	292	350	102	157	131	164	64	125	1694	201	1740	1	4	-20	98	46
269	1	7139	542	52	1618	244	916	235	218	127	167	76	1637	236	221	220	4	1	0	100	54
270	1	7226	460	602	1700	400	1040	165	107	485	302	65	806	100	100	310	1	2	15	100	40
271	1	7273	384	518	3150	188	403	75	122	111	78	64	145	105	136	120	4	2	7	91	38
272	1	7346	764	591	1820	10	553	56	69	111	29	111	37	126	111	2340	1	2	98	92	60
273	1	7350	0	999	1680	125	280	24	85	213	189	69	943	40	126	1260	1	2	65	100	38
274	1	7368	780	10	1920	540	735	228	125	160	140	75	1002	15	250	1130	1	1	55	97	51
275	2	7375	621	448	1592	615	823	77	37	49	95	57	1119	624	132	670	1	3	130	99	24
276	1	7430	615	64	1800	610	763	132	240	164	154	72	1489	190	210	690	1	1	9	100	52
277	2	7523	407	273	1500	492	589	120	111	30	178	60	447	0	306	5810	6	3	83	96	50
278	1	7550	640	878	1500	0	387	129	131	0	126	121	464	191	287	-380	4	2	58	93	25
279	1	7633	780	420	1650	595	482	206	253	306	206	153	807	179	87	790	1	2	17	99	38
280	2	7690	600	478	1272	240	587	131	280	2299	262	69	443	305	155	370	1	3	20	99	53
281	2	7845	469	557	1550	925	450	122	108	665	155	108	605	124	290	2340	1	3	25	95	18
282	2	7875	325	383	1907	500	681	154	165	112	200	50	1755	119	433	640	2	3	7	99	25
283	1	7956	820	528	2740	439	890	139	353	444	92	103	558	219	462	-330	1	1	155	88	60
284	1	7968	0	23	0	570	270	125	19	1780	92	118	237	3156	165	530	1	2	-47	100	46
285	1	7995	0	0	2040	421	1001	98	78	0	134	75	830	240	256	1640	6	1	35	97	48
286	1	8001	30	6	550	500	733	212	88	75	347	496	1843	216	86	470	1	2	0	100	42
287	1	8039	720	0	1840	910	734	121	350	25	132	256	2560	275	0	60	1	1	9	98	60
288	2	8065	254	192	1560	215	458	77	176	12	213	38	784	180	166	5390	1	3	75	97	54
289	2	8100	2462	77	1700	322	249	66	111	105	115	51	347	392	160	2720	1	3	81	99	45
290	1	8139	792	544	1470	300	1399	142	274	420	580	226	1615	230	162	-1340	1	1	121	93	40
291	1	8142	439	376	2295	643	342	223	63	226	292	501	1068	273	217	140	1	2	-4	100	44
292	1	8144	0	7	275	25	2562	283	53	2209	644	427	369	575	137	300	1	2	19	81	51
293	1	8159	1020	14	1109	240	1051	61	141	1437	328	72	319	386	156	-1380	1	2	79	96	53
294	1	8257	912	13	1260	275	1116	227	119	828	560	240	1688	114	216	80	1	2	64	95	40
295	1	8291	1500	465	1150	80	446	94	310	23	265	35	394	80	124	2480	1	2	-23	99	35
296	2	8345	643	318	1667	310	992	167	114	2056	215	80	466	1780	160	330	1	3	127	99	55
297	1	8427	613	381	1265	0	455	51	129	415	254	87	573	313	229	2460	1	2	90	91	24
298	1	8492	1703	963	2250	1385	0	1	222	362	97	151	723	7	185	320	1	1	79	99	16
299	2	8509	679	281	1500	630	1178	290	144	70	335	45	756	53	259	2960	9	8	9	99	24
300	2	8512	372	276	2579	277	1156	165	127	935	58	76	337	90	326	80	1	8	34	99	28

2.2 Lower public servants and salaried employees. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
301	2	8614	609	424	1938	567	919	89	123	319	128	98	582	807	169	4400	4	3	732	87	41
302	1	8616	600	400	1540	600	629	58	78	0	130	0	2722	100	72	890	1	1	17	100	48
303	1	8639	560	220	1863	256	755	206	100	0	100	0	1405	408	239	1620	1	1	2	99	54
304	2	8863	893	391	1200	655	295	55	58	1489	238	57	600	55	159	4340	1	3	128	93	54
305	1	8911	0	2	2040	0	257	70	10	0	164	127	1070	217	179	2110	1	2	367	84	34
306	1	9020	780	410	2458	70	584	204	325	115	126	202	1499	50	561	90	1	1	9	99	54
307	2	9056	768	539	1440	167	324	61	64	2277	136	191	254	59	158	2960	4	3	367	95	27
308	1	9062	714	330	1650	650	1419	140	119	218	314	177	2102	240	274	40	1	2	6	100	52
309	1	9105	0	36	600	130	812	240	6	249	321	403	630	273	347	1540	1	2	6	99	60
310	2	9110	750	368	2270	457	540	143	116	645	355	110	282	2576	143	-130	9	3	8	99	52
311	1	9121	948	427	1715	288	649	151	96	2187	247	158	342	270	85	300	1	2	2	99	26
312	2	9145	740	368	1950	300	1152	118	68	1316	221	90	583	159	155	1710	1	3	132	99	33
313	1	9152	0	325	2640	78	1153	198	150	329	271	305	430	137	103	660	1	2	0	99	47
314	1	9160	600	0	1795	230	1174	173	102	480	92	120	580	300	225	3080	9	1	11	99	60
315	1	9174	814	389	1380	150	487	109	49	606	50	120	746	403	294	1400	1	2	104	95	40
316	1	9205	937	585	1437	0	820	162	210	26	114	80	198	30	173	1570	1	2	153	88	52
317	2	9264	607	436	1800	723	1017	169	146	909	422	90	1220	177	258	1440	1	3	0	99	47
318	1	9305	780	97	2100	700	702	130	146	0	190	109	483	334	250	1120	1	2	109	95	54
319	1	9318	860	1001	2087	214	707	106	103	406	81	151	836	218	269	560	1	2	12	98	30
320	1	9463	960	20	2420	1200	1154	222	559	164	264	405	660	289	257	470	1	1	22	99	52
321	1	9555	420	0	1764	0	1179	390	32	800	465	48	1914	45	224	1680	6	2	90	89	35
322	1	9558	720	646	1715	295	1049	201	205	158	228	50	2085	120	156	1770	1	1	220	82	30
323	1	9586	720	2	1530	838	611	141	290	500	252	378	666	3523	130	-1720	1	1	19	99	60
324	2	9618	500	390	1831	500	550	101	169	25	123	79	1157	131	140	5710	1	3	-64	99	45
325	1	9636	480	325	1350	580	385	66	300	65	345	250	1720	300	171	2130	1	1	3	98	50
326	1	9687	360	134	1040	0	435	59	244	1000	92	384	2030	1807	111	1810	2	1	152	99	36
327	1	9688	900	23	1820	1090	1497	119	424	702	137	298	1529	496	427	190	1	1	10	99	54
328	1	10012	1114	622	2760	445	754	184	271	587	160	280	1333	258	296	300	1	1	1	77	32
329	1	10161	1320	870	1820	186	2097	252	126	462	322	157	497	450	434	-1450	1	2	6	93	33
330	1	10212	842	606	960	642	943	126	293	1148	96	12	884	1883	146	1360	1	2	276	99	48
331	1	10541	1332	632	2814	277	1625	436	226	44	310	224	711	682	181	330	1	2	433	81	29
332	1	10908	867	393	2132	65	1303	129	273	1424	433	210	1235	245	135	1090	9	2	124	96	50
333	1	11043	684	233	1464	284	745	330	222	369	295	130	948	3329	157	3020	5	2	-118	97	45
334	1	11130	625	533	2160	80	1689	226	177	807	161	435	1499	173	285	680	1	2	11	99	48
335	1	11659	600	32	1700	0	932	122	0	0	117	36	169	1998	85	9950	1	1	94	68	54
336	1	12335	925	460	2465	554	1095	90	239	589	128	8	583	875	261	1370	1	1	18	83	46
337	1	12651	972	896	1130	280	833	161	209	599	306	452	1906	0	255	-4830	1	2	44	81	25
338	1	13253	852	1142	1804	1277	902	57	178	255	181	210	2389	114	373	810	1	1	50	98	31
339	1	14162	1410	888	3324	131	624	230	219	598	111	188	1460	264	178	1300	1	2	1551	64	53
340	1	20412	2182	646	2575	1370	3376	286	363	633	250	400	3188	355	214	2810	4	1	44	98	31

2.3 Skilled workers. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	4	1639	267	174	600	139	82	37	24	15	43	23	22	10	86	170	3	5	4	7	44
2	4	1650	331	142	715	101	77	19	35	0	17	14	34	101	111	20860	2	5	7	81	36
3	7	1734	99	192	780	6	217	45	49	27	48	26	12	17	87	600	1	7	-7	79	48
4	5	1819	113	122	780	57	121	39	25	71	41	45	52	17	105	550	1	6	10	99	44
5	6	1894	232	118	589	0	247	82	29	306	68	15	79	26	105	1420	4	7	35	91	45
6	6	1911	118	139	832	252	72	35	42	15	65	29	65	4	30	240	3	7	0	98	60
7	5	1911	86	164	754	106	101	38	28	181	51	0	102	5	160	740	1	6	-4	98	44
8	6	1967	101	183	833	58	433	101	48	123	90	38	101	17	135	200	1	7	0	61	46
9	6	1985	306	86	910	49	80	63	34	15	25	16	29	339	93	-50	9	8	-161	86	36
10	5	2038	173	110	767	133	120	44	28	83	49	30	105	47	140	290	1	6	-3	99	41
11	5	2047	232	268	872	40	108	40	49	23	13	25	88	4	139	850	1	6	145	91	35
12	5	2094	263	140	686	52	60	43	33	166	60	67	99	13	97	410	4	0	3	94	52
13	5	2144	116	161	816	112	114	50	28	33	45	21	120	38	117	1040	1	6	22	94	46
14	4	2148	294	222	910	10	95	64	45	11	40	11	35	30	152	260	6	5	21	98	49
15	5	2160	182	226	705	200	173	51	26	31	57	26	34	208	92	360	4	6	9	94	47
16	4	2167	100	194	625	300	139	29	50	129	61	51	252	0	156	160	1	5	2	96	51
17	4	2172	84	161	562	25	75	27	63	62	54	27	210	229	123	470	1	5	5	98	52
18	4	2180	248	184	780	159	152	95	66	8	35	7	7	19	128	730	1	5	-32	96	43
19	3	2218	324	333	527	200	281	79	111	28	115	28	97	12	22	0	9	9	0	41	51
20	4	2220	172	79	997	318	207	36	42	10	57	26	13	6	228	300	9	5	0	69	60
21	4	2290	367	245	780	86	217	58	39	61	83	27	64	15	144	-410	1	5	61	98	43
22	4	2354	327	124	910	132	49	24	64	61	105	58	81	23	154	820	4	5	-160	95	45
23	4	2363	226	188	900	105	122	39	46	8	37	35	46	73	149	1010	1	5	90	95	45
24	4	2367	150	199	935	304	67	30	40	35	47	73	83	25	153	350	4	5	-7	91	46
25	5	2454	202	181	824	16	195	51	44	153	47	57	52	15	94	1590	1	6	-44	96	46
26	4	2473	362	309	975	23	85	32	28	119	87	49	77	23	145	770	1	5	-188	96	50
27	4	2481	190	151	750	107	354	74	56	165	85	24	234	54	45	-90	1	5	8	98	52
28	4	2484	159	226	942	92	320	64	53	77	92	26	134	32	141	180	1	5	3	99	41
29	6	2486	342	157	603	167	193	59	35	171	103	41	64	74	106	370	1	7	139	95	34
30	4	2524	267	172	845	0	181	73	33	31	83	9	129	170	196	1880	6	5	153	98	35
31	4	2525	195	204	600	181	162	28	37	465	46	37	119	9	132	470	1	5	-21	98	54
32	3	2535	40	249	710	137	165	69	75	48	126	43	252	0	173	1260	1	4	118	99	60
33	4	2542	301	238	997	114	178	78	55	538	81	41	71	190	154	-2260	3	5	99	98	49
34	4	2556	149	158	1040	130	242	56	50	39	59	27	122	90	124	390	3	5	0	89	49
35	3	2596	259	168	1010	223	263	77	149	23	137	51	145	33	139	180	1	4	0	66	36
36	4	2639	269	230	1044	84	236	85	23	45	36	49	145	29	132	1100	1	5	66	94	34
37	5	2703	250	173	949	270	282	87	47	68	78	75	70	12	96	380	1	6	10	94	41
38	3	2783	182	264	1020	88	206	83	40	96	56	37	136	30	203	410	4	4	-19	99	49
39	3	2801	328	190	965	170	129	42	42	108	46	34	93	52	223	1100	4	4	44	98	48
40	3	2860	432	282	997	123	198	38	53	204	117	45	152	125	150	0	1	4	-21	79	60
41	2	2872	240	103	780	32	116	44	19	351	45	21	221	232	255	1010	4	3	93	83	26
42	4	2877	337	187	1040	628	114	31	29	150	46	47	364	7	129	-1540	9	0	37	81	19
43	4	2899	126	222	975	318	149	40	42	115	103	32	250	67	109	420	1	5	0	99	54
44	2	2921	544	350	558	145	497	68	195	298	61	46	12	312	158	110	3	3	99	36	30
45	4	2923	197	284	910	121	280	61	16	165	54	26	104	32	127	1190	4	5	155	98	41
46	4	2933	208	206	1097	7	115	68	25	229	62	45	142	62	157	610	1	5	5	94	52
47	2	2934	188	395	800	871	0	14	61	36	93	73	32	25	188	250	9	3	0	34	53
48	3	2958	217	187	1213	158	200	48	52	111	29	61	80	113	176	400	1	4	3	98	52
49	4	2990	237	324	923	120	152	48	67	178	95	35	126	344	186	610	1	5	47	93	48
50	3	3010	347	335	893	240	198	46	78	133	38	31	227	6	100	-260	6	4	0	98	53
51	4	3061	314	140	935	64	214	86	61	75	71	47	161	578	170	550	1	5	39	96	60
52	3	3061	284	251	953	77	455	121	32	143	65	42	70	26	178	570	1	4	157	79	23
53	3	3075	454	362	1040	175	242	67	49	108	69	35	145	17	225	520	1	4	-192	99	48
54	7	3079	178	201	1151	175	314	66	28	100	58	54	391	80	170	530	9	7	-3	93	33
55	3	3147	310	0	700	178	337	57	42	162	146	85	348	147	221	1390	6	4	-3	93	54
56	5	3149	310	204	1224	10	266	39	70	84	52	27	145	70	155	1160	1	0	-20	80	28
57	3	3155	235	243	1127	208	200	71	92	21	110	42	190	13	164	390	1	4	3	98	39
58	3	3232	323	409	1023	222	119	48	56	460	66	58	130	80	169	410	9	4	2	97	50
59	3	3252	202	207	1040	115	231	98	105	356	73	60	169	41	166	620	6	4	3	99	53
60	3	3277	208	220	1267	160	302	47	64	90	116	28	40	2	171	600	1	4	4	98	53

2.3 Skilled workers. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	3290	340	227	892	175	351	68	51	229	68	64	346	120	116	450	1	5	4	98	44
62	3	3309	353	244	1082	87	338	81	43	94	108	60	302	72	210	350	4	4	41	93	47
63	4	3324	395	402	1275	0	166	65	47	165	42	42	246	71	176	1220	4	5	178	85	24
64	5	3390	285	332	1000	228	342	65	67	107	71	40	242	146	88	1210	1	6	176	95	38
65	4	3395	137	216	910	281	525	83	181	199	155	73	254	66	287	-100	6	5	13	98	48
66	4	3436	130	177	825	244	511	87	149	337	96	90	80	159	176	590	1	5	-9	99	52
67	4	3438	582	192	1064	75	478	133	48	120	102	35	179	35	170	800	1	5	-14	94	34
68	3	3442	361	171	1040	152	230	90	114	158	155	30	240	75	212	240	1	4	-12	100	52
69	1	3489	480	0	804	406	479	69	193	6	82	15	497	301	17	0	1	1	0	53	60
70	4	3516	75	148	1000	477	336	99	107	47	62	40	325	6	137	0	1	8	0	87	36
71	3	3523	399	221	1025	184	76	31	145	130	158	51	350	332	152	1210	4	4	50	96	50
72	4	3533	224	103	934	553	397	141	58	126	144	39	224	45	174	260	1	5	3	95	32
73	3	3535	229	235	732	1027	108	72	171	7	36	40	120	168	217	-140	9	4	0	95	28
74	2	3572	250	286	1530	162	330	106	45	126	57	76	193	0	334	80	4	3	79	84	23
75	4	3576	255	85	867	94	428	101	45	232	145	38	433	29	123	1460	1	5	21	98	42
76	3	3606	433	307	850	0	246	104	115	224	192	48	294	278	192	-30	1	4	38	97	52
77	3	3651	106	67	1130	367	181	83	53	809	66	42	272	81	201	260	1	4	4	84	54
78	3	3672	703	292	883	400	145	19	49	73	67	12	25	60	161	2010	1	4	118	86	49
79	3	3677	399	254	1040	425	603	95	109	826	93	48	479	92	187	-2750	6	4	-15	98	49
80	3	3681	400	106	1073	56	405	73	133	258	115	43	577	75	238	370	1	4	16	98	50
81	3	3682	292	277	1093	208	131	32	46	211	95	72	127	56	264	500	1	4	26	97	27
82	3	3690	298	286	1222	211	344	59	91	72	94	65	147	5	205	1020	4	4	-1	98	53
83	5	3696	215	335	518	127	293	78	48	120	63	53	346	17	187	4970	9	0	354	82	30
84	4	3753	488	301	1020	81	410	73	83	206	113	30	174	211	242	180	1	5	-1	86	50
85	3	3770	320	197	980	337	353	89	61	62	91	62	590	726	130	-820	1	4	17	98	46
86	3	3809	273	173	1190	50	345	80	44	62	90	41	295	135	274	1630	9	4	21	85	33
87	3	3841	417	220	1667	121	177	45	56	135	69	67	29	949	176	-1150	1	4	-89	77	60
88	2	3842	352	557	1300	391	85	79	37	48	110	75	211	12	237	770	1	3	80	58	18
89	5	3878	88	196	1173	65	447	75	96	152	55	56	527	471	195	780	9	6	-6	95	60
90	3	3886	316	256	1040	122	336	129	102	313	105	55	122	599	168	380	9	4	-3	93	32
91	3	3925	490	407	1333	34	372	79	70	476	90	24	96	19	225	540	1	4	40	91	40
92	3	3994	255	170	981	16	350	98	67	1088	58	12	221	170	161	120	1	4	0	99	54
93	4	4020	157	169	975	270	116	107	43	19	120	66	162	9	167	3710	4	5	7	67	33
94	2	4066	289	409	1083	273	343	154	101	273	107	75	312	75	346	-140	1	3	-13	95	52
95	3	4069	320	217	1020	220	265	90	52	518	92	25	470	142	262	360	1	4	2	99	46
96	4	4100	252	227	884	178	525	99	45	633	61	40	121	340	233	1050	1	5	-15	94	32
97	3	4132	273	215	1058	277	389	78	109	548	186	104	303	110	189	360	1	4	2	98	48
98	2	4158	370	258	1318	312	364	105	96	378	202	62	72	282	290	120	1	3	-29	88	54
99	2	4164	343	354	1560	208	313	71	51	362	77	65	309	171	243	510	4	3	72	90	18
100	3	4213	197	186	1403	353	385	75	33	39	87	30	420	622	195	200	1	4	-1	97	27
101	3	4268	243	271	1389	287	211	85	91	183	188	120	447	33	186	680	1	4	2	99	43
102	2	4334	452	399	1430	176	362	103	60	472	78	122	212	15	252	360	6	3	94	89	20
103	2	4345	556	262	1375	280	190	62	59	24	107	31	175	648	273	600	1	3	49	88	25
104	3	4359	213	247	1239	93	543	129	35	151	77	32	381	428	246	810	1	4	114	97	37
105	2	4467	663	414	1538	167	386	87	44	238	83	91	140	81	316	20	6	3	3	76	19
106	2	4588	200	336	2288	612	483	42	73	53	86	63	181	113	294	-40	4	3	94	95	39
107	5	4593	503	135	702	120	206	81	17	166	71	26	60	920	88	9230	1	6	62	29	40
108	4	4631	842	165	937	250	526	72	32	90	66	54	320	25	131	3320	1	0	10	69	48
109	3	4717	152	436	1630	259	65	73	76	247	130	57	280	349	228	1350	1	4	82	84	23
110	2	4765	848	239	1925	37	300	58	56	60	81	64	274	52	267	560	1	3	100	96	26
111	4	4776	385	270	1356	390	592	96	21	17	95	25	452	417	173	530	1	5	29	99	33
112	2	4857	480	367	1785	322	215	62	88	0	152	75	390	87	370	400	1	3	20	96	49
113	3	4989	256	347	850	807	446	161	280	235	55	147	416	80	202	200	1	4	0	99	35
114	2	4998	311	288	1610	178	183	7	35	99	93	40	376	36	292	2360	1	3	183	98	17
115	2	5029	277	299	1225	352	494	81	262	571	188	72	461	100	264	160	1	3	5	98	52
116	2	5044	279	448	1820	183	187	40	58	366	83	68	58	274	321	1600	1	3	105	95	60
117	2	5082	347	313	1225	274	396	185	46	931	126	150	456	112	264	410	9	3	-5	98	54
118	2	5083	842	681	1519	365	471	121	46	47	144	17	397	68	278	-240	9	3	264	93	37
119	3	5104	317	197	1250	300	678	121	57	205	115	73	1053	104	189	550	1	4	-6	99	28
120	4	5108	669	366	765	188	295	60	72	873	127	18	331	46	113	4930	1	5	-27	52	54

