

# REDISTRIBUTION OF INCOME IN THE UNITED KINGDOM IN 1959, 1957 AND 1953

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## I. INTRODUCTION

THIS paper examines the extent of the redistribution of income resulting from the various forms of taxes and social service benefits in the United Kingdom, in the three years 1959, 1957 and 1953. The estimates for 1959 and 1957 are based on information derived from the continuing Family Expenditure Survey which has been held each year since 1957.<sup>1</sup> This sample survey covers about 3,000 households a year and, though primarily intended to meet other needs, was also designed to provide a good deal of the information needed for this purpose. For various reasons, the estimates for 1953 must be considered less reliable than those for 1959 and 1957. Only a limited amount of relevant information was collected in the Ministry of Labour's Household Expenditure Enquiry of 1953, which therefore had to be supplemented by calculations of income tax payments and information from other sources. The estimates for 1959 and 1957 make use of data for individual households which it was possible to regroup according to the income at each stage of redistribution. The estimates for 1953 are based on the average taxes and benefits, and average incomes at each stage, of households of each type in each of nine ranges of gross income, the only measure of income then used for classification. But we have also made an attempt to find out what would be the effect on some of the 1953 estimates of replacing the average amounts of direct taxes and direct benefits in ranges of gross household income by corresponding figures for individual households and regrouping them at the appropriate stages, as in the estimates for 1959 and 1957.

The use of sample surveys to provide all the detailed information needed for an analysis of the redistribution of income is

<sup>1</sup> *Family Expenditure Survey - Report for 1957-59*, published by the Ministry of Labour (H.M.S.O., 1961), describes the objects of the survey and the methods used, includes copies of the forms used in 1959, and gives the general results obtained in the first three years. Comparable results for later years are given in the *Family Expenditure Survey - Report for 1960 and 1961* (H.M.S.O., 1962) and *Report for 1962* (H.M.S.O., 1963).

still in a very early stage. As mentioned below, several teething problems have been experienced and the basic data suffer from known weaknesses at certain points. Since 1957 was the first year of the survey, the estimates for this year are more affected by these weaknesses than the estimates for 1959. In particular, comparability is affected by the lower response rate in 1957 and the different methods of making adjustments for variations in the response rate among each year's sample of households. In addition, there is no doubt that the estimates for all years would be improved if we had more information than we possess at present about such matters as the extent to which different households make use of the various national health services, the benefits which individual households derive from housing subsidies, or which certain farmers derive from food subsidies. The fact that some of the information needed may always remain intractable should not deter us from carrying the analysis as far as it can be taken at present.

As the knowledge and experience which are gradually accumulated lead to improvements in the design of the sample and of the questionnaires, in the interviewing procedure, and in the data and methods used in the analysis, it is hoped that the estimates for later years will become more reliable – at the cost of impairing to some extent comparability between the estimates for different years. In the meantime, caution is necessary when drawing conclusions from the present results which enable general rather than detailed comparisons to be made.

## II. DEFINITIONS AND GENERAL METHODS

It is first necessary to define a few general terms and to classify the taxes and benefits which are regarded as forms of redistribution of income. Taxes and benefits are grouped under four main headings, as in the following list which includes the terms used to define income at different stages. The main questions that arise under each heading are then discussed, as far as possible in the order shown in the list. In general we have followed the definitions of personal income and expenditure and the classification of the different forms of taxes and benefits used in the official estimates of the national income of the United Kingdom.<sup>1</sup>

<sup>1</sup> The descriptions in *National Income Statistics – Sources and Methods* (H.M.S.O., 1956) are brought up to date in the notes included in the annual National Income Blue Books.

The present analysis is concerned with the distribution and redistribution of income between private households. Since a large proportion of personal expenditure is incurred on behalf of all members of a household, this seems the most suitable unit for a study of this kind which has an obvious bearing on the standard of living. A household comprises all people who occupy the same dwelling and are catered for by the same person(s), including domestic servants and children at boarding school. Children are so defined if they are under 16. The survey covers private households only and thus excludes members of the Armed Forces living away from home and people living in hotels, boarding houses and institutions such as nursing homes, prisons and mental hospitals. The terms 'household' and 'family' are used synonymously throughout this paper.

The amount of tax paid and the amount of benefit received under each heading in 1957 and 1959 were obtained from the replies of households co-operating in the Family Expenditure Survey, except as otherwise indicated below. The methods and sources, in addition to the Household Expenditure Enquiry, used in preparing the cruder estimates for 1953 and further details of the estimates for 1957 and 1959 are described in the Appendix.

*Direct taxes*

- income tax and surtax payments
- employers' and employees' contributions to national insurance and national health services

*Direct benefits*

- family allowances
- national insurance benefits (pensions; sickness, unemployment, injury, maternity, death benefits, etc.)
- non-contributory old age pensions
- national assistance grants
- national health services
- school meals, milk and other 'welfare' foods
- state education (including school health services)
- scholarships and grants from local or central Government

*Indirect benefits*

- food subsidies benefiting consumers (see page 128)
- housing subsidies

*Indirect taxes on consumers' expenditure*

- local rates on dwellings
- customs and excise duties (taxes on beer, wines and spirits, tobacco, oil, entertainment and betting, etc.)
- purchase tax
- motor vehicle licences
- stamp duties (excluding those on property)

*Pre-redistribution income*

- the sum of the incomes, including income in kind, of all members of the same household before receipt of any direct or indirect benefits and before payment of any direct or indirect taxes

*Income after direct taxes and benefits*

- total household income after receipt of all direct benefits and after payment of all direct taxes

*Post-redistribution income*

- total household income after receipt of all direct and indirect benefits and after payment of all direct and indirect taxes

One of the main difficulties in considering the extent of the redistribution of income is to decide the most appropriate period to which incomes, benefits and taxes should relate. Some direct benefits, in particular, may be received for only short periods (e.g. sickness and unemployment benefits) and their distribution between households will be sensitive to the period chosen. This is also true of any incomes that are liable to fluctuate from one period to another. It seems probable that shorter periods would lead to more uneven distributions of income including and excluding benefits. A year might generally be regarded as the most sensible period to take. But it is difficult to obtain some types of information covering as long a period as a year from a sample survey which has several different purposes. Yet, in the case of a person who happens to be temporarily off work at the time of the survey, his earnings in the current week (which may even have been nil) are not an adequate measure of his usual earnings.

The questionnaires used in the 1957 and 1959 surveys were designed to obtain information about earned income received

in the previous week (those paid weekly), or in the previous month (those paid monthly); until 1962 this information was used in tabulating the results that have been published by the Ministry of Labour. Although until 1961 no special efforts were made to find out how much each person 'normally' earned, or his/her total earnings over the past year, in many of the cases where a person was off work at the time of the survey information was obtained about his/her most recent earnings while at work and this information has been embodied in the present estimates. In cases where a person was off work and little or no information had been obtained about recent earnings (there were twenty-six such cases in 1957 and forty-six in 1959), rough estimates were made of the normal level of income of the household, based on a careful scrutiny of all the information in the questionnaires, including particulars of expenditure and the duration of sickness or unemployment.<sup>1</sup>

The information about unemployment and sickness benefits and other direct benefits in cash, collected in 1957 and 1959, referred to the weekly benefits which were being received at the time; questions about how long they had been received, though included in more recent years, were not then included in the survey. Information referring to the past year instead of the current week would have shown a large number of households each receiving a small benefit (a large proportion of people are off work through sickness for one or two weeks a year) instead of a comparatively small number each receiving a substantial benefit (on the assumption that the same benefit was received throughout the year). Estimates based on the amounts received during the past year would be more appropriate, but the present analysis has had to rely on information about cash benefits received in the two current weeks. We have, however, included some notional estimates of the likely orders of magnitude of the difference between the two methods in terms of Gini coefficients of inequality.<sup>2</sup> As might be expected, direct benefits cause a somewhat larger reduction in inequality if reckoned on an annual basis than if reckoned on the basis of a single week.

The contributions made by employers and employees to national insurance and the national health services are regarded as direct taxes. These contributions do not fluctuate and the

<sup>1</sup> The use made of this information is explained in the Appendix, Note 6.

<sup>2</sup> See Appendix, Note 7.

Family Expenditure Survey asked only for the amounts paid on the last occasion by each individual.