2.3 Skilled workers. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	2	5222	230	196	1020	62	307	64	32	320	44	30	115	58	156	4710	4	3	415	86	21
122	3	5309	524	345	1213	222	727	92	84	350	109	78	327	371	165	760	1	4	-156	99	49
123	1	5357	300	175	2000	433	540	147	83	0	26	7	187	197	353	670	2	1	67	65	39
124	2	5372	459	553	2052	639	216	70	90	17	319	86	354	52	256	200	1	3	7	94	30
125	4	5390	704	497	908	92	777	0	117	440	145	43	520	383	218	1700	1	5	-147	87	37
126	2	5410	666	447	1040	139	573	122	37	583	135	57	288	67	520	1360	4	3	281	82	27
127	3	5428	335	241	1599	202	639	98	122	444	155	48	414	118	38	1340	9	4	189	97	21
128	2	5429	270	291	1275	296	1067	176	96	263	207	100	361	122	249	450	1	3	42	96	53
129	2	5544	781	374	1560	153	447	52	67	301	101	51	269	53	248	560	1	3	84	98	26
130	2	5714	335	366	1890	76	536	102	107	273	125	104	668	107	366	740	1	3	108	95	60
131	2	5720	350	362	1620	260	335	110	77	492	347	437	279	48	336	320	1	3	-9	99	52
132	5	5738	345	193	1040	420	175	65	37	456	71	23	83	332	48	9040	4	0	19	68	48
133	3	5819	674	308	827	374	343	64	217	1296	173	92	877	37	170	1550	1	0	-52	99	55
134	1	6088	420	55	1820	750	1005	68	200	0	85	0	586	625	273	80	1	1	0	99	60
135	2	6226	300	239	1500	476	589	115	201	568	81	145	1005	327	389	370	9	3	0	77	52
136	2	6520	300	251	1920	616	871	255	96	192	138	81	237	120	227	710	1	3	-14	99	23
137	1	6614	540	0	1820	0	431	83	240	23	293	35	587	2146	408	40	1	1	-19	91	52
138	2	6861	343	474	1200	530	658	145	147	3061	228	86	673	77	349	-3480	1	3	117	97	47
139	2	7001	317	123	1300	182	550	48	12	376	109	0	175	183	280	7770	4	3	10	90	55
140	2	7047	890	440	1147	318	547	130	120	422	149	96	424	61	321	1560	1	3	-92	95	52
141	2	7121	418	412	1714	408	780	147	101	1861	125	30	223	150	238	-570	4	3	10	97	52
142	2	7211	371	267	1326	399	618	111	65	1048	192	113	402	95	321	2720	1	3	23	99	15
143	1	7238	531	501	2940	521	509	83	114	36	72	362	388	40	606	50	1	1	57	97	51
144	2	7451	254	434	1820	6	253	84	71	66	98	85	199	66	258	2940	7	3	279	66	34
145	1	7565	880	424	2496	631	745	127	208	160	162	110	850	0	425	260	1	1	9	99	53
146	2	7778	529	268	1573	473	716	115	63	4012	186	72	245	439	141	-2160	9	3	23	96	55
147	1	8066	600	26	2247	877	778	158	253	0	157	87	1610	568	573	280	1	1	-11	97	60
148	1	8352	900	142	2499	0	1577	255	165	857	142	117	371	245	14	100	1	2	-1	89	54
149	2	8413	1533	468	1530	6	66	53	109	19	103	64	798	2389	344	1340	1	3	-190	99	54
150	2	8506	558	309	1294	770	1259	173	249	462	260	114	1327	160	457	1860	1	3	30	99	50
151	1	9516	600	131	2340	520	404	87	436	0	111	78	1470	330	476	2790	4	1	364	82	21
152	1	10035	540	40	1425	871	755	126	230	350	84	75	1737	262	646	1910	1	1	2	99	45
153	1	11650	480	0	1820	1805	923	238	260	1220	197	149	1879	175	424	1350	1	1	0	98	51
154	1	12821	300	300	1665	1017	154	38	122	213	186	100	1045	3683	426	1710	4	1	32	30	43

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	6	1001	42	121	737	38	34	11	11	16	11	1	9	5	98	500	4	7	43	36	47
2	1	1190	420	545	630	0	20	21	1	1	5	15	0	72	87	-700	6	2	0	97	43
3	4	1318	148	130	520	66	51	21	26	29	45	12	60	9	139	160	6	5	-5	29	42
4	1	1465	360	329	890	0	71	76	42	8	61	39	39	20	90	-250	9	2	13	96	51
5	9	1578	92	128	959	59	243	44	34	83	15	20	50	2	68	240	1	7	3	71	32
6	5	1625	210	144	593	104	266	53	69	233	49	31	40	24	125	-1220	9	6	-11	99	48
7	6	1641	130	110	540	39	154	53	31	61	58	19	62	46	115	1180	4	7	18	87	45
8	4	1685	201	163	780	29	177	76	27	16	26	23	56	17	39	520	1	5	5	84	45
9	4	1806	187	169	750	158	202	69	45	60	57	35	59	58	48	180	6	5	0	65	47
10	5	1810	209	134	964	10	337	104	20	197	40	20	20	53	127	120	9	6	-4	99	30
11	5	1827	475	210	624	26	283	56	22	138	75	28	44	60	148	1040	1	6	26	93	41
12	5	1836	72	152	624	129	344	104	89	32	67	40	131	22	118	-490	6	6	0	69	39
13	5	1859	157	191	700	31	234	72	67	26	34	20	32	14	128	210	1	6	1	97	30
14	4	1877	131	289	598	160	169	26	74	62	48	32	63	0	130	200	6	5	0	58	52
15	5	1882	238	193	800	20	160	60	43	38	34	30	86	80	98	280	1	6	30	36	60
16	5	1917	186	188	520	257	338	56	38	19	31	44	65	41	114	610	1	6	73	97	33
17	2	1931	282	313	1200	165	504	62	43	155	42	47	45	5	305	-2460	3	3	170	100	13
18	5	1947	189	152	852	65	96	15	32	6	45	22	83	86	106	590	6	0	-1	79	31
19	6	1993	199	186	650	83	104	38	62	121	47	22	8	8	97	640	1	7	-62	99	45
20	5	2002	126	109	780	122	126	63	44	75	33	29	55	15	115	1600	1	6	-10	98	44
21	4	2020	130	178	631	54	104	4	55	123	38	25	152	43	134	750	1	5	-8	88	49
22	3	2028	254	222	867	254	21	22	66	56	22	26	120	65	174	1000	4	4	18	82	52
23	5	2072	173	145	538	71	161	56	75	60	53	25	171	123	105	1250	1	6	-55	76	37
24	4	2110	165	122	845	21	249	40	35	12	24	0	22	9	161	3930	6	5	-3	75	45
25	4	2133	167	102	750	255	95	60	32	31	60	23	206	133	165	480	3	5	64	89	40
26	4	2139	101	163	955	12	167	54	7	16	39	25	224	39	175	-60	1	5	0	99	45
27	4	2142	102	158	910	61	192	41	66	63	48	101	84	172	132	570	1	5	-10	93	48
28	4	2144	105	192	780	81	167	89	23	116	68	38	85	16	152	200	1	5	0	99	51
29	4	2173	192	105	975	26	146	33	40	122	111	11	125	6	158	390	4	5	0	62	48
30	4	2180	296	156	708	59	213	54	44	154	89	39	46	61	203	1230	1	5	-27	99	50
31	4	2182	300	226	750	116	154	65	95	37	59	42	86	107	140	90	1	0	2	73	46
32	5	2192	358	184	540	72	56	19	37	50	52	37	41	29	98	610	1	0	2	68	43
33	4	2199	102	156	875	131	183	107	33	130	88	32	102	16	115	0	1	5	0	55	53
34	6	2230	158	113	730	73	80	35	31	40	23	40	182	37	36	2160	6	7	24	94	45
35	4	2230	86	144	728	13	164	47	30	78	85	17	101	359	91	-50	4	5	57	95	48
36	5	2248	310	165	752	170	137	25	51	34	46	18	78	112	112	1680	6	6	-124	98	50
37	4	2270	155	149	1105	71	161	83	22	101	45	46	97	47	143	570	9	5	2	95	43
38	3	2275	137	182	1040	61	150	62	69	104	50	44	59	0	132	120	1	4	-5	85	60
39	7	2299	115	144	854	212	242	46	17	51	70	32	103	144	126	-760	1	0	-4	89	36
40	5	2311	185	155	1040	143	151	71	32	39	51	23	55	30	110	300	1	6	9	92	41
41	4	2317	216	120	695	113	299	73	33	261	79	32	129	124	121	210	1	5	0	99	51
42	4	2320	211	243	650	132	193	35	35	121	56	43	90	65	145	540	1	0	115	59	20
43	4	2332	126	149	780	226	385	78	46	142	43	10	158	6	138	410	1	5	-2	54	46
44	3	2338	108	261	825	250	135	82	50	191	76	0	121	45	143	0	4	9	-18	75	34
45	4	2341	142	107	830	264	62	28	61	325	49	30	116	30	125	250	4	5	0	100	54
46	4	2344	158	195	845	142	314	73	36	66	64	16	85	43	139	280	1	5	0	67	48
47	4	2357	119	83	455	50	274	57	53	25	71	11	186	5	169	1920	1	5	31	90	48
48	4	2362	239	166	520	74	171	67	78	440	68	48	166	143	142	570	1	5	-3	98	49
49	4	2377	416	170	625	100	186	59	48	24	118	39	167	170	138	-190	4	5	1	97	42
50	3	2390	240	233	867	233	194	85	107	0	75	17	117	0	167	80	9	9	0	67	53
51	3	2415	344	229	713	121	266	169	28	16	67	61	66	36	162	120	1	9	-10	76	60
52	3	2422	252	187	850	11	537	212	32	37	94	59	95	108	56	-840	9	9	10	34	54
53	3	2437	180	218	781	90	162	33	42	141	54	16	247	30	249	230	6	4	-5	72	41
54	2	2449	811	228	910	125	209	16	19	33	13	37	73	20	250	450	3	3	-62	22	18
55	6	2462	137	144	780	252	353	63	67	184	53	23	85	30	95	180	1	0	-10	87	32
56	2	2463	461	315	855	195	139	0	18	0	39	25	142	15	141	280	3	3	70	100	11
57	4	2464	298	179	910	79	116	52	26	80	59	29	30	25	161	50	1	5	109	77	49
58	3	2464	296	241	1040	121	112	39	35	40	71	44	72	0	225	120	1	4	13	99	35
59	4	2465	131	137	1069	50	169	35	33	51	65	76	312	82	87	210	9	5	3	98	48
60	4	2470	282	199	937	210	69	67	31	112	45	44	167	25	120	670	1	5	1	95	44

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	2488	428	196	780	203	181	44	19	1	42	36	70	121	196	40	4	5	-178	98	43
62	4	2494	148	146	1040	192	149	68	43	48	71	36	56	85	106	140	9	5	1	98	35
63	2	2529	225	68	1010	359	129	54	80	165	44	48	101	43	88	70	4	3	0	87	55
64	3	2550	111	147	1213	0	118	47	31	68	54	57	114	103	188	460	1	4	2	97	52
65	5	2554	266	138	832	60	219	109	29	92	69	36	130	35	125	1260	1	6	-169	96	40
66	4	2561	131	149	905	364	236	68	93	39	57	64	115	77	206	170	1	5	0	98	50
67	1	2575	0	0	115	20	759	160	32	209	202	97	200	251	78	-200	4	2	0	97	54
68	4	2580	216	211	835	110	429	51	39	107	44	53	178	74	122	230	6	5	-7	98	43
69	3	2592	280	236	867	155	196	45	72	348	53	14	84	28	55	150	1	4	1	100	42
70	3	2605	249	253	780	173	210	70	82	77	136	41	344	17	189	-160	1	4	84	98	37
71	1	2623	0	0	144	0	1118	213	20	0	84	176	336	155	57	-370	1	2	4	93	60
72	4	2652	326	193	785	75	154	34	33	419	49	24	58	337	123	-400	1	5	53	80	60
73	4	2657	215	157	712	6	215	58	42	195	60	34	95	23	176	3400	1	5	33	99	53
74	2	2662	262	224	1300	85	80	26	64	117	34	40	36	42	263	80	9	3	0	54	43
75	6	2689	105	185	910	107	156	57	28	27	64	39	81	434	103	1010	1	7	-22	48	42
76	4	2689	641	222	500	150	315	66	45	73	78	30	170	66	100	440	1	5	29	92	47
77	4	2694	171	228	956	130	256	84	75	98	118	32	190	56	144	10	1	5	0	99	42
78	4	2718	576	256	650	105	111	65	41	93	89	21	150	82	179	930	1	5	-46	98	43
79	4	2729	90	220	1277	75	117	38	28	20	38	30	68	21	131	1180	4	0	13	87	45
80	3	2733	100	48	867	297	495	73	40	348	75	37	68	0	141	0	1	4	0	100	53
81	3	2751	136	232	1127	133	289	73	81	54	93	25	78	29	16	30	1	9	-2	71	28
82	5	2765	218	189	699	21	430	87	50	244	63	21	228	330	94	500	1	6	-202	92	40
83	4	2766	128	171	1069	194	389	95	61	45	41	71	68	67	153	-340	1	5	0	93	39
84	3	2772	203	145	872	146	115	46	29	179	131	124	651	292	97	40	1	4	4	99	50
85	5	2779	133	123	800	383	384	103	57	73	74	69	170	208	90	180	9	6	70	88	45
86	3	2804	349	207	763	167	155	26	20	140	37	16	69	124	179	770	1	4	22	96	50
87	4	2817	248	200	637	91	90	44	58	432	60	25	157	135	166	1240	1	5	-12	99	46
88	4	2839	126	149	998	54	349	121	38	286	68	42	171	66	129	210	1	0	85	72	18
89	1	2843	600	374	1030	0	181	77	61	12	49	70	24	4	88	-600	6	2	24	934	23
90	5	2886	191	158	1144	224	290	43	46	180	62	60	98	43	170	1270	1	0	-16	81	53
91	4	2891	150	205	1373	123	363	68	67	65	48	37	109	104	142	-210	1	5	23	91	38
92	3	2911	95	156	1020	87	298	60	54	393	149	51	284	33	131	-530	9	3	-25	88	54
93	3	2912	234	199	901	171	320	113	20	111	137	3	172	140	156	410	1	4	0	98	53
94	3	2922	123	164	721	88	216	54	54	94	84	26	41	694	114	1080	9	4	9	97	50
95	3	2926	201	195	1040	293	243	54	61	212	81	55	58	25	257	-800	3	4	16	98	52
96	4	2927	209	205	1240	125	187	33	49	140	99	56	55	33	164	160	1	0	0	76	25
97	3	2927	339	222	1040	147	115	58	48	17	90	45	37	4	206	590	3	4	12	98	60
98	5	2931	173	203	1020	118	148	60	58	176	95	35	36	70	179	1280	4	6	18	77	37
99	3	2953	227	186	1000	64	195	41	37	119	73	31	154	110	124	350	4	0	10	85	42
100	2	3011	210	215	875	350	350	178	18	132	173	10	197	5	291	180	4	9	14	72	54
101	4	3014	170	194	698	195	546	82	125	121	46	79	61	128	182	80	4	5	-3	80	46
102	3	3030	236	194	1040	160	323	58	54	114	142	37	256	15	228	160	1	4	3	100	25
103	4	3064	196	164	1162	155	219	54	46	354	88	62	169	5	138	420	9	5	-4	99	42
104	3	3071	232	233	1200	234	239	79	39	86	52	45	116	100	137	600	1	4	26	98	48
105	3	3127	193	209	1042	118	476	98	29	97	60	48	183	119	144	170	9	4	0	49	27
106	4	3145	273	190	812	183	99	66	4	302	73	60	373	295	154	420	1	5	7	88	34
107	4	3188	230	223	949	173	482	105	27	101	91	63	171	74	212	510	4	0	21	66	42
108	4	3193	142	215	910	88	563	104	41	159	53	47	513	97	163	-1140	4	5	7	92	30
109	2	3220	263	303	1950	138	17	14	44	39	50	44	58	83	85	-720	1	3	8	95	28
110	2	3250	750	350	225	200	1123	99	0	0	122	0	9	122	39	0	9	9	0	100	54
111	3	3254	240	225	1055	167	519	78	97	168	115	47	200	12	233	340	1	4	1	98	36
112	3	3269	332	348	980	0	207	42	47	263	83	25	228	13	165	970	6	4	-10	81	19
113	1	3335	490	451	1320	0	54	15	58	16	86	72	25	195	114	140	1	2	0	98	17
114	2	3349	1150	244	1040	161	172	36	36	9	60	55	48	10	83	360	1	3	118	59	17
115	3	3368	207	201	1061	152	475	98	43	186	64	42	207	59	190	740	1	4	6	99	39
116	3	3371	437	327	1040	324	88	59	70	152	60	66	120	104	203	1170	6	4	80	98	35
117	3	3382	123	239	987	108	398	101	87	87	99	35	334	10	99	970	1	4	65	63	16
118	1	3426	350	400	1260	256	140	45	99	485	106	155	101	0	259	0	9	2	-5	100	17
119	2	3432	348	258	1690	380	91	86	55	37	84	59	130	248	275	-2170	1	3	123	78	28
120	3	3463	281	159	867	75	188	53	26	77	70	64	1051	105	161	390	4	4	41	50	39