The full amounts of national insurance and old age pensions are regarded as benefits enjoyed at the time the pensions are paid. Other national insurance benefits are available to those who are insured against the contingencies – unemployment, sickness, maternity, etc. – provided for by the scheme. The benefit consists in the sense of security which goes with the knowledge that an insured person, when meeting any of these contingencies, will be paid at a specified rate. The benefit in each case thus depends on the expected chance of meeting the particular contingency during the year. For the members of any given household, these chances must be expected to depend on the most recent experience of households in similar circumstances and must be closely reflected, therefore, in the payments actually made to such households in the current year. The benefits are thus taken to be the amounts currently received by each household, on the assumption that these average out to give a tolerably accurate measure of the benefit, in terms of insurance ‘cover’, enjoyed by any given group of households, e.g. those of similar composition within a particular income range.

The national health services are available to all residents of the United Kingdom who benefit from the knowledge that the services are available whenever they need them, regardless of how often they need them or choose to use them. The various services that are provided (medical, dental, pharmaceutical, ophthalmic, etc.) are thus of real benefit to people who may not have occasion to use any of them during the year and also, as a standby, to those who either regularly or occasionally make use of private practitioners. But, as in the case of national insurance, the benefits enjoyed by any individual depend on the prior chances that, in the course of the year, he will make use of each of the services. For a group of households in similar circumstances, i.e. having similar prior expectations of using the services, the benefit which each household obtains, in terms of insurance ‘cover’, must again be closely approximated by the average value of the services which these households in fact obtain during the year. We do not have any information about the extent to which particular households, or individuals, make use of the health services. The most we can do at present is to take account of the differences in the extent to which the national

health services as a whole are used by (i) children (under 16), (ii) adults below retirement age (65 for men and 60 for women) and (iii) adults above retirement age, on the basis of information which indicates only the orders of magnitude of these differences.<sup>1</sup> It is assumed that every person in each of these three categories, whether using the health services or not, obtains the same benefit, viz. the estimated average cost per person, net of charges to patients, of all the health services that are used by people in private households. As we did not have information about the number of people in each of these categories in the different groups of households in 1953, it had to be assumed that the value of the benefits of the national health services in 1953 was the same for everyone.

Welfare foods provided by public authorities include school meals and school milk, milk under the national milk schemes, dried milk, cod liver oil, orange juice and vitamin tablets. The surveys collect information about the amounts which each family obtains and the benefit is reckoned to be the cost to public authorities net of any payments by consumers.

Education is available free of charge and is compulsory for all children between the ages of 5 and 15. Thus all parents, including those who prefer to send their children to private schools, have the right to send them to State schools and this right, whether it is exercised or not, is regarded as a benefit.

In 1959, but not in 1957, the information from the Family Expenditure Survey showed the number of children receiving each of the following eight types of full-time education: primary, secondary modern, secondary grammar, secondary technical, private school, technical college, university and all other types. The benefit from each of the seven named types of education in 1959 was taken to be the estimated average expenditure per child by public authorities.<sup>2</sup> The benefit available to each child at a private school was taken to be the average expenditure on children at all primary and secondary schools. In 1957 and 1953, in the absence of information about the different types of education which children were receiving, the benefit obtained by all children between 5 and 15 was assumed to be the same, viz. the average expenditure per child by public authorities on all State schools combined.

<sup>1</sup> As explained in the Appendix, Note 2.

<sup>2</sup> Except where separate figures were not available. See Appendix, Note 3.

In 1953, when basic foods were still rationed, most if not all food subsidies were a benefit to the consumer, who would otherwise have had to pay higher prices for the same foods. But the agricultural subsidies nowadays have a negligible effect on prices, their effect being limited to any influence which this country's additional demand may have on the prices of imported foods. In general, therefore, consumers cannot be considered to benefit from these subsidies. The only producers who can obtain substantial benefit are those working land which is fertile enough to be kept in production without any subsidies. The benefit would have accrued to the owners of such farms at the time the subsidy was first imposed (or increased); if the farm was subsequently sold, the benefit would have been capitalized in the price.

Others who are induced by the subsidies to remain in farming must be earning little more than they would be able to earn in industry. People who are working in industry can also be expected to be earning slightly higher incomes as a result of resources being attracted into agriculture by the subsidies. The only benefit which has an appreciable effect on the distribution of income, that obtained by owners of the most fertile agricultural land, must amount to a small proportion of the total cost of the subsidies. We have no information which would enable this benefit to be estimated and allocated to individual households. It has therefore been assumed that no farmers or landowners obtained any benefit from agricultural subsidies in any of the three years.

The pre-redistribution income of farmers includes any subsidies they receive. It is assumed that all consumers took up their full rations and benefited to the extent of the full cost of all food subsidies in 1953 (about £4.1 per head per year), and from the subsidy still being paid on milk in 1957.

There is no information to show the effects of housing subsidies on the rents of individual dwellings. It has therefore been necessary to make the rough-and-ready assumption that housing subsidies bring an equal benefit to the occupiers of all local authority dwellings. Every household included in the Survey is asked to say whether the dwelling occupied is a council house, and whether it is rented furnished, rented unfurnished, or owned by the occupant. A benefit equal to the average subsidy per local authority dwelling is attributed to each household

which, at the time of the survey, occupied such a dwelling.<sup>1</sup>

The transfers of income between tenants and landlords implied in rent control, since they have never been estimated and would be very difficult to estimate, have perforce been ignored.

The indirect taxes included in the present estimates are those levied directly on consumer goods and services. The estimates do not take account of indirect taxes which are levied on commodities used in production (rates on business premises, duties on petrol, oil, drink and tobacco purchased on business expense accounts, etc.) and which affect in varying degrees the prices of most consumer goods. At the time that these estimates were made, we did not have sufficiently detailed information to show how much of each of these intermediate commodities was used in the production of individual consumer goods and services. In similar estimates which are being prepared for more recent years, it may be possible to allocate taxes on intermediate commodities to individual headings of consumers' expenditure by making use of the Social Accounting Matrix which has recently been developed under the direction of Professor J. R. N. Stone at the Department of Applied Economics of Cambridge University.

We have made the 'straightforward' assumption that the loss of income suffered by any household is equal to the amount collected in indirect taxes levied directly on those consumer goods and services which the household purchased in the two weeks covered by the survey. For each of the headings used in classifying the expenditure of households co-operating in the 1957 and 1959 surveys, the amount of tax was estimated by applying the estimated proportion of indirect tax in the retail price to the stated amount of expenditure. These proportions were estimated by combining the known rates of tax with information about retail margins and the shares of different items in each heading of expenditure, gathered from a variety of sources.<sup>2</sup> The purchase tax on new private cars, since it affects the prices of second-hand cars, was spread proportionately over expenditure on new and second-hand cars, less the traded-in value of cars sold in part-exchange.

In 1957, when the Item Code used for classifying expenditure

<sup>1</sup> See Appendix, Note 4.

<sup>2</sup> Information for this purpose was kindly supplied by the Board of Trade, H.M. Customs and Excise, trade associations and private firms.

was drawn up, any goods which then had substantially different rates of indirect tax or subsidy were separated, as far as seemed necessary and practicable. For example, different grades of tobacco show small differences in the proportion of duty in the retail price, but it was decided not to try to collect and tabulate this additional detail.<sup>1</sup> It was considered that to try to collect and record full details in all cases of this kind, apart from requiring an inordinately large number of codes, would place too great a burden on households co-operating in the survey. Thus, although a single heading in the Item Code sometimes includes goods which have slightly different rates of tax or different retail margins, the fact that an average rate was applied to each heading of expenditure should not have led to any serious errors.

The assumption that the loss in income is measured by the total amount paid in indirect tax calls for some explanation and a brief digression. A well-known proposition in accepted theory on this subject applies only to a single consumer and runs roughly as follows. An indirect tax on any commodity will make a single consumer worse off than a direct tax on his income yielding the same amount, unless the commodity which is taxed is produced by an industry which is less monopolistic than most other industries, the tax in that case 'balancing' the monopoly profits; and unless, of course, commodities produced by other industries already have indirect taxes. It is perhaps safe to assume that indirect taxes are not, in general, aimed particularly at the more competitive industries. Except in those conditions, a single consumer, after the substitution of a direct for an indirect tax, would be able to buy the same collection of goods as before but, at the altered relative prices, he would buy a different collection which he must therefore prefer. Hence the loss of income which he suffers is greater than the amount collected in indirect tax. Similarly, the benefit which a single consumer derives from a subsidy on any commodity which he buys is likely to be less, in terms of the equivalent addition to his income, than the amount paid in subsidy. There are important qualifications to these propositions even in the case of a single consumer. Indirect taxes may favour his long-term welfare (e.g. through the effects of drink and tobacco on health) as against his immediate pleasures.