2.4 Unskilled workers. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	3	3481	140	173	870	166	291	71	27	267	110	77	441	19	199	1390	1	4	12	98	48
122	4	3482	225	195	750	141	353	92	51	209	86	49	171	20	162	3330	1	5	-9	80	43
123	4	3510	294	163	1549	35	319	77	29	87	77	52	81	68	277	860	6	5	-39	98	39
124	3	3546	506	272	1187	367	530	83	67	163	135	37	98	117	143	710	1	4	107	94	21
125	4	3551	109	176	892	212	413	49	24	124	103	53	555	78	142	200	1	5	-21	99	33
126	3	3600	387	149	1213	65	234	68	59	80	67	40	51	28	244	2040	9	0	99	75	14
127	3	3620	227	218	1275	62	243	90	26	4	66	40	164	389	63	1480	1	4	1	85	37
128	4	3629	321	254	912	88	582	177	37	539	86	23	371	120	193	-570	1	5	-46	89	44
129	2	3702	316	365	1250	260	310	105	81	110	61	106	185	102	299	430	1	3	99	99	27
130	3	3728	216	149	1360	208	594	123	47	40	125	80	186	6	205	660	1	4	-5	99	30
131	4	3749	238	221	1243	134	395	104	51	151	64	68	183	272	285	580	1	5	58	98	34
132	4	3789	272	165	1470	55	340	122	16	236	58	61	161	258	149	1160	4	0	154	99	31
133	3	3818	285	248	1380	114	161	48	77	656	94	45	53	243	208	490	1	4	25	81	25
134	3	3832	387	234	1225	367	443	91	76	312	122	60	253	42	190	20	1	4	8	98	38
135	3	3833	276	257	1467	437	421	73	100	34	125	45	667	69	87	-1360	1	4	-38	94	47
136	3	3834	480	250	1207	207	272	71	76	197	66	62	155	76	235	480	1	4	-63	72	41
137	4	3839	244	183	1147	219	337	83	43	314	90	38	133	111	253	2270	1	5	221	96	37
138	1	3855	548	60	1173	0	245	104	17	128	64	0	172	15	104	510	1	2	120	96	55
139	3	3901	136	109	1387	118	373	89	151	76	67	30	273	66	206	310	1	4	-12	69	54
140	2	3905	279	231	1170	621	430	50	123	120	107	173	219	40	139	260	1	9	2	78	60
141	2	3942	240	282	1560	156	217	74	72	355	79	88	114	202	271	120	1	3	6	94	24
142	3	3969	608	154	1275	231	430	90	47	0	99	33	340	168	206	360	1	4	12	99	33
143	3	4022	285	150	953	367	367	56	38	81	100	67	167	185	239	2200	4	4	280	93	38
144	2	4042	500	287	1530	197	105	38	31	98	65	84	141	34	260	300	1	3	50	99	24
145	3	4043	390	224	1385	56	633	26	29	331	78	44	334	33	188	-1220	1	4	76	87	30
146	2	4051	555	409	1440	400	235	75	48	147	26	32	62	81	274	270	1	3	137	80	21
147	2	4069	293	364	2237	78	323	89	40	140	64	105	227	29	265	250	3	3	63	84	20
148	1	4150	720	22	1610	147	337	100	138	0	158	108	333	129	410	50	9	1	0	100	60
149	3	4155	220	218	1127	87	422	83	46	266	123	23	209	80	208	340	2	4	0	95	45
150	4	4169	148	151	1250	184	294	76	100	81	107	88	535	436	228	1250	9	5	42	94	27
151	3	4181	520	193	1447	95	139	67	36	911	77	60	35	145	154	390	6	4	-12	82	51
152	2	4185	520	228	1100	258	162	51	25	10	35	56	57	849	230	430	6	3	44	72	44
153	2	4190	231	291	1375	427	290	46	60	39	96	36	358	68	325	460	1	3	114	98	32
154	2	4296	205	221	1430	126	503	130	60	100	103	50	714	132	221	250	1	3	5	86	51
155	2	4316	264	153	2185	96	405	71	50	11	85	45	191	65	238	370	6	8	1	92	38
156	2	4371	363	357	1690	225	602	128	80	233	68	91	247	60	257	-200	4	3	35	97	13
157	2	4408	267	322	1273	248	385	155	84	456	81	98	360	169	281	140	6	3	14	99	51
158	2	4416	415	407	1240	109	592	98	89	45	144	58	450	55	282	490	6	3	2	99	29
159	2	4422	288	336	2028	448	186	81	110	57	76	8	121	0	294	220	1	3	2	90	50
160	2	4487	216	413	1000	195	156	45	38	649	68	82	63	23	287	1310	1	3	95	83	27
161	3	4501	404	218	1387	12	392	112	72	94	54	70	80	107	250	2610	9	4	4	95	40
162	2	4550	320	353	2080	102	84	66	99	54	98	72	107	25	266	120	4	3	3	75	31
163	3	4584	290	330	1000	360	902	158	40	171	118	50	203	84	297	1810	1	4	-34	86	38
164	3	4585	157	261	1650	431	525	84	57	105	79	41	408	135	188	-160	1	4	7	99	60
165	2	4591	220	369	1937	0	423	71	105	1215	165	69	220	3	319	-1520	1	3	103	96	23
166	2	4657	230	422	1300	52	456	77	75	225	81	63	519	35	302	580	1	3	9	98	19
167	3	4743	361	244	1583	535	359	88	145	188	87	31	658	51	228	-1830	1	4	22	87	44
168	3	4825	452	140	1127	368	303	97	61	1097	153	40	567	36	218	340	4	4	-103	97	55
169	2	4875	933	504	1560	348	424	102	65	157	93	52	172	10	447	580	6	3	53	75	40
170	3	4878	127	282	1127	12	754	115	53	688	156	91	224	20	212	1610	1	4	138	99	22
171	1	4942	900	11	720	195	1062	99	80	0	130	173	55	140	230	40	1	2	-8	99	53
172	2	4950	391	544	1020	267	573	106	110	1829	161	59	547	117	269	-3030	1	3	253	96	31
173	2	4954	634	375	1725	11	504	66	79	217	148	122	817	13	410	-290	1	3	142	79	29
174	2	5108	108	214	1335	285	390	92	66	85	227	107	1159	0	290	50	1	3	-9	98	50
175	1	5130	660	389	1323	100	153	123	29	467	238	43	121	402	449	0	9	2	1	98	60
176	2	5140	446	233	1198	441	627	84	171	412	354	127	164	77	143	200	1	3	2	98	49
177	1	5204	690	590	1200	50	400	195	55	262	65	125	1055	225	284	-420	9	2	19	99	60
178	1	5257	252	273	2600	1000	244	29	28	0	69	217	115	10	384	40	4	1	-29	34	37
179	2	5265	396	341	1350	255	453	72	69	716	100	32	423	90	266	1110	9	3	20	93	50
180	2	5320	540	101	1250	261	444	118	54	799	234	39	631	54	156	710	1	3	-27	96	54

2.4 Unskilled workers. Provincial towns.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	3	5345	594	302	850	193	341	89	22	366	77	22	600	673	204	1220	1	4	-87	95	50
182	2	5345	538	372	1430	521	474	103	94	778	97	70	313	197	292	380	1	3	-17	91	23
183	1	5390	786	596	2150	200	496	86	162	13	175	138	27	455	398	130	1	2	2	99	50
184	1	5400	480	207	1215	650	518	99	0	725	80	81	158	36	299	90	6	2	-1	99	48
185	2	5525	277	323	895	459	607	116	101	130	195	48	352	739	270	1720	1	3	96	95	33
186	2	5528	408	291	1300	50	677	70	175	254	112	89	373	694	291	500	1	3	31	92	13
187	2	5576	411	293	2470	78	418	123	126	157	127	43	24	91	284	360	1	3	68	96	14
188	3	5645	398	307	1122	411	508	185	98	160	112	159	529	474	289	2230	9	4	9	92	21
189	2	5665	286	332	1022	565	577	79	93	634	139	83	331	949	446	-500	4	3	27	90	31
190	2	5840	385	557	1275	161	569	186	105	92	179	100	1212	38	384	-60	1	3	214	97	22
191	2	5862	754	744	1820	260	820	76	110	101	65	86	65	60	296	340	9	3	200	86	53
192	1	6173	1030	502	1500	530	406	129	173	0	207	110	630	117	118	220	1	2	228	74	20
193	1	6206	420	119	1880	368	585	91	100	251	158	172	272	193	509	260	1	2	-2	99	54
194	2	6247	480	174	1000	228	1422	251	277	506	247	97	378	447	270	200	1	3	4	99	52
195	2	6279	391	510	1857	265	408	90	108	407	94	71	127	526	512	640	1	3	-7	98	48
196	2	6481	241	395	2272	182	663	57	72	354	172	123	246	256	416	360	2	9	0	99	32
197	2	6783	189	361	2550	669	633	102	231	167	120	59	441	100	427	880	4	0	12	95	34
198	1	6951	160	140	1280	640	76	72	22	264	227	48	785	2955	240	-120	4	1	3	98	52
199	2	6981	175	0	937	150	1019	202	20	2487	130	30	363	92	289	-410	1	3	102	97	55
200	2	7029	313	431	1730	268	878	116	68	713	124	77	327	251	315	2080	1	3	5	97	34
201	2	7236	429	350	1633	262	396	119	153	159	164	47	773	930	499	2590	1	3	88	97	18
202	1	7411	600	0	1715	612	45	80	0	0	202	39	285	1748	422	1400	1	1	-37	100	40
203	2	7470	834	375	1980	650	471	52	175	55	246	150	990	789	275	440	1	3	14	96	49
204	1	7651	1399	179	2028	4	53	68	287	475	198	103	348	573	652	1090	1	1	152	95	27
205	2	7837	509	528	1950	1056	730	138	165	145	168	211	430	78	318	990	1	3	9	99	37
206	1	7963	480	218	1680	767	295	141	175	510	139	144	1138	495	852	-350	6	1	17	100	54
207	1	8100	583	271	425	531	2510	336	648	287	542	129	668	554	367	210	4	2	22	83	54
208	4	8194	924	262	1102	332	537	152	72	187	358	75	507	142	140	11410	9	5	-450	57	22
209	2	8248	240	370	2240	810	310	80	72	693	166	200	541	691	506	1240	1	3	2	96	28
210	1	8509	1147	372	1820	200	448	30	84	511	50	37	200	10	512	3060	6	1	167	67	26
211	1	9657	1113	502	1934	776	972	50	107	624	83	60	115	1308	514	290	1	1	89	99	24
212	2	10212	160	313	2100	430	680	136	65	222	181	273	1303	992	467	1930	9	8	36	95	28
213	1	10889	0	15	1763	502	983	133	0	300	165	133	2929	5143	580	-2920	1	1	84	99	60

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	6	1137	190	117	667	38	166	70	30	17	45	19	86	0	36	-3880	6	0	408	79	47
2	5	1183	252	78	610	0	20	12	0	0	5	19	72	20	29	580	1	0	16	86	60
3	3	1298	140	109	533	53	47	49	33	11	39	9	36	45	91	150	1	4	0	100	53
4	8	1304	147	107	345	32	179	39	24	144	20	3	4	35	27	540	1	7	0	98	42
5	5	1319	4	159	500	58	230	60	19	41	40	21	31	12	32	200	1	6	0	98	49
6	4	1334	0	120	637	51	98	41	26	23	30	33	27	60	43	120	1	5	0	100	50
7	5	1360	188	121	480	37	26	13	23	122	16	0	84	120	27	1120	1	6	-60	94	50
8	6	1426	137	167	600	3	112	45	53	7	41	25	46	5	52	490	1	9	-76	49	37
9	1	1509	0	0	0	225	269	130	0	12	244	15	143	37	57	-50	3	2	1	87	60
10	6	1512	300	198	520	20	109	29	100	174	54	42	2	52	24	-2770	9	7	-25	72	44
11	6	1592	255	158	607	27	52	32	42	24	36	5	11	21	41	1150	1	7	-36	99	43
12	6	1680	89	120	520	4	136	55	39	31	27	17	14	199	26	2510	1	7	268	99	48
13	1	1687	0	0	0	50	249	158	5	5	154	2	179	420	68	0	6	2	9	71	53
14	5	1716	120	112	624	162	113	49	41	126	24	31	217	16	32	290	1	6	0	98	48
15	1	1728	0	3	0	365	540	135	130	0	136	60	96	25	65	0	1	2	0	100	60
16	4	1777	109	131	892	28	275	47	20	56	33	13	73	17	130	-80	3	5	0	80	20
17	4	1781	209	184	550	22	13	19	78	19	33	7	29	25	74	1480	1	5	-97	98	52
18	6	1785	193	149	563	21	82	27	15	34	45	7	11	48	38	2260	9	7	-175	95	45
19	5	1834	212	142	530	144	246	0	57	67	65	18	45	10	101	140	4	6	0	55	47
20	3	1889	120	70	667	3	370	58	65	40	63	11	57	75	46	410	4	4	11	97	29
21	5	1898	85	132	660	66	148	66	39	165	49	108	76	20	90	430	1	6	1	98	49
22	5	1916	89	144	936	79	201	42	16	99	30	28	48	192	23	-410	4	0	10	93	40
23	1	1967	0	0	0	315	501	160	30	0	219	10	184	344	70	0	6	2	0	100	53
24	6	2030	175	168	800	181	486	162	32	179	96	48	75	30	60	-3960	1	7	60	98	38
25	5	2044	113	118	780	160	248	39	29	18	43	12	12	63	77	1020	1	6	7	99	36
26	5	2051	108	165	624	113	177	45	43	118	49	13	30	36	48	520	1	0	0	98	51
27	4	2068	159	145	812	181	270	76	49	39	37	28	71	100	65	210	9	5	0	99	47
28	4	2081	125	185	1040	30	189	70	42	21	51	7	17	24	101	-40	1	5	64	98	38
29	5	2093	211	162	520	0	208	78	128	164	40	40	328	88	57	920	1	6	1	84	50
30	4	2116	58	137	674	222	151	70	45	63	74	76	134	79	69	-260	1	5	7	99	47
31	5	2190	213	151	780	52	207	37	15	83	37	14	17	80	45	910	4	0	70	99	50
32	5	2200	111	154	840	47	125	26	21	96	54	9	84	151	48	1240	1	6	-99	99	43
33	4	2223	135	196	600	50	238	74	26	439	56	41	61	2	126	380	6	5	-16	98	49
34	4	2236	135	170	754	51	238	55	35	52	79	39	206	45	97	1440	1	5	59	98	48
35	5	2260	78	97	600	10	347	109	25	186	56	8	92	134	55	840	1	6	24	98	42
36	4	2263	207	140	650	325	57	30	0	35	2	21	114	257	76	2170	1	5	-42	98	52
37	4	2283	279	190	700	74	176	44	29	52	65	39	90	6	71	-360	9	5	-176	97	50
38	5	2320	155	171	740	101	98	74	60	79	71	35	311	332	104	670	1	6	-62	84	47
39	4	2354	255	168	630	65	273	63	48	188	68	8	126	60	64	1170	1	5	-75	91	45
40	6	2355	404	209	645	66	101	47	19	0	50	20	143	12	63	1870	1	7	-78	92	45
41	4	2386	360	250	600	100	161	65	26	122	52	29	199	66	164	330	1	5	3	98	48
42	4	2392	182	138	900	139	236	69	44	266	50	73	17	149	84	230	1	5	0	97	52
43	5	2403	0	254	1000	0	301	60	103	1995	88	143	111	133	44	-10880	1	0	110	69	55
44	6	2418	142	136	620	100	219	71	56	155	44	28	140	26	66	2110	5	7	-29	99	47
45	3	2421	328	426	780	82	105	30	56	384	59	43	55	200	105	270	1	4	-51	98	54
46	4	2436	200	50	900	123	230	81	49	93	60	41	91	101	40	290	1	5	0	95	39
47	4	2444	158	221	575	237	149	40	66	217	92	59	271	5	108	30	9	5	59	92	37
48	4	2451	305	276	750	111	12	47	33	148	38	51	122	60	53	-1310	6	5	161	98	50
49	3	2458	13	190	607	71	290	78	91	263	59	40	227	52	62	1140	1	4	45	97	45
50	3	2471	187	251	627	153	241	37	103	186	108	24	148	27	75	350	1	4	1	90	55
51	3	2499	192	87	827	65	96	64	20	497	45	27	189	117	80	40	1	4	0	100	55
52	5	2505	128	160	884	103	251	59	41	146	68	29	82	279	51	580	6	6	59	81	45
53	4	2516	200	220	715	56	251	76	20	40	44	20	36	167	41	1090	9	5	-38	99	43
54	4	2521	130	209	1050	82	11	11	54	44	40	15	54	22	80	2350	9	5	9	99	42
55	4	2525	130	196	875	104	366	72	23	335	53	35	105	142	126	280	1	5	0	98	48
56	4	2529	220	227	900	154	355	42	38	17	59	37	121	37	60	260	9	5	-92	93	29
57	5	2535	305	191	850	158	309	58	38	47	54	35	38	56	67	60	1	6	10	99	36
58	7	2554	118	104	429	199	595	61	32	105	143	14	251	154	84	1160	9	7	37	97	26
59	4	2562	272	207	936	216	258	54	37	28	48	36	55	94	65	1020	1	5	57	94	46
60	4	2575	62	224	900	117	197	76	58	503	68	30	205	44	96	-360	1	5	370	91	40

3.2 Lower public servants and salaried employees. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	2588	324	261	837	63	167	59	31	53	38	15	162	245	80	1090	1	5	3	96	47
62	3	2636	178	201	913	165	299	74	43	438	104	41	275	122	127	-2670	6	4	140	98	30
63	4	2649	225	261	900	157	162	24	47	145	56	34	206	170	76	330	1	5	-2	99	45
64	5	2652	395	227	936	44	325	53	23	21	47	34	61	2535	35	-10470	1	0	781	72	36
65	3	2667	219	10	600	172	125	49	47	345	84	38	154	123	171	120	4	4	-12	88	42
66	4	2678	0	124	750	37	246	54	7	83	62	51	81	253	72	2450	1	5	269	99	46
67	4	2704	237	193	750	83	190	92	44	80	57	51	19	248	41	1510	1	5	-28	99	49
68	3	2704	382	192	1000	0	63	80	70	140	34	22	81	17	76	103	1	4	30	98	53
69	3	2708	280	231	900	25	159	93	60	39	51	32	129	117	68	220	1	4	1	87	53
70	4	2711	106	256	520	153	278	88	81	567	54	54	79	80	49	770	3	5	-11	91	37
71	4	2712	255	292	956	141	149	97	47	144	86	34	134	102	95	240	1	5	9	99	50
72	5	2715	209	211	1040	102	264	38	34	96	43	28	18	300	45	1930	1	0	-104	59	45
73	4	2729	192	251	540	114	404	92	52	106	103	59	77	0	69	2090	4	5	3	82	43
74	4	2731	216	237	512	291	104	32	88	121	66	54	177	286	71	840	1	5	1	97	48
75	4	2740	327	282	675	276	128	50	52	130	72	23	150	17	81	1170	1	5	-153	95	50
76	4	2745	309	231	510	101	154	70	65	132	42	33	49	76	93	3730	1	5	153	97	46
77	3	2780	283	238	607	172	321	72	36	52	85	29	67	67	56	1840	4	4	-41	99	43
78	2	2783	350	366	630	102	355	7	17	131	50	47	54	45	90	450	4	3	256	82	14
79	4	2794	120	198	829	82	282	51	26	67	66	29	77	180	70	1630	9	5	-89	99	42
80	4	2795	190	198	900	101	186	74	58	197	47	16	239	2	70	930	1	5	4	98	46
81	4	2803	332	228	750	215	266	69	63	275	84	33	204	189	38	590	1	5	14	98	52
82	4	2811	316	162	845	99	160	88	49	143	74	39	111	79	77	1500	1	5	38	87	43
83	3	2818	470	232	833	48	261	33	32	244	62	48	33	33	51	730	1	4	-26	99	52
84	4	2821	225	246	985	117	206	88	48	138	41	49	154	85	78	770	1	5	50	98	48
85	3	2822	210	222	800	28	164	24	62	142	48	21	43	93	65	-30	1	4	135	85	23
86	1	2824	300	3	0	63	624	243	6	39	218	65	218	362	56	70	1	2	4	98	54
87	5	2833	7	97	624	142	146	28	21	86	27	0	168	246	60	5520	4	6	-36	64	60
88	4	2833	129	183	1050	37	450	96	65	172	57	41	161	87	38	770	1	5	98	97	30
89	3	2840	634	383	1250	0	51	22	62	116	57	54	215	600	27	-2700	1	9	661	33	53
90	3	2840	222	220	880	48	314	133	51	57	63	17	113	1013	174	-1820	1	4	72	98	38
91	3	2844	389	77	953	87	19	67	79	138	83	0	68	138	81	1220	1	4	-201	98	48
92	3	2853	200	274	648	250	206	86	30	72	67	43	129	1251	105	-2820	4	4	3	96	54
93	4	2862	215	256	700	5	260	39	34	163	53	28	124	87	137	2150	1	5	146	86	41
94	4	2906	450	84	1170	0	395	115	32	170	76	0	130	90	57	-40	1	5	3	86	49
95	3	2909	140	272	833	107	243	70	55	172	78	74	191	5	118	830	6	4	-2	98	47
96	4	2920	109	301	960	179	249	119	43	229	53	86	269	90	72	-110	1	5	10	98	40
97	4	2973	359	186	915	144	229	106	27	155	73	88	239	91	91	570	1	5	3	98	42
98	3	2977	309	252	750	242	189	28	135	100	52	65	386	123	63	230	1	4	8	100	52
99	3	2978	50	65	1387	78	376	67	30	176	84	51	278	97	86	210	1	4	5	97	49
100	3	2984	201	204	1047	102	246	86	63	209	102	257	144	113	102	210	4	0	13	98	47
101	1	2984	600	0	1400	48	282	55	71	10	88	0	759	8	65	-600	9	2	29	100	14
102	3	3001	260	240	750	120	26	34	106	314	88	37	184	254	83	480	1	4	-6	98	53
103	3	3022	313	218	800	91	171	106	44	500	92	22	96	200	72	1140	2	4	82	97	49
104	2	3046	300	365	1260	77	194	64	33	58	55	53	68	136	253	-110	1	3	8	99	26
105	4	3057	170	173	975	202	114	46	72	92	55	97	305	15	111	2100	1	5	-11	98	52
106	3	3057	374	414	1251	224	50	63	64	252	55	13	37	570	71	1610	6	4	2	94	52
107	3	3069	158	135	900	206	374	76	85	187	119	68	297	96	89	710	1	4	2	98	52
108	3	3069	275	283	607	72	177	65	35	80	18	0	63	67	76	3400	1	4	-45	94	53
109	2	3070	683	290	1040	450	442	31	40	181	53	137	100	159	81	-1000	4	3	10	99	44
110	4	3076	314	220	910	138	191	63	103	17	24	68	98	30	113	2080	6	5	-3	89	39
111	3	3098	318	335	986	267	447	98	87	61	149	38	180	136	96	300	1	4	0	98	51
112	2	3105	0	0	45	0	474	56	19	12	75	98	1151	117	90	1420	5	9	1	99	60
113	4	3111	105	194	1102	167	218	71	41	60	78	27	123	26	48	1510	1	5	-13	93	41
114	5	3135	211	211	528	374	191	43	94	6	67	32	293	275	56	3820	1	6	-50	80	37
115	4	3145	536	274	840	135	361	56	40	103	61	22	54	327	60	220	1	5	-111	92	43
116	3	3145	10	135	1000	83	138	53	0	310	12	82	128	1688	75	-2060	4	4	0	98	53
117	3	3149	670	247	607	110	169	57	47	136	72	26	26	67	83	2030	1	4	-12	98	52
118	4	3151	550	236	913	125	250	39	36	327	78	28	234	105	93	-220	1	5	242	99	44
119	4	3157	12	130	900	212	317	100	21	239	65	27	304	185	94	1600	1	5	-9	99	45
120	4	3169	674	174	845	81	112	46	28	97	32	14	131	0	83	1480	1	0	164	77	48

3.2 Lower public servants and salaried employees. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	3	3170	199	254	680	120	358	82	52	432	91	17	92	80	91	1160	1	4	-112	97	52
122	4	3182	458	256	1220	121	149	57	33	373	86	64	80	43	95	580	1	5	27	90	32
123	4	3183	353	287	1040	321	196	32	55	129	44	33	20	77	119	790	1	5	106	79	47
124	3	3201	385	278	884	122	276	39	34	3	30	55	172	239	52	390	4	4	64	97	22
125	1	3209	216	184	705	0	504	88	19	20	228	48	157	255	70	260	3	2	25	97	47
126	3	3235	288	138	1000	191	161	88	59	217	154	41	77	5	93	1590	1	4	-4	98	46
127	5	3238	223	149	840	69	223	79	45	118	40	46	277	306	50	2840	1	6	310	89	44
128	3	3246	120	226	840	70	221	56	48	105	55	46	166	57	63	3040	1	4	251	89	46
129	4	3264	391	271	690	6	250	77	55	216	56	52	118	37	76	2130	1	5	-429	96	46
130	3	3282	227	205	1000	1	128	101	61	257	93	78	302	0	76	1380	6	4	9	98	54
131	3	3284	203	213	900	7	173	78	69	1416	88	55	85	35	52	-840	1	4	6	99	54
132	3	3305	324	327	1150	207	96	90	37	114	61	13	197	53	94	990	1	4	-12	99	48
133	3	3306	254	279	1200	140	584	128	21	378	54	27	212	183	72	-620	1	4	125	99	22
134	2	3311	112	335	941	19	213	48	23	22	51	51	120	586	106	960	1	3	39	97	24
135	4	3327	405	280	796	50	360	111	102	122	96	44	247	49	43	1530	1	5	-78	99	46
136	2	3361	300	334	1690	90	105	26	108	58	70	41	29	22	38	-100	4	9	9	83	31
137	3	3364	235	228	1120	8	385	137	76	1438	74	19	124	0	56	-2780	1	4	17	95	50
138	3	3371	295	255	1300	203	227	75	56	262	101	74	181	83	50	310	4	4	-9	99	34
139	3	3405	147	238	940	316	319	80	41	2000	97	22	53	484	89	-4600	3	4	61	98	55
140	4	3409	105	237	1170	300	287	76	78	40	47	75	337	15	143	200	1	5	-8	99	60
141	5	3423	213	324	832	189	262	110	44	365	65	33	226	125	60	1120	1	6	8	99	44
142	4	3429	297	264	910	312	145	48	51	51	71	31	287	224	167	800	1	5	2	98	45
143	2	3444	7	104	1456	180	445	61	77	228	129	81	160	49	98	-130	1	3	105	89	42
144	3	3456	143	247	1200	148	79	48	31	121	60	18	275	1582	68	-2360	1	4	59	93	21
145	3	3467	260	226	760	217	213	98	100	276	72	36	573	33	76	160	6	4	2	99	54
146	2	3467	107	230	995	258	379	31	50	366	107	31	347	100	71	470	1	3	-3	83	48
147	4	3474	119	172	1275	247	235	65	34	104	92	57	305	125	46	500	1	5	1	78	40
148	3	3477	160	293	1300	213	137	102	35	49	78	20	487	0	87	910	1	4	2	99	40
149	2	3498	685	245	650	165	148	60	87	89	78	64	153	52	121	1270	9	3	-19	70	51
150	3	3502	360	381	1083	333	369	45	71	3	95	93	243	0	239	160	4	4	29	99	60
151	3	3505	460	195	980	60	192	66	47	656	76	47	102	43	143	320	9	4	21	98	60
152	2	3510	455	360	810	135	235	26	124	50	41	85	270	1708	188	-2830	1	3	213	74	15
153	1	3522	0	0	0	609	859	106	40	69	236	35	220	318	69	360	1	1	1	99	46
154	3	3543	298	420	1380	7	267	83	56	253	74	63	115	55	77	1320	1	4	226	95	34
155	3	3543	265	218	1127	122	426	138	60	37	81	28	338	366	71	1440	1	4	-15	98	46
156	4	3544	79	198	1250	355	329	47	56	398	82	16	95	82	69	1410	1	5	-38	97	48
157	4	3552	202	276	936	300	382	79	51	239	94	23	73	788	111	-2160	1	5	227	99	37
158	4	3569	379	286	975	99	103	92	38	167	94	16	321	17	106	2950	1	5	-123	98	48
159	3	3608	270	423	1040	200	170	74	51	110	110	29	140	188	94	580	1	4	-106	94	37
160	4	3619	287	224	1980	134	104	37	47	76	42	82	176	9	148	790	4	5	168	83	33
161	3	3626	360	196	1117	32	541	75	70	47	114	36	132	258	54	1020	4	4	8	97	53
162	6	3634	401	160	780	240	176	72	137	267	36	49	13	25	83	2860	1	0	-73	57	46
163	3	3648	190	396	1040	103	388	45	34	378	29	65	61	145	71	620	9	4	123	78	22
164	4	3665	191	295	900	200	271	97	22	233	99	28	312	56	82	2330	1	5	16	63	38
165	3	3671	200	286	1333	120	176	45	35	12	52	36	405	533	98	660	1	4	16	98	51
166	3	3717	587	313	693	323	102	26	130	136	70	46	63	151	380	1690	1	4	-23	56	54
167	3	3770	112	270	833	290	548	187	53	194	182	99	177	0	97	1630	4	4	2	98	45
168	2	3770	433	323	900	8	393	90	50	69	14	44	78	87	196	1950	6	3	-50	98	19
169	2	3792	125	224	1530	334	79	87	54	50	35	186	522	311	138	250	1	3	0	98	50
170	2	3809	260	345	1200	159	271	36	53	0	69	56	997	277	88	-570	1	3	126	97	13
171	2	3813	216	393	1200	284	415	77	20	248	100	143	163	61	41	120	1	8	2	94	43
172	2	3838	600	571	1071	260	166	126	95	82	117	51	226	50	79	80	1	3	234	73	27
173	3	3864	160	221	1305	62	269	52	79	378	73	89	358	182	100	500	9	4	146	98	24
174	2	3865	417	257	1820	0	240	30	112	315	37	72	32	200	77	150	1	3	161	77	38
175	3	3929	360	481	1584	70	212	91	83	56	43	40	12	25	98	920	9	4	60	93	42
176	3	3975	1003	546	217	101	584	152	233	223	447	93	813	207	79	-620	9	4	-255	97	54
177	4	4004	307	245	636	425	407	82	46	144	81	77	447	262	110	1160	9	5	-26	99	36
178	2	4004	385	323	1090	310	680	106	121	130	157	201	239	90	167	-80	9	3	5	97	52
179	3	4037	578	438	1100	166	246	110	42	83	83	37	268	1178	105	-1080	1	4	73	84	49
180	1	4041	600	0	1274	262	543	167	15	3	60	13	623	223	112	30	1	1	6	96	54

3.2 Lower public servants and salaried employees. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	3	4042	219	358	667	162	388	156	102	156	110	24	201	349	115	1340	1	4	-57	95	26
182	4	4103	489	364	1050	150	131	60	70	0	56	11	353	200	58	4310	1	5	114	87	43
183	3	4129	472	401	1092	185	331	102	47	174	132	56	301	59	132	1490	1	4	-202	99	38
184	3	4133	391	219	773	237	250	41	32	59	51	11	48	577	80	1170	9	4	-68	99	51
185	2	4142	138	363	762	27	159	33	46	65	48	41	33	1298	72	1380	1	3	158	90	48
186	1	4144	240	315	1200	40	774	92	121	37	126	35	20	8	83	950	1	1	153	86	46
187	4	4168	366	300	1205	210	336	91	84	289	92	36	317	99	76	930	1	5	-9	96	40
188	2	4195	40	43	690	0	647	175	10	109	109	0	1096	766	40	90	9	9	3	59	60
189	1	4200	0	0	0	600	768	71	0	0	49	0	813	3750	97	-3470	4	1	45	99	55
190	2	4209	219	375	1200	118	153	97	73	166	91	66	193	45	88	1520	4	3	35	98	25
191	2	4224	300	201	962	13	428	75	43	2620	112	22	166	219	121	-3330	4	3	21	99	55
192	3	4228	455	334	1322	315	479	92	92	94	90	15	443	315	94	-1270	3	4	39	96	45
193	2	4240	343	431	1080	180	156	29	85	122	104	95	338	831	51	170	4	3	2	91	54
194	3	4244	0	394	760	88	260	66	78	213	93	131	208	15	97	1440	1	0	109	70	54
195	4	4284	130	214	1025	337	352	119	37	77	164	63	301	101	130	2370	1	5	-28	74	37
196	2	4289	240	365	1460	793	467	41	115	35	140	62	75	87	61	-1720	6	3	-36	98	23
197	3	4302	458	435	1560	465	358	104	77	178	120	97	84	16	128	-630	6	4	23	98	37
198	2	4331	202	338	960	130	214	118	42	152	64	91	327	92	138	370	1	3	51	98	32
199	3	4354	180	353	953	367	579	145	42	693	131	60	215	109	116	-500	1	4	86	96	45
200	2	4376	385	216	1500	167	498	103	86	711	116	74	788	30	178	-1400	1	3	72	98	51
201	2	4386	406	382	1560	270	354	110	84	334	106	45	177	264	112	1060	1	3	74	98	24
202	1	4403	0	10	0	1035	571	108	180	0	103	79	840	500	84	690	4	1	15	99	47
203	2	4404	343	366	1260	156	259	84	90	701	59	112	138	20	126	1010	1	3	89	84	14
204	2	4432	476	413	1500	129	400	125	84	134	85	21	128	70	107	500	1	3	77	98	27
205	2	4433	202	536	1175	387	1233	161	141	308	92	30	227	72	127	-1120	1	3	111	98	34
206	2	4436	485	311	1150	221	434	196	101	369	148	30	257	435	109	250	9	3	3	98	52
207	2	4441	244	550	1275	433	593	62	65	215	50	67	138	30	154	-120	1	3	21	98	18
208	2	4464	236	451	1281	236	200	81	28	579	64	51	514	111	113	30	4	3	73	93	21
209	3	4466	167	320	1213	145	203	107	56	70	96	27	358	594	139	2520	1	4	-30	99	60
210	2	4487	426	301	1821	90	393	121	71	359	100	49	117	112	99	300	1	3	38	97	21
211	1	4490	24	63	250	1622	885	150	433	352	240	55	1115	290	68	0	1	1	0	99	48
212	2	4491	403	456	1630	110	239	78	68	298	81	84	50	113	130	430	1	3	97	96	22
213	1	4507	152	481	0	466	271	47	98	16	97	60	206	4224	75	-1340	6	1	66	98	60
214	2	4517	195	365	1300	143	131	76	39	249	29	71	302	590	99	830	1	3	146	98	46
215	2	4522	159	366	2047	313	426	141	52	88	46	98	116	0	128	160	4	3	78	98	22
216	3	4571	410	188	1267	205	633	120	93	236	110	50	298	108	57	1630	1	4	25	96	48
217	3	4601	531	737	1167	406	260	113	105	273	131	114	419	13	115	4240	1	0	-33	87	34
218	5	4607	126	361	1242	265	366	99	171	91	65	139	91	419	86	2280	1	0	34	93	36
219	2	4671	602	598	1820	355	125	72	56	239	92	68	196	66	121	580	1	3	-38	98	60
220	2	4680	194	460	1200	163	302	117	24	1311	107	94	209	43	161	-260	9	3	107	99	18
221	2	4699	210	312	1560	254	315	81	34	444	53	47	142	5	138	940	1	3	44	97	19
222	2	4701	390	663	1275	126	503	126	39	157	102	105	158	225	121	410	1	3	108	98	23
223	2	4724	447	463	1515	142	83	21	34	53	117	69	442	5498	115	-10300	1	3	251	96	30
224	2	4755	300	228	1500	26	195	77	50	2309	50	48	276	80	161	-1160	1	3	23	79	55
225	2	4782	231	345	954	186	233	78	58	234	42	32	205	544	140	2630	6	3	488	83	34
226	1	4800	659	36	1762	1066	500	123	0	9	68	13	953	170	0	-700	1	1	0	100	60
227	2	4852	461	474	1500	221	875	155	78	912	79	72	386	326	96	-2340	1	3	71	98	25
228	1	4857	555	397	1620	0	395	45	51	240	150	32	180	0	95	890	1	2	30	99	38
229	2	4884	281	338	1500	288	463	159	59	295	131	65	169	160	139	320	1	3	1	98	50
230	1	4920	0	0	0	535	416	20	150	0	102	10	232	170	81	2500	9	1	66	96	60
231	2	4928	160	549	765	50	133	93	61	597	73	48	404	55	288	1160	1	3	273	93	60
232	3	4984	389	187	917	97	225	71	48	460	68	70	116	505	82	4950	1	4	17	99	51
233	3	5012	362	467	1387	210	303	31	65	259	125	78	32	68	87	1920	9	4	134	100	31
234	1	5020	600	0	200	0	758	115	75	150	87	0	40	500	250	2440	1	1	8	100	60
235	2	5021	150	407	1100	686	570	117	54	195	96	72	1364	62	115	1030	1	3	57	99	54
236	2	5036	567	610	1380	350	717	86	40	127	139	103	112	39	330	330	9	3	-49	99	34
237	1	5065	0	6	0	82	1031	151	24	269	257	197	421	310	70	900	1	2	3	100	60
238	3	5071	0	647	1040	314	534	92	142	789	191	57	376	10	103	780	1	4	1	99	54
239	2	5100	485	401	2010	103	295	18	61	690	99	27	165	222	119	160	4	3	76	95	28
240	2	5142	215	317	1200	192	208	105	66	45	32	33	336	37	118	3490	1	3	118	99	21