<sup>1</sup> But the estimates take account of apparent differences in under-reporting by households in two broad social classes, defined by the occupational status of the head of the household: codes 11, 12, 13, 14, 15, 19 and codes 24, 26, 27, 28, 29 of Code V, Appendix V of *Family Expenditure Survey - Report for 1957-59*.

More generally, the relation between the social costs and social benefits of different forms of expenditure may vary considerably; the hazards of motoring are only one example.

It has, indeed, been suggested<sup>1</sup> that the distinction between direct and indirect taxes is not altogether clear-cut because a change in either form of tax affects the price of leisure; and that, consequently, an increase in either form of tax, by increasing the demand for leisure and reducing the demand for all other goods, would tend to reduce the time spent on work and so would lead to a further loss of real income. The fact that most people are not free to be able to work one hour a week more or less would not altogether invalidate this argument if they could influence their hours of work in the long run. But, because of this fact, it is impossible to say whether any individual divides his time between work and leisure in the way that he would most prefer, given the rate of net income. If he does not do so, he may not wish to change his hours of work; and, if his hours of work remained unchanged, he would suffer no additional loss of real income. It is not even certain whether an increase in either form of tax would, in itself, cause an increase or a reduction in the demand for leisure; the 'income' effect may exceed the 'substitution' effect. It may have opposite effects on different people. Thus the amount paid in tax, while it seems more likely to understate than to overstate the full loss of real income, is quite likely to have no additional effect either way. However, all that we are aiming to do here is to relate indirect and direct taxes to each other on a comparable basis. An individual who is not free to adjust his hours of work would in general prefer a direct tax on income to an indirect tax yielding the same amount for the reason mentioned above: he prefers the collection of goods which he buys to the collection he could buy but does not. If, with the higher real income from a given amount of work, he now wished and were able to allocate different proportions of his time to work and to leisure, he could make himself better off still. These considerations strengthen rather than weaken the general propositions mentioned above.

But, in addition, both indirect taxes and subsidies affect the allocation of a household's income between commodities consumed by different members of the household. They have

<sup>1</sup> cf. I. M. D. Little, *A Critique of Welfare Economics*, second edition, Appendix IV.

generally favoured the needs of children and mothers at the expense of others, particularly those who smoke and drink. The benefit derived by those members of the household who gain by this redistribution of expenditure may be more important than the loss suffered by the others. Thus, when a household rather than an individual is considered, there is often some offset to the loss generally associated with an indirect rather than a direct tax or benefit of the same amount. To determine the equivalent change in the income of a household of a given amount of indirect tax or subsidy, it would be necessary to know in detail how the consumption of each individual is affected and to balance the gains and losses of all members of the household – a seemingly impossible task. The amounts collected in rates on dwellings, purchase taxes on household goods and other things that are consumed by all members of the household seem likely to be less than the equivalent reduction in income. But the bulk of indirect taxes in the United Kingdom (those on drink, tobacco, motor-cars, petrol) fall on goods that are largely consumed by only one or two members of the household. Because the loss they suffer may bring compensating advantages to the others, it is difficult to say whether, in such cases, the payments in indirect tax are likely to be greater or less than the equivalent reduction in the household's income. The benefit of subsidies on food in terms of the equivalent addition to the household's income could plausibly be assumed to be greater than the subsidy payments.

The effects of indirect taxes on consumers, to which attention has so far been confined, can be considered independently of their effects on producers, which will now briefly be discussed. Two cases will be considered: firstly, that of an indirect tax levied on the products of an industry in which there is something like perfect competition and, secondly, that of an indirect tax levied on the products of a monopoly. The effects on other industries would be intermediate between the effects in these two extreme cases.

If there is perfect competition in the industry, an indirect tax on its products, considered by itself, would cause fewer resources to be employed in this industry and more in other industries. As a result, there would be a general reduction in the rate of profit in all industries, and in incomes generally, since there is no particular reason for the division of the product to be affected;

but industries that are dominated by monopolies would be immune from this effect (in fact, their rate of profit would rise). Since most earned incomes would be affected and the reductions should tend to be uniform, the effects of the indirect tax on the distribution of incomes of individuals *qua* producers can be expected to be small and more or less neutral (a tax which causes a proportionate reduction in all incomes being neither progressive nor regressive); no serious error should result from ignoring these effects. But those who, at the time the tax was imposed, owned shares in firms which then had to close down or reduce their output of taxed goods would suffer a substantial loss of income. This loss would gradually be diminished by estate duties as property was passed from one generation to the next.

The effects of an indirect tax on the products of a monopoly would be somewhat different. The tax would cause some reduction in the monopoly profit, the amount of the loss depending on the positions of the marginal cost and marginal revenue curves,<sup>1</sup> and might also cause some reduction in any incomes which shared in this profit. Resources thereby freed would become available for other industries, in all of which the rate of profit and incomes generally would suffer a small and more or less uniform reduction, from which other monopolies would again be immune. As before, the small, widely dispersed effects on incomes in other industries can safely be ignored. The reduction in monopoly profit would chiefly affect the incomes of those who held shares in the industry when the tax was imposed and who had held these shares (or inherited them from others who had held them) since the time the monopoly was first instituted. Those who bought shares subsequently would have had to pay the market price; hence they would not be sharing in the monopoly profit and so would suffer from the tax only to the same extent as shareholders in a competitive industry.

Thus, in both situations, it appears that the only substantial effect of an indirect tax *via* production on the distribution of income would be a reduction in the unearned incomes of those who happened to hold shares in the industry at the time the tax was imposed. If the industry is a monopoly, the greatest reduction would be in the incomes of those who had held shares since the time the monopoly was first instituted and who were

<sup>1</sup> The monopoly profit can be represented as the area between these two curves.

therefore able to share in the monopoly profit. In order to take account of these effects in the present analysis, it would be necessary to have detailed historical information about the ownership of shares, which no one has hitherto considered collecting in a family expenditure survey, in addition to information about reductions in profits caused by the indirect taxes. We have not attempted to make any estimates of these effects.

Remembering that taxes of all kinds help to finance expenditure by the Government on roads, schools, health services, defence, etc., a complete analysis would take into account the effects of Government expenditure on the incomes of producers and shareholders in the industries concerned. The effects of Government expenditure are likely to be similar to those of indirect taxes, but in the opposite direction. Perhaps the main difference is that, since the level of expenditure, unlike taxes, cannot be changed overnight, the effects on the incomes of shareholders would be more gradual and therefore even more difficult to estimate. In fact, it would be virtually impossible to estimate the effects on the incomes of all producers and shareholders of the whole of expenditure on administration, public services, the maintenance of law and order and the like, since it is difficult to imagine being without these things altogether.

We have also made no attempt to allocate undistributed profits of companies to individual households. These profits belong in a sense to the shareholders, but are not part of their disposable income and are not treated as part of personal income for purposes of income tax. The present estimates relate to currently disposable income in this sense. Undistributed profits of companies (after allowing for depreciation and stock appreciation) amounted in 1959 to some 9 per cent of personal income before tax (excluding these profits) and any attempt at their allocation, e.g. in proportion to the value of shares held, would undoubtedly increase inequality in the distribution of income both before and after redistribution. The Family Expenditure Survey was not designed to provide the kind of information for individual households (e.g. details of shares held) which would be needed for any attempt at allocation.<sup>1</sup>

Nor have any adjustments been made to the reported figures of income for tax evasion or avoidance which, to an unknown

<sup>1</sup> It might, however, at some stage be possible to make a rough allocation on the basis of the information obtained about unearned income.

extent, may introduce some additional inequality. Incomes in this country are not reckoned to include capital gains, which must also contribute to inequality.

Among the weaknesses in the information derived from these sample surveys, there are three general defects for which it has been possible to make allowance. In all the recent surveys held in this country, the people co-operating have recorded higher figures of expenditure on a good many items in the first week than in the second or subsequent weeks. There is some evidence which suggests, though it does not establish, that the figures recorded in the first week are less reliable than those recorded in subsequent weeks.<sup>1</sup> Accordingly, for all items for which the cumulated data from the 1957, 1958 and 1959 surveys showed significantly higher average expenditure by all households in the first than in the second week, we have relied in all our estimates for 1957 and 1959 on the figures for the second week alone.<sup>2</sup>

Secondly, adjustments were made for a characteristic feature of all family expenditure surveys – the failure of people who co-operate to record the full amounts spent on alcoholic drink and tobacco. Comparisons between the known total yield from the duties on tobacco and drink with the yield implied in the average figures of recorded expenditure show that, as a whole, people fail to record about half their expenditure on drink and about a quarter of their expenditure on tobacco. As we have no means of judging the extent of understatement by different households, the present estimates include proportionate adjustments to every household's recorded figures of expenditure under each of four headings: beer, wine, spirits and all forms of tobacco.

Thirdly, adjustments were made for the fact that, since these surveys rely on voluntary co-operation and not all households are willing to co-operate, the results cannot be regarded as those of a random sample. Of the households in the initial sample, the proportion which co-operated was 59.1 per cent in 1957 and 67.9 per cent in 1959. Adjustments were made by re-weighting the numbers in the samples in accordance with estimates of the total numbers of households in different categories. Different information was used for classifying households for this purpose

<sup>1</sup> cf. W. F. F. Kemsley and J. L. Nicholson, 'Some Experiments in Methods of Conducting Family Expenditure Surveys', *Journal of the Royal Statistical Society*, 1960, p. 307.

<sup>2</sup> See Appendix, Note 11.

in the three years. The results for 1957 shown in Tables I to VI incorporate corrections which eliminated about 85 per cent of the discrepancies between the distributions of income tax units of different types shown by Inland Revenue data and those of the sample. The Gini coefficients for 1957, shown in Tables VII to IX, make use of a more elaborate method of determining weights which are such that the resulting distributions of income tax units of different types agree with the Inland Revenue's information for the whole population. In 1959 the adjustments were based on the limited information which most of the households which did not co-operate fully in the survey were nevertheless willing to provide about household composition, type of dwelling, housing costs and the ownership of certain durable goods. In 1957 no attempt was made to collect this information from households which were unwilling to co-operate fully. It was possible to make only very rough adjustments for variations in non-response in 1953, based on the total numbers of households of all types in three broad income ranges.<sup>1</sup>

These adjustments should reduce but cannot entirely remove the effects of response bias. Because the overall response rate was lower in 1957 than in later years, and for the other reasons mentioned earlier, the 1957 results must be considered less reliable than the results for 1959 and later years. The changes from one year to the other apparent in some of the results may also be partly explained by changes in the design of the sample.<sup>2</sup>

It is worth noting that pre-redistribution income, as here defined, differs from the amount of income which is liable to income tax, since it excludes pensions, family allowances and other benefits and grants from public authorities and includes employers' contributions to national insurance. Thus the pre-redistribution income of an old age pensioner may be very small.

The post-redistribution income of a household is defined as its pre-redistribution income *less* all direct taxes *plus* all direct benefits, *less* the actual amounts of indirect tax *plus* the actual amounts of subsidy included in the prices of goods and services which that household has purchased.

Income after direct taxes and benefits is much the same as disposable income, which a household is free to spend as it

<sup>1</sup> The methods of adjusting for non-response in the three years are described more fully in the Appendix, Note 12.

<sup>2</sup> *Family Expenditure Survey-Report for 1957-59*, Appendix 1, p. 52, para. 1.

pleases, but it includes income in kind. The amounts spent on different goods and services are related, via marginal utility theory, to their market prices which include the effects of indirect taxes and subsidies. Income after direct taxes and benefits thus has a more tangible and general significance in economics than post-redistribution income. The difficulties in estimating the effects of indirect taxes and subsidies as well as the inaccuracies in the figures of expenditure on drink and tobacco also make the estimates of income after direct taxes and benefits more reliable than those of post-redistribution income.

The present estimates take no account of the advantages (or disadvantages) which the whole population derives from Government expenditure on administration, defence, police, roads, public buildings, parks, ceremonies, and so on. Some of these things, aptly termed regrettable necessities, would not normally be regarded as bringing tangible benefits to individual households. But others provide benefits that are consciously enjoyed; and, since taxes help to finance them, a complete picture of the redistribution of income would have to include estimates of these benefits, however immeasurable some of them may seem. The effect on the distribution of income (as measured, e.g., by the Gini coefficient of inequality) of excluding any item of expenditure is the same as would be obtained by allocating the benefit in proportion to each household's income. But, if the benefits of such expenditure were included, the 'break-even' point for each type of household (see p. 140) would be raised.

It is apparent by now that the different ways in which Government is able to raise revenue, and the various forms of Government expenditure, can themselves have a considerable influence on the distribution of income. The degree of inequality in pre-redistribution income is, in other words, partly dependent on the extent of the redistribution of income resulting from taxation and social services.

### III. RESULTS

The results for 1959 and 1957 were produced on a *Deuce* computer in three different forms. First, we obtained straightforward tabulations showing average taxes and benefits, and average incomes at different stages of redistribution, for each of thirteen types of household in each of fourteen ranges of pre-redistribution income. The second set of tabulations shows

how much movement of households from one income range to another resulted from direct taxes and benefits, and from all taxes and benefits. The third set of estimates shows the effects of each main group of taxes and benefits on the degree of inequality in the distribution of income, measured by the Gini coefficient. The three sets of estimates will be described in turn.

The full results for 1959 and 1957 are shown here for each of the more important types of family, but not for two groups of pensioner households, so defined if the household consisted of one or two persons and at least three-quarters of their income was obtained from national insurance, old age pensions, and national assistance. Redistribution of income between different pensioner households, all of which have low incomes, has little interest.<sup>1</sup>

It should be remembered that some single pensioners would be among the single person families and some married as well as single pensioners could belong to any of the other families shown in these estimates. Thus the fact that some pensioners may choose to live with relatives for reasons of economy affects the apparent extent of redistribution.

The only other group consists of miscellaneous types of families, different from any of the twelve specified types. Since the families vary in size and composition and therefore have differing needs, redistribution of income within this group can have very limited interest.

As the results of the 1953 Household Expenditure Enquiry were not tabulated on an electronic computer and no plans were then made for producing estimates of this kind, only limited analyses are possible of the 1953 data.<sup>2</sup> We are able to show the average payments in tax and the average benefits received by six types of household (the only specific types for which separate tabulations were then produced) in nine ranges of gross household income. It is possible in this way to obtain only rough estimates of the numbers of households in broad income ranges at different stages of redistribution, and hence of the effects of taxes and benefits on inequality.

The present estimates are in the main confined to showing the effects of taxes and social service benefits on the *vertical* distribution of income, i.e. between different income levels for

<sup>1</sup> Some figures for pensioner households are given in the Appendix, Note 10.

<sup>2</sup> See Appendix, Note 5.

given types of family, but they reflect the net gain or loss of all the families of each type. It is a much more difficult task and it does not at present seem possible to measure the extent of *horizontal* redistribution, i.e. between different types of family at comparable income levels, or the extent of vertical and horizontal redistribution combined. To do this, we would need to know what are the equivalent incomes of families of different composition, and how the equivalent income scale varies at different levels. The most we can do in this direction at present is to make simple comparisons, as in some of the diagrams, between the estimates for different types of family. But it must be remembered that the average net gain or loss of each type of family is affected by the existence of correlation between income and size of family and to some extent, therefore, reflects vertical redistribution. See also Postscript, page 185.

#### *A. Average taxes paid and benefits received*

The average incomes at different stages of each main type of family in each income range are shown in Table I (Sections a, b, and c of each table refer to 1953, 1957 and 1959 respectively). The average amounts of the main groups of taxes and benefits paid or received by the same groups of households are shown in Table II and the average payments of the more important forms of indirect taxes in 1957 and 1959 in Tables III and IV. The income ranges used in all the tables and charts are based on a logarithmic scale.<sup>1</sup>

Charts 1 and 2 show the relationship between the average pre-redistribution income of the families within each income range, their average income after direct taxes and benefits and their average income after all redistribution. The use of averages, here and in Chart 3, leads to imprecision. Since marginal rates of income tax rise as incomes rise while, at low income levels, direct benefits appear to decline more slowly as incomes rise, the lines connecting the averages must be slightly too low in the high income ranges and slightly too high in the low income ranges, and so they slightly exaggerate the extent of redistribution which is indicated by the angle between these lines and the 45° diagonal.