3.2 Lower public servants and salaried employees. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	2	5143	751	545	1250	28	555	48	62	10	37	81	354	36	135	-1080	1	3	18	98	23
242	1	5150	30	35	776	655	720	153	393	75	241	55	302	160	171	1180	9	1	116	80	55
243	1	5210	600	0	1500	720	601	45	180	112	317	125	470	0	163	0	1	1	0	82	60
244	2	5224	623	667	1410	205	534	85	34	155	87	30	123	10	139	940	9	3	30	95	18
245	2	5298	621	329	1800	168	361	124	136	327	78	73	175	100	75	510	1	3	97	85	19
246	1	5300	420	0	2520	184	778	206	400	32	274	80	176	278	72	0	1	1	0	95	49
247	2	5324	401	539	1500	152	465	115	80	320	98	52	324	290	166	760	4	3	8	94	23
248	3	5326	809	296	1083	383	260	30	54	79	98	112	531	111	197	1040	9	0	-11	99	45
249	1	5345	540	16	1875	249	257	66	257	0	164	35	418	247	156	1060	0	1	69	96	51
250	1	5415	900	467	1716	676	1116	89	24	88	113	30	714	270	120	130	9	1	0	91	60
251	2	5521	117	130	1135	218	848	185	25	2344	66	26	361	35	130	-360	9	3	0	100	55
252	4	5528	240	199	675	103	694	106	38	166	80	17	142	763	96	8280	1	0	324	85	12
253	3	5548	305	253	900	237	846	93	35	194	103	36	511	122	116	4010	9	4	71	98	29
254	2	5659	600	428	1375	360	664	41	84	230	135	63	228	149	255	1410	1	3	25	98	39
255	3	5688	659	440	862	484	604	146	49	90	134	81	697	0	91	2060	1	4	285	81	30
256	1	5727	600	0	1470	364	1041	297	110	397	283	78	470	35	200	450	9	2	8	98	51
257	2	5799	220	255	925	104	321	83	12	1308	86	0	380	384	119	2840	1	3	182	80	55
258	2	5839	320	423	1200	457	263	73	59	210	98	73	888	216	129	2590	1	3	29	79	51
259	1	5879	528	78	0	1094	1141	86	135	195	95	58	1620	255	148	140	0	1	2	99	49
260	1	5895	480	0	1320	0	550	140	270	12	307	30	335	688	80	500	1	2	4	99	60
261	1	5935	874	234	1306	0	1064	123	127	1704	292	131	119	250	212	340	1	2	2	99	51
262	2	5937	468	453	1275	201	407	132	225	788	127	66	420	53	139	1160	1	3	141	99	15
263	1	5976	506	886	840	354	400	147	95	61	133	225	152	1052	93	-20	1	2	695	66	52
264	1	6056	600	0	906	0	934	255	65	967	406	20	527	475	80	110	1	2	10	99	51
265	1	6081	453	279	520	697	896	140	52	1615	131	184	90	380	499	-500	1	2	7	100	55
266	2	6085	1910	319	1320	386	482	94	82	402	86	46	207	57	208	630	9	3	111	79	33
267	2	6105	524	562	1200	275	474	54	64	1040	172	137	352	145	115	1580	1	3	158	93	46
268	1	6119	285	66	1290	403	1251	139	171	948	159	54	113	286	127	360	9	1	0	95	55
269	2	6141	591	412	1500	384	761	84	89	183	129	113	534	98	33	2360	1	3	123	99	34
270	2	6162	635	552	1200	411	351	184	103	573	151	91	466	351	139	1360	1	3	-39	99	44
271	2	6257	423	468	1400	44	427	63	62	46	57	61	267	750	132	2270	9	3	10	70	18
272	2	6264	572	597	2000	60	829	80	73	151	134	78	136	120	157	1470	1	3	225	92	21
273	1	6284	660	12	2700	130	407	111	115	10	105	25	1121	2246	180	-1840	4	1	37	100	50
274	1	6295	480	174	1230	330	1121	291	115	0	428	40	220	240	227	540	1	2	1	99	49
275	2	6304	869	301	1560	212	567	75	80	994	134	56	1050	9	177	-210	1	3	-104	90	47
276	1	6351	600	1238	1500	0	459	179	33	0	73	52	28	40	84	1140	1	2	176	98	51
277	1	6413	540	553	1400	0	624	57	89	1113	100	0	110	640	211	100	9	2	8	100	54
278	3	6461	0	317	1400	391	392	128	49	505	74	62	428	743	167	5370	1	4	13	91	44
279	2	6474	234	572	1165	225	866	64	206	201	111	170	600	82	155	200	1	3	5	100	19
280	1	6570	0	0	0	0	959	125	60	240	247	144	850	1434	132	100	1	2	9	99	54
281	1	6589	600	342	1785	279	973	193	171	505	215	190	1125	300	129	-960	1	2	41	98	47
282	2	6600	645	338	1800	449	192	105	51	561	34	121	837	37	187	1890	1	3	-29	99	48
283	2	6697	248	752	1650	600	0	0	54	99	211	261	909	225	126	250	4	3	1	87	24
284	2	6727	416	231	1800	640	682	155	130	1152	111	96	325	369	304	740	1	3	-9	94	54
285	2	6818	276	379	910	387	777	102	61	206	131	53	429	341	157	4490	1	3	503	83	23
286	1	6902	625	800	1725	20	1776	126	80	231	232	7	193	188	85	590	6	2	287	98	48
287	1	6925	600	324	345	55	431	186	69	200	178	96	1006	285	145	1390	1	2	33	97	28
288	2	7117	236	355	1340	263	159	63	32	3	53	38	1766	203	152	4470	1	3	146	93	27
289	2	7330	206	654	1750	317	591	143	186	225	256	89	572	200	206	230	1	3	23	98	60
290	1	7384	136	259	1500	720	605	179	32	860	446	85	1170	107	73	130	1	2	0	99	53
291	1	7400	600	26	1725	1026	235	109	27	0	292	31	893	4479	92	-2120	1	1	-12	99	54
292	1	7440	645	0	1155	460	1098	280	430	84	237	450	505	844	83	500	9	1	0	93	52
293	1	7466	222	380	600	33	1506	137	44	728	69	81	84	99	586	1940	4	2	139	91	46
294	2	7647	445	383	1094	386	718	146	110	57	117	72	550	75	160	6310	1	3	105	97	52
295	1	7831	540	16	1725	0	683	171	344	40	297	201	978	3769	236	-1730	1	1	33	99	54
296	1	7940	779	354	1825	600	592	34	0	100	79	64	1849	308	148	670	1	1	30	99	31
297	1	7994	360	132	1725	479	852	98	185	29	288	46	1317	253	221	1410	1	1	49	97	48
298	1	8055	100	25	1595	175	533	115	104	2012	212	46	192	95	77	2020	4	2	106	92	55
299	1	8065	480	0	1960	0	1147	292	170	191	297	26	830	312	68	1120	1	1	3	99	49
300	1	8080	1200	164	2000	300	247	77	84	277	156	61	337	27	86	2340	1	2	303	84	60

3.2 Lower public servants and salaried employees. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
301	1	8105	600	18	1617	482	416	196	0	375	169	114	1257	1000	207	520	1	1	40	99	60
302	1	8230	480	120	1540	0	737	93	38	52	87	0	859	9824	201	-6060	1	1	-29	98	54
303	1	8318	571	777	2650	41	487	167	416	475	29	160	309	240	188	590	4	2	50	99	34
304	1	8364	1046	594	1700	21	837	121	183	421	201	70	939	180	188	270	1	2	4	98	46
305	2	8407	2141	732	1050	620	625	178	41	11	107	43	760	321	143	2410	1	3	-98	94	54
306	1	8565	0	0	2224	706	1778	149	64	2559	309	14	3177	495	75	-4020	4	1	71	100	60
307	1	8587	569	484	1500	893	1188	151	628	70	314	186	400	1188	415	-450	4	2	-62	100	47
308	1	8992	747	898	960	38	290	71	49	104	98	192	503	95	150	4690	1	1	-34	78	60
309	1	9077	420	250	2310	400	824	140	196	0	124	675	760	2703	322	-800	1	1	94	96	47
310	1	9191	300	458	2026	84	1231	196	122	595	283	472	993	483	139	410	4	2	159	98	45
311	2	9216	369	310	1300	375	771	60	150	1858	445	325	703	1430	169	1250	1	3	218	85	54
312	1	9325	576	65	1815	530	878	190	120	28	183	50	2064	780	213	1310	9	1	20	86	60
313	1	9326	588	121	2012	1261	902	111	295	0	168	8	1147	263	534	790	1	1	20	99	60
314	2	9335	425	856	1788	527	721	84	110	69	236	37	1910	0	232	1100	6	3	7	99	32
315	1	9340	440	350	1800	1040	1975	210	350	4205	205	10	865	520	200	-2650	9	1	30	89	55
316	1	9684	723	400	1092	20	688	65	152	285	40	66	355	2443	166	3050	9	2	343	86	35
317	1	10289	1037	847	1440	435	769	28	86	35	167	202	502	136	235	2020	1	2	137	92	38
318	1	10447	360	0	2220	530	1498	228	277	325	193	555	1006	6298	200	-2190	1	1	50	100	54
319	1	10913	480	120	364	0	498	187	450	0	214	58	398	1080	436	2420	6	1	41	98	46
320	1	11079	936	898	1960	746	717	228	396	272	184	62	485	5666	218	160	9	1	-34	100	49
321	1	11782	602	1164	1200	260	375	181	296	1362	166	68	732	240	220	3690	1	2	79	95	60
322	1	13498	360	364	1800	70	1649	243	68	1026	209	196	1511	2425	424	1810	1	2	208	89	42

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	11	1332	112	87	533	87	127	26	25	29	23	10	10	31	45	560	1	7	-173	76	36
2	6	1332	84	216	433	58	28	12	38	169	36	42	37	18	104	-1280	2	7	-17	75	46
3	6	1459	75	142	552	67	173	44	25	28	30	19	109	23	92	200	6	7	0	57	40
4	5	1562	250	78	826	89	113	48	22	54	57	44	68	12	203	1280	9	6	-7	97	30
5	4	1603	150	126	690	16	250	54	31	42	40	15	12	21	38	110	1	5	98	96	44
6	5	1635	120	177	728	150	53	40	54	17	41	7	17	80	26	310	1	0	0	13	54
7	5	1639	99	158	432	121	82	31	25	27	76	14	21	92	120	560	1	6	-24	98	46
8	6	1647	128	130	520	37	112	31	46	115	39	52	151	83	39	840	1	7	1	97	46
9	5	1648	108	197	520	102	136	67	25	32	26	18	217	26	116	190	1	0	123	70	45
10	1	1700	360	5	0	91	131	35	0	0	113	0	851	104	0	-140	4	1	2	100	53
11	5	1714	206	146	624	36	42	21	30	118	25	20	28	226	133	950	5	6	-20	83	45
12	1	1795	480	0	0	88	327	95	24	0	28	36	260	0	0	0	9	2	0	100	53
13	5	1853	120	154	735	105	134	43	37	124	45	23	54	18	104	390	4	6	0	98	48
14	5	1856	152	182	751	51	185	65	28	24	33	26	14	85	87	200	1	6	1	72	39
15	6	1890	136	180	730	88	112	54	32	90	69	27	83	40	112	-180	1	7	49	90	41
16	5	1891	103	160	714	79	168	42	34	187	63	20	160	92	100	-640	4	6	31	95	60
17	4	1923	83	152	968	101	60	20	25	150	18	22	25	35	111	460	9	5	13	98	34
18	4	1970	120	138	715	275	95	44	56	60	63	23	97	79	129	170	4	5	0	80	47
19	4	1978	177	232	780	77	148	61	23	20	34	26	62	57	85	130	9	5	4	98	31
20	6	1995	122	125	800	148	146	54	20	53	57	21	152	12	146	0	1	7	-2	94	45
21	6	2019	159	117	867	87	232	78	60	40	48	23	87	25	80	80	1	7	25	93	32
22	6	2019	69	80	867	133	152	31	33	74	37	22	64	116	81	720	4	7	-64	95	35
23	5	2039	205	226	624	112	247	27	57	276	38	38	43	32	111	140	9	6	-65	98	60
24	4	2059	39	69	845	321	67	25	31	49	56	13	6	255	39	120	4	5	15	99	50
25	3	2089	210	189	907	149	91	13	31	3	41	44	78	50	78	-330	1	0	2	87	50
26	6	2133	144	142	650	37	296	61	34	12	57	6	124	57	62	1970	6	7	12	91	60
27	3	2142	119	177	780	65	63	58	37	31	19	31	262	38	132	430	9	4	43	98	31
28	5	2153	192	145	832	95	196	46	44	53	25	20	91	30	120	590	1	6	29	89	45
29	4	2190	184	162	845	146	56	17	51	25	27	25	37	5	60	2120	4	0	-27	77	52
30	4	2198	273	171	750	158	97	53	37	159	45	6	53	10	126	650	1	5	1	98	60
31	5	2200	218	184	714	59	126	20	36	39	55	21	66	33	100	1180	1	6	-85	98	45
32	4	2220	665	246	780	94	25	7	58	36	57	25	26	54	40	700	9	5	-210	98	49
33	6	2227	83	195	693	72	146	58	21	300	49	25	59	32	101	610	1	7	-29	88	38
34	4	2228	70	169	910	80	165	70	53	34	31	10	20	62	182	560	1	5	59	99	41
35	4	2237	153	134	1000	135	240	73	25	114	80	35	128	64	120	410	1	5	48	97	35
36	5	2249	104	226	714	98	269	77	75	28	76	31	74	54	126	1000	1	0	13	84	43
37	5	2292	258	151	769	120	246	73	40	55	72	17	138	55	122	870	1	6	74	87	38
38	5	2294	154	155	664	165	218	55	31	155	49	69	256	86	117	-80	1	6	0	99	60
39	4	2300	71	191	1040	95	137	49	24	9	35	19	18	205	131	930	1	5	6	88	49
40	5	2328	118	133	534	172	304	110	67	63	68	18	165	36	133	630	9	6	4	99	49
41	4	2336	387	268	830	183	74	77	42	54	106	44	26	0	148	-130	1	5	48	91	45
42	4	2337	192	219	750	6	132	56	31	84	78	17	109	1106	151	-3120	9	5	69	80	44
43	6	2340	104	200	833	169	139	72	24	48	61	22	232	150	86	220	1	7	12	99	45
44	4	2357	212	174	637	212	228	70	36	26	61	21	128	75	140	770	4	5	-43	90	47
45	4	2390	150	134	949	344	78	9	32	55	62	35	113	170	112	250	6	5	0	100	51
46	6	2420	261	198	653	87	200	68	57	42	39	25	81	57	81	1370	9	7	390	99	44
47	4	2472	269	155	975	135	112	36	109	131	52	27	151	45	134	-310	4	5	-1	98	53
48	4	2487	250	236	829	136	284	37	17	26	43	27	269	1037	103	-4240	9	5	61	98	52
49	4	2491	185	171	948	122	115	49	79	95	73	70	73	42	199	430	6	6	1	98	60
50	3	2497	220	91	780	3	266	42	58	512	56	35	131	71	128	-2190	4	4	0	100	60
51	4	2508	195	211	780	229	62	31	28	246	70	32	229	53	139	-740	1	5	53	97	41
52	5	2514	142	232	780	173	255	78	50	114	71	26	229	60	126	360	1	6	8	93	47
53	4	2514	202	41	750	74	360	62	25	78	78	36	87	25	86	1300	1	5	23	98	48
54	5	2524	208	125	832	110	365	95	62	164	96	19	57	55	115	580	9	6	27	92	44
55	4	2543	227	257	932	106	127	45	51	172	38	17	46	90	86	1330	6	0	61	92	41
56	4	2551	207	215	941	80	132	18	21	166	13	20	51	884	131	-1040	1	0	76	81	44
57	4	2556	357	180	830	0	59	24	47	19	63	13	46	281	161	1550	1	5	-76	93	54
58	4	2568	159	157	1000	162	101	28	22	30	32	35	97	94	116	1020	1	5	41	99	35
59	3	2607	182	179	748	67	57	19	75	134	27	14	131	387	61	230	5	4	0	50	54
60	3	2610	160	263	1020	105	277	33	62	43	65	11	122	164	44	320	1	4	2	98	52

3.3 Skilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	2613	365	223	600	122	107	31	63	142	48	41	42	170	149	1450	1	5	-121	99	50
62	3	2628	261	255	1167	100	245	59	43	35	18	13	46	25	161	290	4	4	263	90	33
63	4	2633	80	255	829	107	374	45	26	95	54	105	169	477	112	-690	1	5	459	86	39
64	3	2668	382	366	780	176	99	66	46	138	60	32	168	30	187	20	6	4	0	98	54
65	4	2690	178	213	871	105	162	76	65	47	103	64	45	157	127	139	6	5	-8	96	49
66	4	2 38	127	179	777	0	522	176	82	44	106	65	96	131	209	370	6	5	0	99	25
67	4	2740	248	240	950	83	238	92	53	46	91	156	255	22	124	1610	1	5	10	99	36
68	3	2748	194	222	953	247	123	13	41	117	90	14	35	20	200	1270	9	4	29	92	47
69	4	2753	213	330	500	299	144	38	146	42	23	39	185	205	96	1170	1	5	66	94	54
70	4	2768	128	196	975	29	273	57	50	20	47	52	150	303	115	340	1	5	30	98	47
71	3	2807	300	244	1020	150	78	28	26	270	74	48	47	277	142	20	1	4	2	99	54
72	3	2820	691	241	780	8	88	22	26	24	43	27	52	7	167	2180	9	4	-156	99	52
73	4	2826	221	241	935	208	302	94	75	299	40	43	75	31	150	0	1	5	-6	88	38
74	4	2873	163	186	900	68	120	31	72	86	61	26	130	1841	102	-4580	1	5	105	96	52
75	3	2880	240	275	867	22	351	131	37	91	70	37	108	30	142	570	1	4	35	98	60
76	4	2881	380	262	900	79	119	39	39	227	105	11	245	84	116	600	4	5	-207	89	43
77	3	2939	177	206	1300	129	40	37	45	37	70	40	113	48	204	1380	4	4	8	96	54
78	4	2967	247	182	750	7	255	35	69	238	56	52	270	1311	51	-7570	1	5	108	99	52
79	2	2990	130	341	1170	150	327	62	52	78	27	43	106	121	74	300	6	3	23	99	23
80	4	2992	704	233	990	25	71	28	39	141	51	34	82	132	104	750	1	5	65	96	46
81	3	3035	160	169	621	335	308	98	44	134	77	32	164	1492	126	-3250	1	4	38	96	54
82	3	3060	586	480	667	123	185	30	76	64	84	23	45	210	143	660	5	4	-100	98	51
83	4	3091	270	320	1050	314	521	96	69	91	104	18	152	81	67	140	5	5	22	98	42
84	3	3116	290	229	867	157	237	52	47	519	79	41	69	27	182	240	1	4	10	98	53
85	3	3118	202	363	833	227	316	99	66	370	87	52	100	53	181	-80	1	4	4	98	60
86	3	3119	207	131	720	121	201	63	24	278	58	28	182	33	160	3370	1	4	289	84	47
87	4	3137	494	343	995	12	323	52	27	142	42	25	69	56	171	1430	4	5	52	99	37
88	3	3160	178	171	1040	249	288	100	80	170	146	78	294	78	140	350	9	4	27	96	48
89	3	3178	328	258	1127	253	207	78	37	130	86	42	109	55	62	880	9	4	-75	98	31
90	5	3203	655	154	629	149	321	60	115	53	40	35	241	108	158	1990	9	6	-220	99	37
91	3	3207	367	246	867	99	613	92	97	428	118	209	70	477	154	430	4	4	1	91	51
92	4	3208	299	217	785	86	361	52	60	28	60	47	245	412	131	1340	1	5	-40	99	50
93	3	3215	270	239	867	332	391	78	58	167	83	52	104	99	137	400	1	4	1	98	51
94	3	3222	82	86	867	445	223	62	36	242	84	67	53	245	228	620	4	4	0	99	45
95	3	3238	275	217	917	213	341	56	63	358	105	42	233	72	317	460	4	4	-21	98	52
96	3	3240	650	452	693	284	278	45	107	317	78	53	267	113	293	-2590	6	4	70	97	52
97	3	3258	205	313	1127	147	209	90	93	6	95	20	63	615	157	-550	3	4	65	88	43
98	3	3264	1367	343	1127	42	68	16	46	129	82	35	37	50	137	-1780	1	4	-93	95	53
99	4	3313	62	254	925	0	424	139	47	203	95	71	139	234	144	880	1	5	34	76	32
100	5	3327	350	235	770	260	200	42	85	108	50	11	253	483	121	330	1	0	-88	57	41
101	3	3365	617	251	607	256	211	59	84	78	88	31	19	506	238	-420	4	5	2	86	52
102	4	3369	385	301	937	0	197	39	50	28	58	132	587	87	99	860	6	5	-100	99	43
103	3	3402	264	188	767	117	349	75	37	75	81	28	117	20	133	2800	1	4	83	95	49
104	5	3403	105	142	1113	240	252	51	21	22	50	50	231	1093	195	-3000	9	6	38	99	31
105	2	3430	411	302	1352	95	50	10	66	4	80	76	22	0	243	900	4	3	59	61	33
106	3	3503	532	296	1040	156	243	78	59	146	68	72	216	90	209	370	1	4	-8	97	51
107	3	3540	190	253	1000	121	127	44	72	412	54	7	169	463	204	470	6	4	-24	96	54
108	4	3552	352	202	1040	31	254	30	17	208	22	40	305	57	46	3070	1	0	-1	51	25
109	2	3632	140	416	1040	130	456	97	58	703	100	42	220	40	299	-720	1	3	134	90	53
110	3	3637	177	101	1213	169	378	129	31	64	59	28	95	753	155	120	9	4	10	95	48
111	4	3640	463	245	780	74	351	121	70	155	74	61	106	87	161	2390	1	5	55	93	42
112	3	3669	220	306	1100	412	252	72	92	210	71	88	234	82	145	230	1	4	1	92	49
113	3	3701	189	307	1000	97	532	54	118	409	49	20	103	38	157	970	1	0	26	76	26
114	3	3736	294	356	1135	313	410	100	35	279	100	31	164	137	182	600	1	4	184	96	38
115	2	3846	421	263	910	0	189	14	93	93	64	43	69	1609	81	390	1	3	126	86	25
116	2	3858	327	435	1560	55	498	68	56	630	45	53	15	20	261	270	1	3	158	93	14
117	3	3865	302	282	1107	165	375	84	59	418	77	60	121	148	192	240	1	4	8	98	54
118	3	3891	472	186	867	33	536	97	41	1235	103	90	625	916	188	-10970	1	4	5	87	55
119	3	3895	233	220	1040	395	348	100	92	165	80	37	550	80	112	920	6	4	-29	97	50
120	3	3928	669	266	1127	347	370	76	75	167	64	30	190	0	114	1280	1	4	51	97	50

3.3 Skilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	2	4077	336	168	787	200	216	69	66	1490	154	67	302	295	178	-1020	4	3	11	99	54
122	2	4100	252	305	1750	250	77	27	15	30	70	55	90	1527	262	-480	9	3	33	99	22
123	3	4110	612	258	833	103	385	82	35	249	93	28	463	201	182	720	1	4	-11	81	50
124	3	4117	200	170	1445	269	510	66	39	159	83	44	258	59	145	160	9	4	0	81	60
125	3	4149	0	241	960	422	250	82	142	399	157	91	408	111	58	1860	1	4	3	98	51
126	3	4149	312	115	871	261	337	51	86	802	107	27	371	64	326	-50	1	4	0	95	55
127	3	4193	607	416	1473	218	199	60	62	999	39	43	456	242	240	-3040	6	0	-159	92	43
128	3	4343	281	330	1249	123	498	75	151	389	130	51	136	42	203	970	1	4	12	98	53
129	2	4346	210	317	1820	247	280	69	38	37	68	60	122	752	192	-590	9	3	15	92	27
130	3	4464	222	329	1040	347	391	94	119	466	150	56	86	44	139	2760	1	4	-32	99	49
131	2	4475	278	274	1275	190	546	81	54	201	65	50	264	600	320	300	1	3	101	90	22
132	2	4555	160	473	1300	985	361	76	46	25	47	160	315	24	243	10	4	3	115	99	37
133	3	4571	200	430	1457	233	449	75	61	67	20	41	474	53	187	720	1	4	5	95	26
134	2	4582	675	367	1220	595	110	42	100	187	42	82	167	117	225	520	1	3	4	98	28
135	2	4611	306	465	1625	23	425	49	89	207	26	44	78	283	367	1040	4	0	87	63	60
136	2	4836	279	263	1280	56	616	2	18	181	7	30	39	168	221	2610	1	3	524	79	17
137	3	5021	280	184	1360	247	182	80	14	251	116	34	137	896	332	920	1	4	10	99	43
138	3	5168	139	258	1122	108	254	64	44	244	111	45	360	2282	238	-420	1	4	0	98	38
139	1	5251	528	258	2132	600	612	99	104	0	35	72	30	135	482	340	6	1	30	85	50
140	3	5456	353	222	1560	0	465	120	37	38	111	67	171	83	165	2200	1	4	92	96	35
141	2	5646	383	430	1250	352	416	84	109	167	183	202	656	210	180	560	1	3	-3	98	53
142	2	6091	637	458	1485	400	733	132	152	281	91	31	453	150	116	1950	5	3	25	98	26
143	2	6380	496	487	1275	600	153	54	250	362	133	71	235	1229	261	930	1	3	-50	99	42
144	1	6587	552	0	1470	445	537	211	124	24	178	160	1125	595	441	610	1	1	18	99	60
145	1	6993	480	150	1840	0	575	88	308	0	328	104	1568	1261	171	220	9	1	0	100	54
146	1	7062	367	216	2160	700	767	107	222	50	71	42	2064	245	544	-860	3	1	448	67	60
147	1	7771	540	120	1650	0	203	171	16	24	165	35	1267	2381	496	360	9	1	7	99	60
148	1	7884	963	384	2444	557	365	67	105	526	176	95	191	206	391	1240	1	1	63	98	53
149	1	8122	480	60	1975	0	352	62	176	0	334	93	638	87	543	2360	1	1	139	91	60
150	1	8245	924	617	1900	391	260	17	204	200	143	180	854	225	609	650	1	1	86	83	27
151	1	8455	240	100	1750	394	248	70	28	74	155	79	951	3490	570	40	1	1	-26	100	60
152	1	8658	720	197	2356	612	1401	163	533	93	273	50	1068	450	362	-630	6	1	8	92	60
153	1	9781	480	72	2136	0	1183	104	260	325	93	28	824	585	514	2550	6	1	120	93	54
154	2	10922	631	405	1250	0	812	182	28	100	187	109	1510	7863	343	-5630	6	3	-154	99	54
155	1	11320	540	0	1440	0	175	95	0	6522	70	30	1195	399	254	-1330	9	1	44	100	60

3.4 Unskilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	8	981	100	78	390	32	69	18	18	46	9	4	8	82	69	460	1	7	-9	49	48
2	10	1043	68	57	390	49	74	28	12	62	20	14	15	32	58	620	4	7	-105	50	41
3	7	1065	95	107	486	32	103	23	24	10	20	15	12	58	72	410	9	7	20	81	45
4	6	1089	82	122	425	33	84	38	18	35	27	10	39	15	72	110	6	7	-23	76	45
5	8	1112	62	5	357	39	112	39	24	37	22	19	23	82	29	230	1	7	0	98	41
6	10	1217	24	138	516	68	156	63	44	3	38	20	24	10	58	80	1	7	0	87	31
7	3	1283	112	163	433	5	128	54	41	81	55	32	40	22	35	0	2	9	0	60	41
8	6	1284	105	94	433	102	100	24	21	72	32	0	32	75	76	-420	4	7	0	78	48
9	7	1288	154	98	571	68	125	36	23	17	15	13	14	16	65	310	9	7	-4	99	43
10	6	1326	116	117	607	114	132	29	18	83	40	24	14	21	80	-30	9	7	-95	72	38
11	6	1340	87	147	433	17	138	51	45	79	30	34	69	37	63	430	1	7	-4	99	47
12	7	1362	185	83	669	36	126	40	0	64	14	9	27	200	57	-1780	1	7	-15	100	49
13	8	1380	63	124	377	40	133	76	24	41	48	19	36	153	69	120	6	0	2	65	31
14	8	1396	87	134	611	41	164	34	31	52	24	7	21	5	56	780	1	7	-102	99	39
15	7	1404	129	118	594	35	96	40	21	64	35	25	65	27	81	480	4	7	-4	99	37
16	8	1412	47	116	422	18	137	45	20	88	20	14	12	207	70	310	4	7	-17	95	35
17	6	1458	120	226	667	39	77	43	15	99	34	30	31	47	81	380	9	7	-200	99	43
18	3	1469	232	284	700	0	30	14	36	3	30	18	23	0	37	50	4	9	0	44	35
19	5	1503	141	101	780	12	105	43	30	46	30	25	38	30	92	-370	1	8	14	58	37
20	7	1521	69	70	631	91	121	35	42	26	52	14	245	38	37	370	1	7	41	90	36
21	4	1537	180	121	650	107	71	28	27	91	36	13	74	12	63	930	9	5	11	100	46
22	6	1552	160	130	563	17	177	35	23	52	35	20	41	29	115	720	1	0	-58	69	41
23	6	1559	62	106	780	43	61	23	34	14	9	12	81	176	84	150	4	7	34	76	28
24	6	1561	96	136	737	18	214	38	30	27	29	25	6	16	79	360	1	7	3	90	40
25	5	1606	103	133	624	96	146	41	42	22	38	10	81	33	100	370	1	6	0	79	50
26	6	1607	97	143	601	92	103	22	32	64	45	18	80	45	91	210	1	7	0	98	43
27	6	1621	97	131	693	66	107	43	15	24	30	11	53	10	89	1930	1	0	-50	95	45
28	5	1651	83	96	696	164	145	50	23	54	48	30	22	96	125	370	1	6	-4	91	45
29	5	1657	65	162	510	21	112	81	34	160	30	15	143	5	74	400	4	6	42	95	51
30	5	1659	184	231	676	74	76	29	15	41	28	18	8	2	113	230	1	6	0	99	47
31	5	1666	108	141	600	99	172	40	33	44	31	8	77	96	95	160	1	6	2	79	41
32	7	1684	159	93	793	105	105	49	18	26	35	9	40	35	71	740	1	7	41	98	41
33	5	1686	150	74	676	52	81	33	42	160	53	12	157	27	115	140	4	6	30	100	47
34	4	1717	50	245	805	21	65	42	15	22	17	27	134	44	111	80	1	5	0	67	21
35	5	1740	81	123	797	73	138	18	20	135	46	27	21	2	96	700	9	6	-16	100	43
36	6	1746	83	102	693	61	155	68	27	27	34	22	110	25	108	590	4	7	43	99	35
37	4	1752	128	166	806	45	164	36	21	7	28	17	14	152	118	130	4	5	0	75	49
38	5	1762	48	121	580	108	387	85	33	37	115	43	123	93	94	-250	9	6	-11	73	30
39	7	1774	102	157	543	32	63	20	30	74	15	12	24	478	19	1130	1	7	25	99	44
40	7	1778	31	100	743	25	168	66	18	43	24	32	82	4	74	160	9	0	39	68	30
41	5	1783	155	135	728	125	59	18	52	188	24	13	8	16	94	660	1	6	-41	98	46
42	4	1793	116	145	650	12	152	65	16	62	66	26	87	75	133	450	6	5	95	98	38
43	5	1797	45	109	770	59	269	34	27	191	23	19	11	50	90	450	1	6	35	78	44
44	6	1813	296	201	595	237	230	70	32	57	64	30	30	18	102	-1870	4	7	22	60	35
45	4	1816	119	159	944	29	208	44	39	108	46	35	12	35	117	-370	4	5	7	91	52
46	6	1819	107	154	1040	122	65	27	18	28	14	5	21	29	90	140	9	0	9	64	28
47	4	1833	51	193	845	10	175	37	30	54	46	15	46	104	118	440	1	5	17	73	39
48	3	1833	893	189	638	28	93	21	39	50	52	30	37	37	30	-910	4	0	82	54	54
49	5	1837	72	93	728	83	160	70	37	101	31	20	158	23	129	230	1	6	0	96	45
50	3	1837	30	153	920	202	68	65	50	58	48	41	23	45	163	0	9	4	0	81	28
51	6	1839	53	171	693	165	78	2	79	38	26	6	38	159	81	1640	1	7	64	82	48
52	5	1853	125	190	768	75	55	32	74	75	38	34	39	15	107	80	9	6	0	73	20
53	4	1856	150	197	750	12	154	72	40	102	59	41	41	32	114	230	1	5	72	80	39
54	5	1865	0	157	668	108	147	50	7	301	67	8	29	75	92	-140	6	6	0	98	47
55	4	1869	132	184	650	127	130	26	24	38	38	22	60	32	134	710	1	5	-63	85	47
56	4	1888	175	158	585	56	96	28	82	32	62	24	84	51	133	320	1	5	-57	86	49
57	1	1909	241	386	1000	10	116	40	31	54	62	60	95	10	111	0	9	2	161	61	48
58	4	1928	276	210	975	187	177	76	35	265	46	43	25	62	174	-2810	6	5	-25	90	44
59	4	1932	340	205	600	76	163	59	33	181	42	23	28	47	130	-650	1	5	97	65	46
60	5	1951	85	114	616	132	117	36	29	28	23	38	44	13	95	2580	4	6	7	96	49

3.4 Unskilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	4	1997	227	105	875	32	67	20	27	47	53	12	41	19	137	1200	1	5	30	64	54
62	6	2000	164	130	693	46	231	39	25	130	49	18	66	23	88	540	1	7	16	99	42
63	2	2000	180	389	910	0	23	12	56	40	49	30	12	28	20	40	9	0	0	44	45
64	5	2030	101	146	714	77	202	48	23	43	54	12	102	75	107	380	1	6	-102	74	35
65	5	2050	92	148	728	74	186	48	33	131	42	41	82	32	82	260	1	6	34	98	48
66	5	2069	218	201	720	125	132	41	24	42	35	25	35	50	64	1390	4	0	-39	81	39
67	5	2080	195	129	832	60	264	49	28	51	56	20	37	59	92	360	1	6	-20	97	45
68	2	2087	90	161	1170	69	206	13	22	23	10	49	42	59	80	10	4	3	51	79	43
69	4	2121	91	154	1040	62	122	79	56	101	51	42	129	59	120	-870	4	5	14	98	30
70	4	2132	74	161	829	130	311	78	40	17	76	42	125	0	128	510	1	5	28	86	40
71	3	2147	162	338	913	0	210	26	71	7	52	38	44	47	210	170	1	0	0	90	20
72	4	2168	192	177	780	214	134	32	31	158	15	12	61	10	56	410	4	5	-16	93	44
73	5	2198	142	218	765	104	215	62	27	176	58	12	81	56	109	240	4	6	-1	98	45
74	4	2201	180	131	875	129	199	62	48	53	43	23	24	31	121	470	4	5	0	96	50
75	4	2217	197	139	900	242	146	39	0	60	27	32	157	21	101	330	1	5	1	99	52
76	2	2233	255	490	858	124	131	70	35	37	50	35	24	20	69	210	9	3	103	99	22
77	4	2236	219	269	845	169	131	37	30	24	28	8	37	12	129	-1250	9	5	84	93	49
78	5	2245	156	162	670	125	263	108	52	132	57	14	80	110	115	160	1	6	1	99	38
79	5	2257	68	122	728	94	249	32	23	75	70	10	127	59	104	960	1	0	51	50	21
80	5	2259	35	192	720	75	189	89	39	89	50	7	210	139	87	360	1	6	17	89	60
81	4	2260	69	185	1040	127	229	72	99	41	76	44	60	37	118	290	4	5	54	99	45
82	4	2277	215	155	753	33	198	22	59	113	31	21	39	154	141	1180	1	5	33	77	37
83	5	2284	111	196	1040	56	164	67	35	107	70	31	119	26	125	480	4	6	20	98	29
84	5	2286	73	239	728	72	238	61	42	231	52	23	47	127	131	1010	1	6	174	94	37
85	4	2290	92	170	780	260	191	41	53	135	55	23	131	52	139	280	1	5	-5	99	51
86	5	2292	113	149	592	98	280	109	37	218	63	21	174	86	112	1010	1	6	-25	97	41
87	4	2298	133	204	975	165	206	60	43	61	83	39	64	42	151	220	1	5	1	99	49
88	4	2332	87	135	845	196	285	77	24	186	47	13	97	51	129	260	1	5	-32	79	30
89	4	2339	292	153	756	134	198	40	18	176	52	30	105	67	166	230	4	5	-28	96	49
90	4	2348	137	128	850	140	159	75	49	106	94	41	13	96	128	200	6	5	-27	100	37
91	5	2351	274	172	810	82	217	35	36	91	59	34	48	183	137	930	1	6	10	99	47
92	2	2356	124	290	918	150	227	74	124	41	85	30	388	70	90	-50	6	3	83	97	19
93	3	2357	48	271	1127	0	310	56	90	55	76	103	91	0	54	80	9	4	20	80	24
94	4	2370	205	179	845	127	194	65	45	223	85	48	82	62	148	410	4	5	-124	98	42
95	4	2375	105	198	780	114	460	85	80	445	97	29	56	49	101	6810	4	5	1	99	44
96	3	2375	132	236	953	46	150	39	49	123	34	35	20	78	164	180	4	4	12	85	31
97	3	2398	212	247	1040	198	114	15	63	0	23	5	35	25	166	360	4	4	44	74	53
98	4	2408	203	157	780	62	212	54	70	242	69	32	125	32	42	870	1	5	173	89	45
99	4	2420	121	135	650	252	164	58	49	150	37	21	204	178	129	640	9	5	-5	86	54
100	4	2428	242	186	845	156	53	35	19	377	35	65	318	29	119	-530	1	5	4	98	50
101	4	2430	175	227	940	78	226	42	28	49	48	18	142	105	189	380	4	5	28	89	42
102	3	2437	114	69	950	122	96	31	56	17	64	15	50	33	177	1800	6	4	62	44	35
103	5	2442	75	139	752	108	261	68	36	126	50	13	139	50	105	2160	1	6	41	61	42
104	7	2444	55	64	549	219	475	64	15	338	40	64	190	122	73	210	1	7	42	99	29
105	3	2445	218	236	867	0	38	34	67	133	60	36	81	17	180	1040	4	4	-129	80	52
106	3	2465	270	196	607	53	74	23	88	47	58	30	37	77	162	1660	1	4	-39	86	54
107	4	2492	18	192	845	0	135	55	90	89	27	14	337	362	149	400	1	0	-8	94	29
108	5	2498	118	138	780	104	249	61	55	152	46	14	117	66	110	970	9	6	40	88	60
109	3	2500	108	189	1083	26	211	90	35	88	44	47	27	148	178	180	1	4	3	99	52
110	5	2518	274	219	612	135	205	86	68	114	64	26	187	63	123	760	1	6	-154	81	43
111	4	2537	150	171	550	161	130	55	25	82	34	16	202	17	95	2930	1	5	28	97	52
112	3	2545	266	212	867	52	230	59	26	111	24	35	166	63	157	420	4	4	-5	82	39
113	4	2560	371	161	1085	38	165	62	28	94	58	48	59	15	145	580	1	5	50	89	34
114	4	2602	187	211	811	130	376	60	28	82	52	53	77	37	130	1270	9	5	-7	96	48
115	4	2604	306	184	775	12	377	79	21	73	94	31	138	32	146	400	4	5	-4	94	40
116	3	2611	223	171	473	90	119	13	47	658	79	99	122	248	149	-100	4	4	1	63	55
117	4	2623	247	233	650	60	572	101	51	102	97	28	28	134	131	-300	9	0	22	85	41
118	3	2626	311	284	953	87	106	9	46	178	23	39	59	377	263	-20	1	4	2	87	35
119	3	2628	243	178	693	84	128	40	14	6	33	0	101	421	161	250	6	4	55	82	18
120	5	2658	108	125	780	130	90	45	35	94	25	14	21	395	143	2350	1	6	-81	71	42