In cases where the line for a given type of family crosses the diagonal at a clearly defined point, it is possible to read off the

<sup>1</sup> For further explanations of the tables and charts, see Appendix, Note 1.

break-even point for that type of family, i.e. the level of income at which average benefits received are roughly equal to average taxes paid. But where the line connecting the points for a particular type of family is nearly parallel to the diagonal, the break-even point (in view also of the qualification mentioned above) cannot be determined. It is possible to give approximate break-even points only in the cases shown below; and it should be remembered that these estimates may be affected by irregularities of the kind that must be expected in sample data. Chart 1a and the estimates for 1953 derived from it, being based on data for households grouped by ranges of gross household income, are on a different basis from the charts and estimates for 1957 and 1959.

| Type of family      | Approximate break-even points<br>(£ per year) |      |      |                                 |      |      |
|---------------------|-----------------------------------------------|------|------|---------------------------------|------|------|
|                     | After direct taxes and<br>benefits            |      |      | After all taxes and<br>benefits |      |      |
|                     | 1953                                          | 1957 | 1959 | 1953                            | 1957 | 1959 |
| One adult           | 300                                           | 330  | 340  | 200                             | 210  | 250  |
| Two adults          | 470                                           | 560  | 650  | 290                             | 380  | 450  |
| Two adults, 1 child | 700                                           | 830  | 840  | 330                             | 460  | 470  |

From Table II and Chart 3, which shows the incidence of taxes and benefits on the more important groups of households, it is possible to draw some general inferences about the connection between the size of family and the levels of taxes and benefits.

- (i) Direct benefits vary more or less in proportion to the number of persons in the family and favour large families to a greater extent than any other main group of taxes or benefits. The relatively large direct benefits received by families consisting of two adults, or two adults and one child, in the lower income ranges include substantial amounts of pensions where these constitute less than three-quarters of the family's income (otherwise, they would be classified as pensioner households).
- (ii) Income tax favours large families at 'medium' levels of income; at high income levels, the concessions obtained by larger families become a small proportion of income.
- (iii) The amounts paid in national insurance contributions depend on how many members of the family work for a living; as between families consisting of two adults and varying numbers of children, the average contributions show little variation.

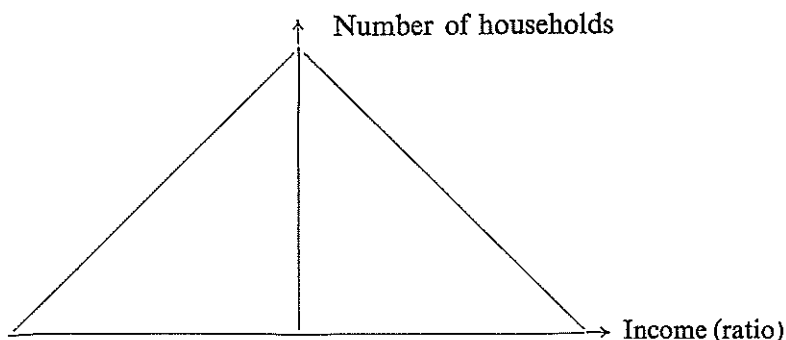
- (iv) Indirect benefits (food and housing subsidies) favour large families, but less than might be expected.
- (v) Indirect taxes as a whole, and each of the different forms of indirect tax shown in Tables III and IV, show little variation between families of different size and so favour the smaller families which, at the same income level, have higher incomes per head.

It is important to remember that the reliability of the detailed information in the tables and charts is influenced by the numbers of families in the different income ranges, which are shown in Table I. The figures for drink (particularly) and tobacco, since they reflect any variations there may have been in the degree of understatement of expenditure by the different groups of households, must remain suspect.

### *B. Movements from one income range to another*

The second set of tabulations shows the numbers of households moving from one income range to another, or remaining in the same income range, as the result of adding benefits and deducting taxes. The frequency distributions, shown in percentage form in Tables V and VI, can speak for themselves.

The incomes at the top and bottom of each income range used for this purpose are in the ratio 4:3. Thus a movement upwards by one step indicates that the household's income has risen by an amount ranging from 0 to  $\left(\frac{4}{3}\right)^2$  of its initial income; a movement upwards by two steps that the household's income has risen by an amount ranging from  $\frac{4}{3}$  to  $\left(\frac{4}{3}\right)^3$  of its initial income; and so on. A movement downwards by one, two . . . steps indicates that the household's income has fallen by an amount ranging from 0 to  $\left(\frac{3}{4}\right)^2$ ,  $\frac{3}{4}$  to  $\left(\frac{3}{4}\right)^3$ , . . . of its initial income. Similarly, the income of a household remaining in the same income range cannot have fallen to less than  $\frac{3}{4}$  or risen to more than  $\frac{4}{3}$  of its pre-redistribution income. The majority of households will, however, be nearer to the mid-point of each range than to either extreme, the distribution within each step being roughly of the following shape:



### *C. Redistribution in terms of inequality*

The third set of estimates shows the degree of inequality in the distribution of income at each main stage, and hence the effect on inequality of each main group of taxes or benefits. The best single measure of inequality in the distribution of income is probably the Gini coefficient.<sup>1</sup> It is based on a simple idea, embraces all levels of income and makes no assumption about the shape of the distribution. If the percentage of all households with incomes above a certain level is plotted against the percentage of total income belonging to those households, we obtain a curve which, if all incomes were equal, would coincide with the diagonal line. The Gini coefficient is the ratio of the area between this curve and the diagonal line to the total (triangular-shaped) area under the line. It is shown here in percentage form, with outside limits of 0 and 100. The higher the Gini coefficient, the greater the inequality in the distribution of income and *vice versa*.

Values of the Gini coefficient in 1959 and 1957 were calculated for each of fifteen types of household, at each of nine stages of redistribution. The estimates were based on the data for individual households grouped in thirty-one income ranges according to the amount of income at each stage; the formula used also allowed for curvature within each income range. Table VII gives the results for each of the ten main types of household which between them accounted for 83 per cent of all households, together with weighted averages for these ten types of household combined. For comparability, the weights applied

<sup>1</sup> C. Gini, 'Sulla misura della concentrazione e della variabilità', Transactions of the Real Istituto Veneto di Scienze, Lettere e Arti, Vol. LIII, Part ii, p. 1203, Venice, 1914.

to the estimates for both 1957 and 1959 are the estimated relative numbers of each type of household in 1958. This analysis excludes pensioner households which, by definition, have a very small pre-redistribution income (see p. 138).

It is not possible to give exact estimates of the standard errors of the Gini coefficients.<sup>1</sup> The following are approximate estimates of the standard errors of the (percentage) Gini coefficients of inequality in pre-redistribution income of some of the main types of family in 1959:

| $S_0$ | $M_0$ | $M_1$ | $M_2$ | Weighted average of<br>ten family types |
|-------|-------|-------|-------|-----------------------------------------|
| 1.8   | 0.9   | 1.25  | 1.3   | 0.5                                     |

Comparison of the Gini coefficients at different stages of redistribution, shown in Table VII, shows the effects of each of the main groups of tax and benefit on the degree of inequality in the distribution of income. Tables VIII and IX show the actual changes in the Gini coefficients (weighted averages for all the specified types of household combined), the average amounts of tax or benefit per family per year, and the effects on the Gini coefficients per £100 a year of tax or benefit, obtained by simple division. A notional estimate was also made of the effect of using direct benefits received on an annual rather than a weekly basis (see p. 125), by deducing from the 1959 data the approximate chances that families of different types, at different income levels, would have received any benefit during the year; the results are shown in Note 7 of the Appendix.

Table X shows estimated Gini coefficients of inequality in 1953 for five main types of household, and weighted averages for these five types of household combined, together with comparable estimates for 1959. The basic data for 1953 consisted of average payments of tax and average benefits received by households in nine ranges of gross household income (equal to pre-redistribution income *plus* direct benefits received in cash *less* employers' national insurance contributions). From these data, it was possible to make approximate estimates of the distribution of households by ranges of pre-redistribution income and of the distribution by ranges of income after direct taxes and benefits. The average taxes in given ranges of gross household income were plotted on graphs, and free-hand curves were used to estimate the numbers of households moving from one income range to another. A similar procedure was

<sup>1</sup> See Appendix, Note 8.

used to estimate the movement of households resulting from direct benefits, the numbers of households receiving cash benefits being deduced from the average amounts received. These estimates are not, of course, as reliable as figures obtained by re-classifying individual households which the use of an electronic computer made possible in 1959 and 1957.<sup>1</sup> To provide an additional comparison, Gini coefficients are also shown for gross household income in 1953 and 1959.

The actual effects of taxes or benefits on the Gini coefficients of inequality, shown in Table IX, indicate what are likely to be the results of uniform proportional changes in all taxes or benefits comprised in each group. The effects per £100 of tax or benefit per family show the 'power' of each type of tax or benefit to alter the distribution of income. Direct benefits have a much bigger effect on inequality than any of the other groups shown. Next comes income tax and surtax, followed by indirect benefits. National insurance contributions also have substantial ability to affect inequality, while indirect taxes are the least powerful of the groups shown.

A tax or benefit which causes all incomes to be reduced or increased in the same proportion has no effect on inequality, as measured by the Gini coefficient. A tax or benefit which reduces inequality is said to be progressive, one which increases inequality is said to be regressive (no group of benefits is regressive). A change in the degree of inequality does not, in itself, indicate whether the tax or benefit falls mainly on high or on low incomes. But a progressive tax must fall mainly on high incomes; a progressive benefit and a regressive tax must fall mainly on low incomes.

Income tax and surtax combined are progressive; the effect of surtax was not separately estimated, but it is probably more progressive than ordinary income tax. Since the amounts of direct benefits are roughly the same at all income levels, they add much more, proportionately, to low incomes than to high incomes and so are very progressive. National insurance contributions do not vary with income and are therefore regressive.

<sup>1</sup> It is worth noting that Gini coefficients estimated from data for broad income ranges, without re-classification at each stage, necessarily understate the degree of inequality in the distribution of income. This is because too much income must be attributed to low income ranges which include households which ought to be classified in higher income ranges, and similarly too little income must be attributed to high income ranges which include households which ought to be classified in lower income ranges.

At the higher levels of income, indirect tax payments are larger but absorb a smaller proportion of income. Indirect taxes as a whole are therefore regressive, but have less redistributive effect than any other main type of tax or benefit.

As it was not possible to produce the 1953 estimates on the same basis, or with the same degree of refinement, as those for 1957 and 1959, the results for 1953 are not strictly comparable with those for the later years. With these qualifications in mind, it is possible to draw some general conclusions.

The degree of inequality in pre-redistribution income, measured either before or after adjustment for non-response, increased between 1957 and 1959. Pre-redistribution income showed much the same degree of inequality in 1953 and 1959 (based on the five types of family shown in Table X).

Using the Gini coefficient as the yardstick for all possible distributions, income after redistribution in 1959 showed 25.1 per cent inequality, compared with 32.1 per cent before redistribution. Inequality was thus reduced by 7.0 points, or by slightly over one-fifth of what it was originally. The reduction in inequality through redistribution in 1957 was somewhat less (6.1 points), but the proportionate reduction was about the same. The reduction in inequality caused by direct taxes and benefits alone was about one quarter in both years, and also in 1953 (based on the five types of family shown in Table X). Note 9 of the Appendix contains a comparison with the results which Professor Barna obtained for 1937.

For reasons indicated earlier, the estimates for 1957 must be considered less reliable than those for 1959 and the estimates for both years incorporate many assumptions and approximations. The effect of each main type of tax or benefit per £100 was evidently much the same in both years. These estimates suggest that between the two years, income tax and surtax became somewhat less progressive, direct benefits became slightly less progressive, indirect benefits became more progressive, national insurance contributions became slightly less regressive and indirect taxes were equally regressive in both years.

These results apply to groups of taxes or benefits; corresponding estimates have not so far been made for separate headings within each group. An individual tax or benefit, or a particular stage of income tax, may have an appreciably larger or smaller proportionate effect than the group as a whole; and changes in

the different components of each group can have markedly different effects. Thus each of the main types of indirect tax appears to be regressive (see Tables III and IV), but some are more so than others and purchase tax on some items is probably progressive.

A possible use of this analysis can be illustrated with a simple example, based on the results for 1959. If all indirect taxes were raised to produce an additional yield of £7x, it would be possible to spend £3x on income tax concessions and £4x on direct benefits without altering the degree of inequality in the vertical distribution of income; any additional effects on horizontal distribution would also need to be considered (see Postscript, page 185). The possibilities of increasing or reducing inequality are, of course, much more numerous.

#### ACKNOWLEDGMENTS

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*November 1962*

TABLE Ia  
Average incomes before redistribution, after direct taxes and benefits, and after all redistribution,  
1953

|                                        | £ per year   |      |      |      |      |      |        |        |               |
|----------------------------------------|--------------|------|------|------|------|------|--------|--------|---------------|
| Range of gross income<br>£ per year    | Under<br>156 | 156- | 312- | 416- | 520- | 728- | 1,040- | 1,560- | Over<br>2,600 |
| Single person - $S_0$                  |              |      |      |      |      |      |        |        |               |
| Number of families                     | 492          | 334  | 151  | 94   | 60   | 20   | 3      | 4      | 2             |
| Income before redistribution           | 21           | 174  | 353  | 453  | 579  | 792  | 1,346  | 2,064  | 3,033         |
| Income after direct taxes and benefits | 129          | 220  | 330  | 412  | 502  | 651  | 1,005  | 1,469  | 1,881         |
| Income after all redistribution        | 111          | 184  | 271  | 321  | 417  | 531  | 879    | 1,267  | 1,697         |
| Two adults - $M_0$                     |              |      |      |      |      |      |        |        |               |
| Number of families                     | 27           | 486  | 478  | 551  | 800  | 440  | 122    | 36     | 13            |
| Income before redistribution           | 60           | 159  | 345  | 456  | 616  | 849  | 1,210  | 1,910  | 4,273         |
| Income after direct taxes and benefits | 145          | 309  | 372  | 459  | 586  | 766  | 1,017  | 1,565  | 2,434         |
| Income after all redistribution        | 99           | 267  | 304  | 372  | 478  | 631  | 853    | 1,341  | 2,181         |
| Two adults, 1 child - $M_1$            |              |      |      |      |      |      |        |        |               |
| Number of families                     | 2            | 59   | 289  | 405  | 568  | 258  | 55     | 17     | 10            |
| Income before redistribution           | 89           | 202  | 377  | 475  | 624  | 834  | 1,227  | 1,904  | 4,043         |
| Income after direct taxes and benefits | 121          | 310  | 417  | 503  | 635  | 815  | 1,090  | 1,516  | 2,424         |
| Income after all redistribution        | 85           | 259  | 352  | 426  | 542  | 693  | 911    | 1,298  | 2,150         |
| Two adults, 2 children - $M_2$         |              |      |      |      |      |      |        |        |               |
| Number of families                     |              | 25   | 163  | 373  | 554  | 238  | 60     | 27     | 7             |
| Income before redistribution           |              | 82   | 364  | 458  | 602  | 823  | 1,204  | 1,909  | 3,192         |
| Income after direct taxes and benefits |              | 341  | 450  | 548  | 689  | 882  | 1,155  | 1,608  | 2,209         |
| Income after all redistribution        |              | 292  | 397  | 476  | 602  | 771  | 1,000  | 1,434  | 2,031         |
| Two adults, 3 children - $M_3$         |              |      |      |      |      |      |        |        |               |
| Number of families                     |              | 14   | 59   | 144  | 209  | 115  | 22     | 5      | 3             |
| Income before redistribution           |              | 74   | 294  | 440  | 578  | 798  | 1,245  | 1,847  | 3,318         |
| Income after direct taxes and benefits |              | 414  | 489  | 579  | 724  | 936  | 1,256  | 1,606  | 2,291         |
| Income after all redistribution        |              | 377  | 440  | 516  | 642  | 827  | 1,115  | 1,507  | 2,024         |
| Two adults, 4 or more children - $M_4$ |              |      |      |      |      |      |        |        |               |
| Number of families                     |              | 6    | 35   | 67   | 122  | 56   | 6      | 2      | 2             |
| Income before redistribution           |              | 117  | 182  | 385  | 545  | 746  | 1,095  | 1,722  | 3,686         |
| Income after direct taxes and benefits |              | 461  | 551  | 634  | 775  | 984  | 1,267  | 1,625  | 2,513         |
| Income after all redistribution        |              | 430  | 510  | 578  | 707  | 876  | 1,139  | 1,275  | 2,385         |

Note: The numbers of families are those in the original sample.