3.4 Unskilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	6	2660	111	87	985	213	373	71	35	169	45	37	216	209	172	-240	9	7	29	86	34
122	4	2663	84	213	1067	74	338	83	49	12	56	12	87	108	114	830	1	5	24	98	42
123	3	2663	158	233	1167	33	50	61	103	49	42	23	57	245	176	-160	1	4	59	99	24
124	3	2693	400	91	873	187	203	62	36	168	65	35	46	38	164	370	4	4	1	90	53
125	4	2694	315	196	845	103	150	48	43	275	60	31	99	147	134	520	1	5	-121	97	41
126	3	2719	152	166	1040	240	180	68	56	29	97	41	166	7	50	1430	9	4	11	97	47
127	3	2730	179	232	733	100	241	55	34	186	46	31	25	283	196	700	1	4	-25	99	31
128	5	2736	229	178	663	186	145	52	57	37	49	20	155	216	140	-240	1	6	0	93	53
129	4	2736	158	218	592	93	129	41	50	126	26	34	111	340	130	1260	1	5	30	85	42
130	4	2759	235	225	980	232	576	75	89	135	72	55	134	40	129	910	1	5	-43	94	48
131	3	2762	215	246	833	219	257	41	24	2	72	22	39	27	161	960	1	4	26	81	47
132	6	2763	256	190	867	125	285	72	37	47	61	66	60	295	36	670	1	0	-17	66	42
133	4	2777	216	151	910	121	163	29	40	260	38	27	46	206	122	420	1	5	7	97	35
134	4	2779	237	173	1150	117	297	61	41	141	78	25	131	219	117	-10	1	5	61	89	47
135	3	2788	336	257	800	310	147	55	50	60	44	31	39	115	186	680	1	4	-19	97	49
136	4	2796	393	173	1040	171	148	27	27	43	40	17	54	0	131	1610	1	5	26	54	52
137	3	2797	280	160	900	267	112	32	50	374	51	63	198	7	157	250	1	4	-16	98	54
138	4	2801	321	233	912	100	180	31	46	62	79	19	69	92	123	2100	4	5	21	82	46
139	3	2805	138	183	1333	40	250	53	0	77	23	40	195	73	138	130	1	4	12	91	16
140	1	2815	898	441	420	0	308	25	18	3	42	68	26	72	94	180	9	2	318	44	14
141	1	2818	166	387	990	288	314	60	50	0	60	124	193	0	117	60	4	1	-6	99	25
142	3	2819	172	161	984	120	75	14	90	528	44	47	45	191	158	470	1	4	-23	80	54
143	3	2823	131	340	1040	258	338	54	150	81	50	104	29	32	172	130	9	4	3	73	36
144	1	2832	0	0	120	0	697	193	0	282	207	70	421	279	81	180	4	2	0	100	60
145	3	2841	263	140	1261	104	97	30	16	90	50	67	43	242	183	470	9	4	-9	98	44
146	4	2848	299	131	910	89	203	52	21	81	54	43	434	49	132	1260	1	5	-40	95	44
147	3	2849	116	227	953	40	40	20	87	140	43	51	87	285	195	830	1	0	58	80	25
148	3	2866	1037	328	867	147	166	47	49	34	49	34	125	90	182	-2060	1	4	44	98	46
149	3	2867	400	177	867	232	115	55	67	35	50	19	60	20	165	970	6	4	-9	86	31
150	2	2881	194	366	980	203	434	42	29	68	57	30	32	50	224	170	1	3	47	12	36
151	3	2888	315	358	867	40	224	97	66	45	77	57	195	22	63	770	1	4	7	99	53
152	3	2894	169	222	1040	238	389	64	24	162	39	16	35	247	164	-80	1	4	36	62	30
153	2	2901	102	275	1590	73	98	20	60	59	38	41	53	75	228	80	4	3	40	60	14
154	5	2902	114	199	728	100	320	158	73	136	94	56	117	27	129	510	1	6	32	99	31
155	3	2907	100	231	1127	190	220	35	41	435	60	37	64	26	88	330	1	4	-6	99	53
156	4	2910	158	148	975	417	102	53	59	85	60	65	148	65	201	670	1	5	-5	86	39
157	3	2935	212	228	895	108	50	18	100	1045	82	67	372	33	150	-2100	9	4	24	98	53
158	3	2974	396	240	717	240	269	74	44	101	93	35	164	179	170	-70	1	4	4	90	26
159	5	2999	108	132	832	248	458	78	42	338	81	27	244	5	138	570	1	6	62	96	36
160	3	3010	28	224	967	167	288	52	74	87	72	28	154	215	164	440	9	4	11	99	52
161	4	3027	67	173	1035	27	229	60	50	152	46	38	236	70	131	1530	1	0	7	98	60
162	3	3027	304	187	1040	100	342	91	25	123	50	33	79	150	236	840	6	4	32	84	44
163	3	3034	425	271	886	104	79	50	59	112	63	26	26	0	172	1130	1	4	56	99	50
164	3	3052	95	234	1340	400	282	65	38	5	38	5	30	214	177	70	4	4	49	89	60
165	3	3070	210	282	1350	140	286	83	167	65	63	45	227	231	178	-1410	3	4	73	99	33
166	3	3073	251	229	1200	99	254	36	56	226	47	12	42	168	173	180	4	4	-5	68	26
167	2	3081	209	245	1185	74	171	13	36	16	58	46	98	44	235	250	4	3	177	26	25
168	3	3109	97	282	1040	199	316	83	29	35	130	18	53	43	240	980	9	4	123	99	34
169	3	3145	222	175	1040	113	308	55	31	154	49	22	270	141	168	90	1	4	-3	43	38
170	4	3147	250	233	650	83	351	58	34	37	26	37	145	64	49	3760	1	5	70	45	26
171	4	3166	256	248	1170	145	153	30	64	129	33	49	69	11	113	2550	1	5	364	67	20
172	2	3191	150	337	1112	119	300	42	60	102	54	59	130	326	244	0	6	3	3	86	29
173	3	3198	185	234	1277	282	446	106	52	135	51	55	91	151	150	120	1	4	70	83	31
174	4	3200	120	165	780	443	350	46	17	85	41	23	275	12	125	1060	1	5	-4	92	40
175	3	3204	649	236	971	279	377	68	26	107	71	55	131	33	175	-1050	1	4	110	98	47
176	1	3210	0	0	0	350	666	281	34	332	350	10	350	76	74	290	1	2	-5	99	60
177	2	3226	7	299	1560	269	57	28	25	248	41	18	31	28	240	420	6	3	50	76	13
178	4	3242	202	219	935	414	276	77	51	47	95	53	114	446	115	-490	1	5	-36	91	39
179	5	3258	168	204	780	34	229	55	34	322	26	29	61	35	112	5860	1	6	-62	51	40
180	3	3274	207	201	780	115	320	65	33	152	82	31	67	17	152	1760	1	4	60	99	44

3.4 Unskilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
181	1	3280	420	359	1352	0	126	40	79	111	63	54	145	91	123	0	4	2	60	63	22
182	2	3297	80	292	900	10	320	42	0	15	30	65	197	170	35	1850	6	9	48	51	23
183	3	3315	190	238	900	237	188	30	36	24	77	13	73	340	160	1780	4	4	25	69	52
184	5	3332	53	124	684	22	296	76	49	806	37	84	75	240	115	1460	4	0	158	95	48
185	3	3335	182	166	1081	139	161	62	28	145	65	40	142	80	171	1770	1	4	11	95	30
186	3	3342	234	261	1127	116	276	37	28	243	21	24	166	505	213	170	4	4	98	88	27
187	3	3350	257	252	1253	365	408	87	54	101	72	9	116	55	191	100	9	4	4	96	54
188	4	3391	297	202	800	206	162	32	67	106	37	34	250	659	242	1180	9	5	-72	91	26
189	4	3400	311	220	975	199	308	80	50	111	34	45	296	31	135	500	9	0	-39	85	37
190	3	3409	205	277	1020	130	325	90	36	112	39	37	967	10	174	-400	1	0	119	74	24
191	3	3424	213	267	1020	420	211	64	65	226	63	51	98	102	158	660	1	4	-73	99	41
192	3	3424	196	315	1300	53	298	54	26	24	55	0	330	27	52	-630	4	4	512	91	35
193	2	3440	311	291	864	129	237	39	35	71	55	62	192	221	204	520	4	3	36	91	26
194	3	3446	311	277	1387	196	238	45	105	179	63	40	37	3	192	1110	4	4	93	77	17
195	3	3460	156	238	917	105	506	83	90	94	101	18	219	476	159	410	1	4	-22	99	54
196	3	3469	460	246	1127	280	491	75	62	80	70	25	144	75	167	200	1	4	-89	98	36
197	3	3495	356	286	1254	83	435	117	53	203	60	59	38	117	186	630	1	4	80	98	46
198	2	3539	335	335	892	75	253	97	61	249	80	87	302	85	424	-50	1	3	36	90	25
199	2	3654	342	368	980	128	414	67	49	336	82	29	173	98	270	160	9	3	1	99	52
200	5	3689	118	218	1100	120	325	118	60	36	61	32	188	2057	149	-5850	1	6	112	99	34
201	4	3705	147	208	690	149	340	74	45	152	47	39	293	958	153	-500	1	5	805	54	32
202	2	3750	252	285	1508	178	257	65	52	230	62	79	54	25	250	550	4	3	2	99	54
203	4	3792	222	267	1147	193	149	52	57	189	62	67	70	78	201	1300	1	5	31	98	42
204	1	3794	540	0	840	700	285	113	205	70	103	52	272	220	371	150	9	1	2	68	60
205	2	3828	348	260	1995	159	177	47	45	94	75	77	55	20	269	50	1	3	67	98	24
206	4	3927	427	179	1270	84	241	75	29	546	50	29	38	395	147	870	1	5	166	99	45
207	2	3968	314	305	1625	98	403	37	55	75	62	94	31	71	287	580	1	3	18	98	22
208	6	3975	165	147	917	58	272	57	25	148	45	17	147	768	88	5680	1	0	2	39	43
209	2	4025	308	379	1200	98	278	75	69	1027	89	50	81	39	279	-500	1	3	0	99	60
210	4	4042	363	281	910	262	180	28	53	61	76	29	59	66	197	3170	1	5	-84	74	45
211	4	4069	102	118	780	121	599	107	46	472	53	58	597	141	170	1760	1	5	2	99	60
212	4	4071	251	230	1200	329	335	86	36	326	173	55	300	75	197	1630	1	5	22	95	39
213	3	4105	338	338	973	290	489	93	47	422	95	40	185	140	191	880	6	4	-65	94	38
214	3	4114	56	340	1000	176	171	40	70	1886	93	32	176	17	102	-710	1	4	61	85	55
215	2	4129	462	446	1275	82	418	57	57	38	106	65	515	68	286	320	1	3	113	79	18
216	3	4302	120	282	1387	8	439	87	49	204	102	34	65	97	162	3330	4	4	10	98	51
217	2	4308	631	329	1061	130	400	50	88	35	95	52	176	140	211	760	1	3	40	62	25
218	3	4310	967	300	800	83	355	7	23	165	73	77	338	118	148	1550	1	4	-248	99	52
219	3	4311	371	291	867	214	247	127	59	360	150	60	422	225	165	1290	0	4	10	98	49
220	2	4322	291	575	1620	389	314	87	49	63	94	32	124	86	99	480	1	3	55	99	23
221	2	4347	389	309	1680	122	340	45	27	77	50	30	35	57	210	-210	6	3	-110	66	25
222	3	4355	227	204	1067	0	520	58	42	352	71	73	55	93	195	3850	1	4	410	91	36
223	2	4369	440	363	1560	392	186	38	45	109	51	66	362	40	249	780	4	3	-12	99	23
224	4	4392	347	244	1507	317	510	113	134	101	151	81	245	390	177	470	1	5	-109	94	35
225	2	4412	398	460	1632	400	226	17	81	40	93	51	453	75	249	60	6	3	20	80	38
226	3	4441	713	292	1345	414	72	24	53	7	75	79	40	105	179	2540	1	4	-87	90	30
227	2	4444	198	296	1300	125	110	32	37	27	25	33	53	0	163	4500	1	3	36	91	60
228	4	4519	109	194	962	202	379	37	28	103	68	19	357	235	300	4920	9	5	229	87	15
229	3	4554	292	262	1326	125	763	108	72	278	139	71	155	427	206	630	1	4	48	90	38
230	2	4703	240	364	1881	200	477	106	84	403	134	14	117	315	240	160	6	3	0	99	54
231	2	4723	398	523	1200	200	266	51	50	95	81	68	130	10	271	60	1	3	122	98	21
232	2	4726	274	361	1770	57	104	17	124	287	14	53	53	521	213	1310	1	3	-41	96	11
233	2	4788	288	144	1620	456	109	12	188	874	221	39	114	30	326	120	6	3	-10	99	54
234	2	4796	141	388	1040	150	148	56	123	17	38	37	225	85	248	3670	9	3	320	76	27
235	2	4882	183	485	1717	338	792	76	75	162	73	55	266	708	129	-1320	1	3	116	98	22
236	2	4899	242	269	1125	252	205	81	26	340	95	16	245	66	259	3120	1	3	634	67	41
237	1	4920	299	769	1225	225	205	139	278	227	75	148	565	60	454	130	6	1	110	64	18
238	2	4957	165	451	1020	104	451	33	52	745	58	31	148	45	240	2820	1	3	16	25	20
239	2	4963	304	435	1820	476	325	84	118	675	108	97	304	327	274	-1860	1	3	132	90	30
240	1	4992	83	366	1190	110	922	72	177	29	51	127	148	763	421	120	1	1	66	69	19

3.4 Unskilled workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
241	2	5030	263	334	2040	20	922	70	99	141	76	23	98	115	247	920	9	3	-42	93	53
242	1	5091	360	489	1560	357	298	112	256	365	159	26	89	358	280	40	1	2	0	99	54
243	2	5112	176	316	2165	475	110	16	58	81	61	108	291	746	238	460	1	3	84	94	34
244	2	5151	429	411	1330	347	293	46	84	78	41	47	105	35	267	1940	1	3	139	72	33
245	1	5176	670	655	1046	0	343	146	88	473	135	14	234	167	78	180	4	2	1	99	54
246	2	5215	117	248	1020	51	317	35	51	137	58	46	407	17	233	1420	1	0	353	63	15
247	2	5361	540	411	1185	228	319	96	58	181	116	112	377	648	300	740	1	3	23	98	49
248	2	5399	707	287	1300	319	365	77	43	264	77	60	413	120	280	3570	9	3	419	54	52
249	2	5447	396	553	1820	441	338	70	212	782	104	119	128	115	113	380	1	3	149	88	21
250	1	5472	540	0	1828	700	720	109	0	45	200	60	150	557	379	100	1	2	0	100	50
251	2	5474	264	414	1380	250	544	157	164	322	131	95	637	160	244	530	4	3	25	89	50
252	2	5505	561	447	1200	260	758	107	118	293	125	54	416	451	278	160	1	3	41	89	41
253	2	5562	415	536	1045	398	283	26	43	134	41	143	137	146	274	160	1	3	1	99	50
254	3	5576	296	424	1030	100	320	53	41	46	139	72	192	5300	197	-8330	4	4	157	97	36
255	2	5580	497	454	1268	469	254	66	107	289	208	130	510	480	350	680	6	3	-166	83	51
256	2	5842	270	322	1300	310	566	53	59	235	99	51	385	25	247	3110	1	3	37	90	31
257	1	5947	488	907	1820	135	390	132	167	241	103	242	127	229	443	170	1	1	-4	71	44
258	1	6005	360	168	2040	474	757	115	200	0	224	0	686	390	460	190	1	1	0	99	54
259	2	6158	476	481	2080	234	415	86	73	81	113	54	350	6	217	2090	1	3	382	94	16
260	2	6290	376	410	1208	350	419	62	50	403	189	70	430	780	338	-70	1	3	133	80	28
261	2	6399	420	637	1560	234	125	101	80	343	117	96	70	1125	365	2400	1	3	0	99	60
262	1	6521	384	584	2205	275	411	103	90	39	118	28	250	30	253	130	1	2	0	70	50
263	2	6669	547	296	1232	660	379	114	106	141	170	148	499	377	477	1840	1	3	7	72	48
264	2	6924	408	326	1820	1000	612	41	211	63	196	104	608	187	88	250	9	3	12	98	40
265	2	6987	607	481	1680	560	569	56	59	73	149	45	567	157	432	2950	2	3	-275	97	42
266	1	7035	618	489	1300	435	652	130	161	157	71	72	77	338	265	2040	4	1	449	89	47
267	1	7066	88	145	1300	542	608	98	55	139	79	197	1015	1094	415	-60	4	1	155	78	28
268	1	7448	480	10	2240	705	971	111	138	0	293	206	951	1976	349	-1030	4	1	13	100	53
269	1	7686	554	436	1040	0	730	33	140	121	72	80	285	124	444	3680	9	1	279	48	46
270	1	7723	240	36	1560	464	467	99	0	111	88	0	1051	57	341	3210	4	1	11	100	53
271	1	7931	1567	620	1040	652	412	114	122	45	59	133	265	7265	526	-8960	1	1	155	95	34
272	1	7970	335	401	2184	1020	1057	57	217	520	185	90	471	75	492	210	1	1	55	91	29
273	1	7982	840	22	927	620	1635	207	34	1089	389	134	1171	202	137	160	1	2	0	95	60
274	1	8058	1675	403	2000	78	375	104	13	52	118	59	318	174	398	1170	1	1	124	93	6
275	1	8101	504	4	2576	200	1149	149	312	8	110	14	2415	1311	430	-1200	4	1	105	96	60
276	1	8236	180	0	2250	488	1124	104	250	0	239	0	1240	1614	417	-110	4	1	-4	100	53
277	1	8259	360	36	2010	696	381	83	84	55	141	84	1060	2000	442	440	1	1	3	99	54
278	2	8494	728	893	2600	287	2009	153	83	775	240	74	443	410	144	-2240	9	3	1864	23	17
279	1	9396	1084	6	2000	549	306	104	180	34	192	0	1119	492	468	2770	1	1	-229	91	51
280	1	9439	240	153	1560	1225	604	73	195	11	38	64	548	1120	398	40	1	1	148	76	38
281	1	10478	339	557	3172	314	710	52	86	31	56	115	427	1380	465	1780	1	1	88	68	17