TABLE  
Average incomes before redistribution,  
after a

| Range of income before redistribution<br>£ per year | Under<br>195 | 195- | 260- |
|-----------------------------------------------------|--------------|------|------|
| Single person - $S_0$                               |              |      |      |
| Number of families                                  | 60           | 18   | 34   |
| Income before redistribution                        | 89           | 232  | 307  |
| Income after direct taxes and benefits              | 210          | 250  | 313  |
| Income after all redistribution                     | 186          | 218  | 271  |
| Two adults - $M_0$                                  |              |      |      |
| Number of families                                  | 65           | 14   | 37   |
| Income before redistribution                        | 115          | 223  | 311  |
| Income after direct taxes and benefits              | 344          | 403  | 640  |
| Income after all redistribution                     | 284          | 333  | 389  |
| Two adults, 1 child - $M_1$                         |              |      |      |
| Number of families                                  | 8            | 2    | 5    |
| Income before redistribution                        | 60           | 211  | 301  |
| Income after direct taxes and benefits              | 320          | 521  | 474  |
| Income after all redistribution                     | 267          | 470  | 401  |
| Two adults, 2 children - $M_2$                      |              |      |      |
| Number of families                                  | 1            | 1    | 3    |
| Income before redistribution                        | —            | 248  | 303  |
| Income after direct taxes and benefits              | 678          | 336  | 452  |
| Income after all redistribution                     | 663          | 157  | 338  |
| Two adults, 3 children - $M_3$                      |              |      |      |
| Number of families                                  | 1            | 1    | 1    |
| Income before redistribution                        | —            | 260  | 334  |
| Income after direct taxes and benefits              | 592          | 803  | 848  |
| Income after all redistribution                     | 533          | 768  | 828  |
| Two adults, 4 children - $M_4$                      |              |      |      |
| Number of families                                  | 3            | 1    |      |
| Income before redistribution                        | 51           | 240  |      |
| Income after direct taxes and benefits              | 589          | 856  |      |
| Income after all redistribution                     | 473          | 709  |      |
| Three adults - $T_0$                                |              |      |      |
| Number of families                                  | 8            | 2    | 1    |
| Income before redistribution                        | 92           | 232  | 264  |
| Income after direct taxes and benefits              | 451          | 505  | 513  |
| Income after all redistribution                     | 397          | 478  | 440  |
| Three adults, 1 child - $T_1$                       |              |      |      |
| Number of families                                  | 1            |      | 2    |
| Income before redistribution                        | 190          |      | 320  |
| Income after direct taxes and benefits              | 414          |      | 725  |
| Income after all redistribution                     | 361          |      | 642  |

Note: The numbers of families are those in the original sample.

*r direct taxes and benefits, and  
tribution, 1957*

£ per year

| 5-  | 463- | 616-  | 712-  | 822-  | 949-  | 1,097- | 1,266- | 1,464- | 1,950- | Over<br>2,600 |
|-----|------|-------|-------|-------|-------|--------|--------|--------|--------|---------------|
| 34  | 5    | 4     | 6     | 3     | 4     | 1      | 1      | 1      | 1      | 1             |
| 539 | 672  | 756   | 902   | 999   | 1,123 | 1,359  | 1,697  | 2,570  | 3,802  | 3,802         |
| 480 | 609  | 629   | 759   | 843   | 940   | 1,070  | 1,386  | 1,584  | 2,436  | 2,436         |
| 383 | 493  | 422   | 657   | 707   | 796   | 980    | 1,288  | 1,355  | 2,174  | 2,174         |
| 132 | 70   | 70    | 76    | 61    | 47    | 31     | 10     | 11     | 4      | 4             |
| 549 | 662  | 767   | 879   | 1,013 | 1,178 | 1,366  | 1,628  | 2,263  | 3,839  | 3,839         |
| 549 | 642  | 712   | 800   | 912   | 1,021 | 1,155  | 1,349  | 1,720  | 2,802  | 2,802         |
| 461 | 546  | 592   | 659   | 767   | 837   | 961    | 1,133  | 1,446  | 2,423  | 2,423         |
| 84  | 61   | 64    | 56    | 54    | 27    | 8      | 4      | 3      | 1      | 1             |
| 546 | 661  | 772   | 883   | 1,005 | 1,166 | 1,373  | 1,635  | 2,147  | 3,633  | 3,633         |
| 594 | 678  | 782   | 873   | 971   | 1,111 | 1,265  | 1,538  | 1,766  | 2,406  | 2,406         |
| 511 | 567  | 638   | 745   | 832   | 975   | 1,083  | 1,383  | 1,688  | 2,181  | 2,181         |
| 84  | 72   | 59    | 57    | 38    | 21    | 9      | 15     | 7      | 4      | 4             |
| 543 | 666  | 769   | 877   | 1,022 | 1,172 | 1,385  | 1,648  | 2,157  | 3,086  | 3,086         |
| 655 | 760  | 878   | 978   | 1,086 | 1,220 | 1,372  | 1,589  | 1,927  | 2,593  | 2,593         |
| 588 | 668  | 772   | 864   | 936   | 1,074 | 1,240  | 1,386  | 1,678  | 2,332  | 2,332         |
| 27  | 15   | 23    | 15    | 15    | 7     | 7      | 7      |        |        |               |
| 553 | 659  | 763   | 892   | 1,027 | 1,170 | 1,340  | 1,660  |        |        |               |
| 715 | 846  | 950   | 1,055 | 1,193 | 1,348 | 1,479  | 1,736  |        |        |               |
| 650 | 720  | 837   | 928   | 1,054 | 1,129 | 1,245  | 1,530  |        |        |               |
| 7   | 5    | 3     | 9     | 5     | 4     |        |        |        | 1      | 1             |
| 555 | 677  | 771   | 882   | 1,011 | 1,155 |        |        |        | 3,727  | 3,727         |
| 856 | 982  | 1,070 | 1,130 | 1,322 | 1,368 |        |        |        | 3,660  | 3,660         |
| 802 | 905  | 1,008 | 1,011 | 1,140 | 1,255 |        |        |        | 3,467  | 3,467         |
| 28  | 20   | 30    | 28    | 39    | 34    | 29     | 29     | 8      | 5      | 5             |
| 546 | 664  | 774   | 887   | 1,019 | 1,174 | 1,340  | 1,647  | 2,192  | 5,019  | 5,019         |
| 684 | 726  | 814   | 868   | 976   | 1,085 | 1,197  | 1,432  | 1,772  | 2,824  | 2,824         |
| 579 | 577  | 718   | 720   | 793   | 872   | 1,020  | 1,167  | 1,576  | 2,431  | 2,431         |
| 8   | 10   | 16    | 21    | 15    | 22    | 14     | 9      | 3      | 2      | 2             |
| 525 | 667  | 763   | 887   | 1,036 | 1,167 | 1,369  | 1,647  | 2,167  | 3,261  | 3,261         |
| 714 | 789  | 881   | 959   | 1,045 | 1,152 | 1,300  | 1,544  | 1,882  | 2,714  | 2,714         |
| 544 | 648  | 767   | 766   | 890   | 991   | 1,124  | 1,369  | 1,467  | 2,538  | 2,538         |

TABLE  
Average incomes before redistribution  
after

| Range of income before redistribution<br>£ per year | Under<br>195 | 195– | 260– |
|-----------------------------------------------------|--------------|------|------|
| Single person – $S_0$                               |              |      |      |
| Number of families                                  | 103          | 10   | 27   |
| Income before redistribution                        | 92           | 228  | 303  |
| Income after direct taxes and benefits              | 257          | 321  | 326  |
| Income after all redistribution                     | 228          | 291  | 289  |
| Two adults – $M_0$                                  |              |      |      |
| Number of families                                  | 70           | 12   | 36   |
| Income before redistribution                        | 106          | 229  | 307  |
| Income after direct taxes and benefits              | 360          | 447  | 503  |
| Income after all redistribution                     | 309          | 390  | 448  |
| Two adults, 1 child – $M_1$                         |              |      |      |
| Number of families                                  | 7            | 1    | 4    |
| Income before redistribution                        | 70           | 226  | 304  |
| Income after direct taxes and benefits              | 521          | 466  | 567  |
| Income after all redistribution                     | 481          | 344  | 517  |
| Two adults, 2 children – $M_2$                      |              |      |      |
| Number of families                                  | 1            | 2    | 1    |
| Income before redistribution                        | 13           | 231  | 306  |
| Income after direct taxes and benefits              | 448          | 524  | 391  |
| Income after all redistribution                     | 344          | 433  | 365  |
| Two adults, 3 children – $M_3$                      |              |      |      |
| Number of families                                  | 9            | 1    | 2    |
| Income before redistribution                        | 58           | 251  | 276  |
| Income after direct taxes and benefits              | 620          | 704  | 701  |
| Income after all redistribution                     | 557          | 503  | 625  |
| Two adults, 4 children – $M_4$                      |              |      |      |
| Number of families                                  | 8            |      |      |
| Income before redistribution                        | 40           |      |      |
| Income after direct taxes and benefits              | 600          |      |      |
| Income after all redistribution                     | 524          |      |      |
| Three adults – $T_0$                                |              |      |      |
| Number of families                                  | 6            | 3    | 1    |
| Income before redistribution                        | 102          | 250  | 273  |
| Income after direct taxes and benefits              | 461          | 549  | 692  |
| Income after all redistribution                     | 391          | 500  | 601  |
| Three adults, 1 child – $T_1$                       |              |      |      |
| Number of families                                  | 4            | 2    | 1    |
| Income before redistribution                        | 38           | 225  | 280  |
| Income after direct taxes and benefits              | 375          | 450  | 700  |
| Income after all redistribution                     | 326          | 375  | 680  |