3.5 Agricultural workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	10	872	7	65	522	23	88	29	34	36	34	7	5	14	51	130	1	7	20	60	41
2	9	907	34	80	404	15	82	33	16	40	21	3	6	42	75	340	6	7	-119	53	43
3	9	918	97	81	404	73	48	34	24	31	17	3	17	194	18	420	3	7	0	98	38
4	9	967	130	88	549	19	20	22	26	7	15	0	6	91	55	220	2	7	21	73	37
5	5	985	37	144	572	97	6	13	30	3	24	0	9	17	41	-160	3	6	-5	76	44
6	9	1000	28	91	289	21	85	50	28	44	19	8	90	22	43	220	4	7	1	99	41
7	5	1009	98	77	240	24	71	34	51	33	42	0	50	73	83	250	1	6	67	67	36
8	4	1073	18	108	440	156	85	26	27	5	30	14	86	10	3	70	4	5	-10	93	51
9	6	1097	170	105	433	13	38	18	22	36	10	17	50	24	26	710	1	7	22	53	40
10	2	1124	547	552	845	52	53	26	157	157	36	35	52	430	35	-3960	3	0	320	74	52
11	6	1127	191	129	433	3	26	13	47	100	39	15	9	5	92	320	1	7	0	76	45
12	5	1142	73	106	624	44	25	14	15	17	15	10	6	10	73	0	4	6	-30	63	28
13	6	1155	53	84	528	90	57	25	50	29	41	21	28	17	96	190	1	7	34	67	35
14	6	1170	100	171	433	7	31	14	37	41	22	36	13	62	76	260	1	7	-14	53	48
15	7	1262	69	43	557	37	21	45	37	17	25	4	128	4	74	390	4	7	0	84	60
16	5	1288	96	102	510	87	91	31	21	23	39	20	63	40	114	80	9	6	0	74	42
17	7	1293	77	100	624	74	151	55	28	62	20	17	31	30	72	-900	4	7	-10	72	32
18	2	1317	250	287	780	43	82	7	57	22	12	41	29	181	66	-1850	4	3	51	70	54
19	6	1383	116	110	533	40	70	14	27	3	30	19	10	226	80	370	1	7	-8	98	51
20	4	1401	0	90	585	61	30	30	32	397	37	20	139	60	37	-630	1	5	9	100	60
21	5	1405	103	151	696	5	76	26	33	68	41	20	11	26	91	60	4	6	-14	65	49
22	5	1408	117	214	532	55	62	50	44	70	26	8	38	21	102	120	1	6	17	52	43
23	6	1413	0	162	650	44	27	17	38	74	29	5	50	22	76	220	9	7	-7	99	48
24	5	1414	212	232	515	76	143	22	49	28	54	16	37	42	100	-420	1	6	-5	28	43
25	5	1420	48	101	780	42	58	14	25	26	31	52	30	19	93	80	4	6	0	71	22
26	5	1477	118	140	832	209	123	49	29	13	29	26	33	18	86	490	1	6	0	98	47
27	5	1479	67	95	596	129	69	57	15	167	27	16	59	0	120	-2420	1	6	20	99	45
28	2	1482	13	86	910	36	27	19	11	0	15	21	30	61	74	-150	4	3	12	51	52
29	5	1488	94	124	572	52	55	24	16	42	33	12	61	10	97	470	9	6	0	98	47
30	5	1513	80	134	624	30	100	31	36	84	51	11	19	20	97	270	1	6	0	98	52
31	4	1545	81	173	910	50	169	56	45	84	45	54	65	70	95	-1380	2	5	80	76	43
32	5	1575	0	128	928	11	65	31	17	42	21	60	64	0	58	160	3	6	0	98	51
33	6	1622	42	88	784	117	130	48	56	41	30	26	32	70	56	-160	6	0	-15	96	38
34	4	1630	63	166	780	80	164	12	51	105	38	7	12	37	116	60	4	5	-2	75	53
35	6	1635	88	104	693	131	98	42	34	74	42	26	66	11	78	560	1	7	-6	98	60
36	4	1682	127	215	390	0	136	36	47	170	28	8	16	67	36	1540	4	5	-4	87	53
37	6	1684	89	145	600	32	174	51	39	66	45	14	78	55	78	100	1	7	-36	73	38
38	3	1686	173	182	867	139	73	18	74	3	28	11	89	7	169	-630	6	4	0	94	53
39	5	**1688**	60	166	624	187	72	33	43	84	30	28	154	51	83	120	6	6	0	63	50
40	4	1691	152	184	530	0	254	47	45	135	40	22	127	37	117	-340	1	5	42	97	54
41	4	1709	186	145	650	77	105	15	37	70	39	16	53	82	144	330	4	5	1	97	50
42	4	1714	116	150	416	12	296	41	37	170	32	25	35	51	116	830	1	5	18	99	46
43	2	1734	106	95	1040	59	13	15	70	3	10	36	22	0	196	160	4	3	50	50	24
44	5	1745	145	64	520	58	312	63	36	79	26	20	23	56	105	620	1	6	11	96	41
45	5	1771	154	104	458	32	158	68	31	307	40	20	151	24	31	370	1	6	-15	99	48
46	5	1782	171	97	728	86	65	25	38	19	45	18	64	26	124	410	9	6	-35	75	44
47	3	1799	246	203	800	36	86	23	21	4	20	33	69	150	185	-400	4	4	43	62	60
48	4	1800	123	148	845	51	155	63	41	42	64	27	53	17	110	130	1	5	0	98	51
49	5	1808	182	81	468	0	165	76	36	202	52	18	157	141	109	-240	4	6	33	57	41
50	5	1825	85	47	624	84	102	44	19	15	46	23	59	225	89	650	1	6	4	76	42
51	4	1834	155	150	625	100	62	33	9	194	31	24	37	82	40	500	9	5	-3	97	53
52	5	1861	87	162	734	81	179	31	20	21	17	46	152	46	76	150	1	6	-3	98	51
53	4	1883	1	143	775	87	258	45	19	98	35	47	70	90	88	490	4	5	14	98	46
54	4	1912	96	106	910	125	88	39	20	13	15	22	118	52	139	-90	4	5	328	84	44
55	3	1919	55	172	728	160	35	34	74	337	52	20	24	30	56	160	4	4	13	99	51
56	4	1920	27	182	650	132	105	21	75	80	61	30	11	42	144	1230	3	5	19	50	54
57	3	1930	213	161	867	408	42	30	12	7	25	35	50	18	118	-540	6	4	70	58	52
58	4	1949	400	165	650	17	161	28	33	83	50	15	35	33	107	2720	1	5	0	98	45
59	4	1968	156	187	910	96	62	35	22	172	36	62	40	36	122	100	9	5	0	77	32
60	4	1992	223	182	1072	80	100	49	18	59	44	46	46	40	135	650	9	5	-3	84	42

3.5 Agricultural workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
61	3	1995	111	186	867	67	164	28	18	81	41	33	45	27	154	350	4	4	-20	83	43
62	5	1999	82	133	819	119	262	32	35	69	43	12	149	6	25	120	3	0	8	90	52
63	4	2000	105	151	765	50	202	27	20	5	52	15	50	32	140	790	1	5	-15	86	49
64	4	2017	0	147	875	156	139	48	78	96	36	16	104	35	124	220	1	5	-2	99	38
65	3	2020	149	119	1040	95	94	33	63	45	42	38	118	76	55	60	6	4	32	67	52
66	2	2026	80	168	825	77	78	21	26	156	30	48	25	33	254	200	1	3	119	47	14
67	5	2041	148	98	759	118	153	40	17	130	33	37	111	38	104	1140	1	6	132	86	42
68	4	2066	50	181	650	171	223	42	42	119	34	36	60	220	87	-880	9	5	13	85	30
69	3	2094	100	191	953	76	105	25	27	33	35	22	90	21	173	0	1	4	1	87	54
70	3	2102	115	218	907	0	123	33	31	71	39	10	28	52	107	380	4	4	-1	99	18
71	7	2103	7	76	929	96	461	63	16	88	52	19	61	67	45	250	1	5	3	90	48
72	4	2115	25	128	875	71	195	57	75	189	69	24	66	111	101	260	3	5	-3	97	51
73	2	2116	311	211	800	100	86	31	31	154	36	56	16	12	80	20	6	3	66	76	26
74	3	2134	0	175	833	148	85	45	30	80	60	14	164	42	51	810	1	4	0	99	53
75	4	2138	75	113	780	53	112	47	14	19	30	6	20	45	41	2620	9	5	197	87	42
76	3	2181	155	188	1213	90	214	43	27	27	39	16	0	3	46	120	1	4	0	98	31
77	3	2193	233	146	600	26	116	36	37	149	35	62	48	247	173	260	4	4	-2	89	38
78	3	2205	17	175	935	17	111	16	19	0	19	13	515	7	193	40	2	0	84	46	45
79	4	2239	307	181	325	52	167	92	57	143	55	18	26	316	143	900	1	5	34	33	43
80	2	2240	180	225	805	132	191	44	62	231	74	25	35	100	253	-390	9	3	-8	49	30
81	3	2273	240	131	693	121	206	28	33	129	27	24	11	139	175	160	6	4	1	98	54
82	4	2276	219	232	650	0	120	43	10	107	81	25	140	18	180	1180	1	5	170	93	42
83	3	2296	294	200	867	0	159	48	24	11	39	25	12	10	167	1250	9	4	-9	100	51
84	3	2305	181	341	693	59	398	127	10	2	30	57	28	6	190	430	4	0	35	69	44
85	2	2323	247	377	780	95	146	36	35	55	28	11	52	13	59	400	4	0	14	50	43
86	5	2392	78	196	1040	87	203	33	29	163	56	31	97	36	71	650	1	6	4	96	44
87	2	2399	342	399	750	117	210	47	99	69	27	22	12	136	68	120	1	3	134	61	27
88	4	2408	100	131	600	54	312	47	37	165	35	27	52	40	130	3110	9	5	66	87	41
89	4	2414	232	136	1040	41	186	48	74	87	82	23	86	76	122	810	4	5	-58	78	35
90	4	2444	150	187	861	323	129	24	44	97	43	41	37	186	114	320	1	5	-4	92	53
91	3	2490	133	193	1105	200	128	31	25	61	30	42	173	123	205	120	1	4	0	87	45
92	4	2556	192	144	1105	144	180	30	36	105	41	44	114	354	30	-220	9	5	147	54	20
93	3	2561	320	191	1127	33	94	25	25	108	67	12	77	45	160	180	6	4	0	99	35
94	1	2563	180	13	549	161	266	117	158	33	19	64	159	174	81	230	3	1	36	95	60
95	2	2568	213	333	780	25	120	71	18	3	15	33	70	72	92	830	9	3	143	99	60
96	6	2582	233	154	818	102	372	90	33	315	82	17	140	118	56	-1490	4	7	-152	96	37
97	5	2585	167	142	936	41	149	68	25	446	36	26	22	288	107	520	1	6	-83	87	40
98	3	2587	219	195	1103	105	191	51	43	105	29	34	108	53	169	540	1	4	6	92	45
99	2	2627	220	252	1040	475	62	25	0	75	32	42	40	15	85	550	9	3	0	60	32
100	4	2636	19	170	765	175	338	57	38	261	106	41	368	97	92	40	4	5	48	84	28
101	5	2638	142	155	864	45	221	50	18	72	32	0	32	43	53	2660	1	0	73	56	41
102	3	2645	100	146	1253	101	102	24	69	111	105	48	192	52	133	60	1	4	1	90	25
103	3	2654	268	231	1127	73	219	41	62	138	60	36	67	37	171	-110	1	4	1	75	44
104	4	2656	80	250	1105	138	142	20	56	81	69	50	74	55	121	770	1	5	52	99	27
105	3	2685	178	104	1387	106	501	63	67	554	121	17	159	85	169	-1650	9	4	20	97	36
106	3	2694	90	223	1333	151	75	7	38	82	78	10	12	23	170	380	4	4	-3	81	52
107	2	2711	378	362	1560	215	462	61	100	464	103	72	177	190	258	-3110	4	3	97	99	21
108	3	2719	198	252	953	94	142	52	61	69	8	36	98	24	191	1440	4	4	37	54	24
109	3	2746	140	213	1127	226	192	17	52	71	81	32	23	41	166	800	1	4	41	97	52
110	2	2825	180	259	1170	276	248	60	37	88	42	25	58	45	266	120	6	3	0	98	48
111	4	2834	45	88	954	76	332	60	28	204	57	36	130	92	173	1030	4	5	8	83	35
112	2	2871	166	26	845	373	352	50	22	1	87	37	42	149	214	360	1	3	63	89	22
113	2	2885	20	258	1560	231	120	53	37	19	74	85	77	60	94	180	2	3	0	99	41
114	4	2944	2	170	1450	87	388	71	64	98	81	33	45	134	59	1380	9	5	116	98	38
115	2	2987	210	293	1300	190	153	29	59	176	56	30	35	799	243	-1620	2	3	42	72	20
116	3	3017	160	207	1300	133	388	70	47	79	95	45	67	100	174	260	9	4	3	74	35
117	2	3024	135	414	1139	250	506	58	28	60	41	36	54	39	96	80	4	3	670	61	24
118	2	3080	156	411	1300	27	327	63	124	69	23	34	15	24	165	440	4	3	38	99	35
119	2	3084	244	307	1040	9	99	28	43	190	32	40	102	43	247	440	1	3	48	74	23
120	2	3095	210	261	1423	284	71	40	36	17	45	66	66	235	256	120	6	3	0	74	41

3.5 Agricultural workers. Rural districts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
121	2	3103	165	320	1300	304	65	28	51	25	53	50	59	66	193	-100	6	3	2	69	25
122	2	3118	310	244	910	386	55	17	58	213	55	64	19	100	226	80	4	3	0	99	33
123	2	3122	237	320	1000	150	152	42	45	215	67	87	152	25	90	530	6	3	0	97	18
124	3	3126	181	139	1213	194	220	48	29	90	59	76	274	68	164	-80	1	4	143	92	52
125	2	3168	172	436	1071	154	390	41	58	77	54	98	111	72	202	150	4	3	0	98	54
126	2	3195	60	409	1430	214	65	15	110	219	48	63	95	183	69	660	6	3	1	98	27
127	2	3225	230	227	1300	125	125	67	51	5	59	27	109	15	72	1420	4	3	97	98	28
128	3	3240	258	366	867	130	313	120	60	266	74	24	109	123	180	290	1	4	-11	87	35
129	2	3248	359	455	1560	5	115	18	46	28	64	74	44	47	186	280	4	3	19	86	27
130	4	3265	146	188	1080	47	342	30	31	98	39	29	27	1078	120	-1400	6	5	-4	52	46
131	3	3282	665	189	907	41	256	53	21	163	71	18	23	50	233	720	4	4	13	87	23
132	3	3295	60	157	1213	63	245	73	27	450	63	43	42	52	71	1540	1	4	110	81	38
133	2	3383	239	204	1040	72	621	56	57	552	71	45	31	30	241	90	1	3	3	84	27
134	3	3440	199	303	1137	460	376	87	33	359	51	44	56	65	220	380	1	4	-6	87	40
135	2	3522	378	367	1000	355	161	50	40	479	51	52	117	50	244	300	1	3	30	59	17
136	2	3562	264	381	1400	180	164	24	104	137	96	52	118	78	245	30	4	3	9	67	36
137	2	3615	567	248	1135	225	231	54	49	20	66	32	212	100	66	490	4	3	26	99	17
138	2	3669	240	297	1820	57	260	38	205	124	18	62	33	26	58	40	1	3	1	100	46
139	2	3772	301	373	1020	250	265	85	40	97	124	50	211	204	257	940	1	3	4	84	27
140	2	4001	207	222	1560	14	296	57	47	121	49	52	694	21	86	970	6	3	105	98	19
141	1	4013	519	341	540	33	298	88	188	92	65	74	588	102	262	290	3	1	104	84	60
142	1	4046	472	259	1364	125	261	106	100	84	62	40	135	75	79	640	6	1	353	88	60
143	2	4054	201	253	1334	208	402	37	40	233	61	32	318	41	109	740	1	3	31	97	18
144	2	4076	196	313	1170	360	396	20	151	44	55	107	5	712	230	50	1	3	38	63	25
145	1	4304	784	226	780	699	193	52	350	60	124	65	92	195	106	0	2	1	230	32	60
146	1	4350	142	457	960	126	258	38	224	17	56	209	201	97	438	1010	6	1	49	33	26
147	1	4353	44	425	800	100	55	29	110	303	52	95	245	102	454	820	2	1	28	75	46
148	2	4451	270	370	1300	207	694	65	47	548	105	39	121	24	282	560	1	3	39	98	23
149	2	4585	614	344	1150	258	205	38	49	66	37	36	61	100	235	1870	9	9	130	51	28
150	1	4634	184	186	1278	292	127	39	70	72	169	66	495	72	277	1190	1	1	174	65	42
151	2	4844	920	880	1200	30	430	38	63	22	66	15	100	90	232	1070	9	3	0	78	24
152	1	4883	810	725	1000	500	738	28	143	16	51	71	135	42	60	-870	2	1	199	47	60
153	1	5029	150	15	1312	617	901	101	205	20	127	30	976	120	108	100	1	1	10	100	60
154	1	5108	508	386	520	365	726	85	152	467	265	33	350	250	152	740	4	1	-17	99	48
155	1	5225	91	143	1920	420	436	43	79	17	59	5	699	125	468	200	5	1	4	69	60
156	1	5319	348	439	525	364	228	71	80	0	75	0	752	97	410	104	6	1	2	99	48
157	2	5359	211	301	1920	308	470	72	97	162	44	60	919	283	221	-130	4	3	3	83	23
158	1	6573	383	355	2800	0	562	83	246	14	25	95	1250	13	358	-340	4	1	121	95	50
159	2	7199	200	61	624	166	127	27	63	689	58	9	214	1049	135	13350	1	3	-39	47	54
160	1	8104	360	566	2062	661	476	75	559	22	68	143	1113	1263	540	40	1	1	3	99	39

Appendix D

Detailed account of the expenditure items in the questionnaire of the Danish consumption survey 1955.

1. *Dwelling*
   Ordinary rent
   Expenditure on maintenance, etc.
   Mortgage payments
   Taxes on land and buildings
   Water rates, etc.
   Glass insurance
   Other insurance
   Expenditure in conn. with purchases of real property

2. *Fuel and lighting*
   Contribution to central heating
   Coal
   Coke
   Fuelwood
   Kindling
   Peat and patent fuel
   Lignite
   Oil for heating
   Town gas
   Bottled gas
   Electricity
   Kerosene
   Electric bulbs
   Matches
   Other expenditure

3. *Food*[1])
   Expenditure of foodstuffs bought (incl. beer, wine, and spirits for household use)
   Expenditure on regular eating out

4. *Tobacco*
   Cigars, cigarillos, cheroots
   Cigarettes
   Cigarette tobacco and paper
   Pipe tobacco

[1]) This item was taken up for special investigation in a separate food-survey, cf. *Statistiske Efterretninger* 1958, No. 46.

Chewing tobacco and snuff
Pipes
Pipe cleaners
Tobacco purses, lighters, etc.

5. *Clothing*

27 different items of men's clothing
25 different items of women's clothing
Repair of clothing

6. *Footwear*

5 different items of men's footwear
5 different items of women's footwear
Repair of footwear
Shoe-laces, polish

7. *Washing and cleaning*

Outside washing, mangling, ironing
Outside cleaning, pressing, proofing
Soda and other softening agents
Brown soap, soft soap
Soap flakes, soap powder, bar-soap
Detergents, dish-washing preparations
Self-acting washing preparations
Starch, bleaching solution, dye tablets
Scouring powder
Methylated spirits, hydrochloric acid, cleaning liquids
Lacquer and varnish
Floor polish and mop-oil
Other expenditure

8. *Durables*

13 different items of furniture, lamps, and ornamental objects
11 different items of bedclothes and table-linen
10 different items of kitchen utensils and table ware
Washing machines
Wringing machines
Kitchen ranges, cookers, and ovens
Refrigerators and ice-boxes
Mixers
Vacuum-cleaners
Sewing machines

Perambulators
Brushes
Buckets, tubs
Irons
Tools and implements (excl. those for professional use, hobby, and garden)
Other acquisitions apart from transport equipment
Repair of durables

9. *Personal hygiene*

Bath, pedicure, ultra-violet ray treatment
Hairdresser and beauty culture
Hand soap, bathing soap, shaving soap
Hair-washing preparations
Toothpaste
Nail brushes, sponges, face choths
Combs, hairbrushes, hairpins
Razor, shavers
Toothbrushes and tooth glasses
Hair-lotion, brilliantine, cream, perfume, lipstick, powder, nail-polish, and other cosmetic articles
Other expenditure on personal hygiene

10. *Books, newspapers, etc.*

Books
Newspapers
Weekly and monthly magazines
Periodicals

11. *Sports, hobbies*

Consumption at restaurants
Beer, wine, and spirits outside the usual household consumption
Radio and television
Gramophone
Musical instruments
Theatre, cinema, and concerts
Other entertainment (sports games, etc.)
Holiday dwelling
Other holiday expenditure, incl. holiday transport
Garden and domestic animals
Sports, subscriptions, and accessories
Other recreation

12. *Transport*

Public transport facilities
Taxi
Acquisition and maintenance of bicycle
Acquisition and maintenance of motor-assisted bicycle
Acquisition and maintenance of motor-car and motor-cycle
Petrol and oil
Taxes and insurance
Other transport expenditure

13. *Union fees and subscriptions*

Unemployment insurance
Fire and burglary insurance
Health insurance
Other insurance (excl. life and superannuation insurance)
Fees and subscriptions to trade and professional associations
Other fees and subscriptions (excl. sports and motor associations)