*Note:* The numbers of families are those in the original sample.

c

after direct taxes and benefits, and  
redistribution, 1959

£ per year

| 346- | 463- | 616- | 712-  | 822-  | 949-  | 1,097 | 1,266- | 1,464- | 1,950- | Over<br>2,600 |
|------|------|------|-------|-------|-------|-------|--------|--------|--------|---------------|
| 37   | 37   | 15   | 11    | 7     | 5     | 5     | 2      | 5      |        | 2             |
| 411  | 548  | 657  | 757   | 896   | 1,007 | 1,210 | 1,370  | 1,785  |        | 3,113         |
| 384  | 490  | 554  | 670   | 769   | 849   | 1,001 | 1,138  | 1,490  |        | 1,981         |
| 319  | 430  | 487  | 588   | 684   | 758   | 901   | 1,069  | 1,415  |        | 1,819         |
| 50   | 118  | 80   | 88    | 102   | 71    | 70    | 46     | 54     | 10     | 16            |
| 413  | 539  | 660  | 771   | 884   | 1,017 | 1,171 | 1,369  | 1,630  | 2,248  | 4,062         |
| 514  | 568  | 658  | 730   | 821   | 923   | 1,039 | 1,203  | 1,383  | 1,896  | 2,992         |
| 435  | 482  | 568  | 625   | 707   | 771   | 896   | 1,037  | 1,172  | 1,547  | 2,790         |
| 7    | 54   | 59   | 65    | 57    | 52    | 30    | 15     | 24     | 1      | 5             |
| 405  | 549  | 661  | 769   | 882   | 1,019 | 1,152 | 1,349  | 1,673  | 2,189  | 3,985         |
| 549  | 596  | 684  | 796   | 867   | 995   | 1,089 | 1,286  | 1,483  | 1,922  | 3,418         |
| 482  | 522  | 592  | 685   | 741   | 871   | 928   | 1,106  | 1,322  | 1,858  | 3,135         |
| 8    | 54   | 70   | 54    | 51    | 43    | 26    | 12     | 21     | 7      | 10            |
| 396  | 553  | 666  | 771   | 885   | 1,024 | 1,162 | 1,359  | 1,653  | 2,201  | 5,818         |
| 582  | 668  | 773  | 876   | 995   | 1,115 | 1,225 | 1,336  | 1,623  | 1,990  | 4,317         |
| 538  | 598  | 696  | 773   | 898   | 1,001 | 1,080 | 1,117  | 1,451  | 1,768  | 4,099         |
| 1    | 12   | 28   | 17    | 25    | 14    | 13    | 5      | 6      |        | 1             |
| 148  | 534  | 656  | 781   | 893   | 1,028 | 1,176 | 1,340  | 1,685  |        | 3,649         |
| 182  | 694  | 826  | 965   | 1,058 | 1,232 | 1,347 | 1,556  | 1,694  |        | 3,443         |
| 120  | 626  | 741  | 864   | 929   | 1,078 | 1,200 | 1,361  | 1,530  |        | 3,265         |
| 1    | 8    | 10   | 10    | 6     | 9     | 2     | 1      | 3      |        | 2             |
| 176  | 578  | 658  | 774   | 892   | 996   | 1,234 | 1,362  | 1,614  |        | 3,631         |
| 196  | 819  | 911  | 1,024 | 1,175 | 1,256 | 1,469 | 1,715  | 1,791  |        | 3,130         |
| 115  | 735  | 828  | 917   | 1,059 | 1,082 | 1,136 | 1,532  | 1,702  |        | 2,841         |
| 7    | 26   | 16   | 14    | 22    | 24    | 41    | 28     | 37     | 13     | 4             |
| 84   | 533  | 667  | 773   | 874   | 1,019 | 1,178 | 1,352  | 1,602  | 2,284  | 5,357         |
| 70   | 720  | 804  | 855   | 901   | 949   | 1,116 | 1,254  | 1,394  | 2,006  | 4,249         |
| 94   | 615  | 681  | 766   | 797   | 823   | 950   | 1,077  | 1,128  | 1,754  | 3,955         |
|      | 4    | 7    | 3     | 15    | 19    | 21    | 18     | 21     |        | 4             |
|      | 516  | 647  | 767   | 886   | 1,027 | 1,190 | 1,365  | 1,622  |        | 2,950         |
|      | 760  | 776  | 922   | 984   | 1,081 | 1,179 | 1,355  | 1,557  |        | 2,582         |
|      | 649  | 676  | 798   | 874   | 937   | 1,031 | 1,212  | 1,375  |        | 2,380         |

TABLE IIa  
Average benefits received and average taxes paid by different types of family,  
1953

£ per year

| Range of gross income<br>£ per year | Under<br>156 | 156–  | 312–  | 416–  | 520–  | 728–  | 1,040– | 1,560– | Over<br>2,600 |
|-------------------------------------|--------------|-------|-------|-------|-------|-------|--------|--------|---------------|
| <b>Direct taxes</b>                 |              |       |       |       |       |       |        |        |               |
| Single person                       | 1·2          | 14·1  | 48·2  | 62·1  | 96·0  | 160·2 | 352·6  | 606·6  | 1,163·7       |
| Two adults                          | 6·9          | 5·6   | 29·8  | 45·7  | 69·5  | 113·6 | 222·5  | 374·5  | 1,880·7       |
| Two adults, 1 child                 | 0·7          | 14·8  | 25·1  | 32·6  | 52·1  | 89·0  | 207·4  | 450·1  | 1,693·2       |
| Two adults, 2 children              |              | 7·2   | 25·2  | 25·7  | 36·0  | 67·6  | 173·1  | 426·2  | 1,132·1       |
| Two adults, 3 children              |              | 5·6   | 20·5  | 26·2  | 27·8  | 51·0  | 162·6  | 431·8  | 1,201·7       |
| Two adults, 4 children              |              | 8·7   | 13·2  | 25·5  | 26·9  | 36·9  | 97·8   | 302·5  | 1,398·5       |
| <b>Direct benefits</b>              |              |       |       |       |       |       |        |        |               |
| Single person                       | 109·2        | 59·5  | 25·4  | 21·3  | 19·0  | 19·7  | 11·3   | 11·3   | 11·4          |
| Two adults                          | 92·4         | 155·7 | 56·6  | 48·5  | 39·2  | 30·6  | 29·3   | 29·6   | 41·3          |
| Two adults, 1 child                 | 32·4         | 122·1 | 65·4  | 60·3  | 63·0  | 69·9  | 70·1   | 62·0   | 73·6          |
| Two adults, 2 children              |              | 266·6 | 111·3 | 116·4 | 122·9 | 126·0 | 124·5  | 124·8  | 149·7         |
| Two adults, 3 children              |              | 345·6 | 215·3 | 165·0 | 174·7 | 188·4 | 173·8  | 191·0  | 174·8         |
| Two adults, 4 children              |              | 352·6 | 381·9 | 274·2 | 257·2 | 274·6 | 270·0  | 205·2  | 225·7         |
| <b>Indirect taxes</b>               |              |       |       |       |       |       |        |        |               |
| Single person                       | 23·7         | 41·1  | 63·9  | 96·8  | 90·6  | 124·8 | 130·7  | 206·4  | 187·7         |
| Two adults                          | 56·4         | 51·7  | 77·5  | 97·1  | 118·0 | 143·9 | 172·6  | 232·6  | 260·6         |
| Two adults, 1 child                 | 47·8         | 66·6  | 79·5  | 91·8  | 106·9 | 136·2 | 192·0  | 230·2  | 286·2         |
| Two adults, 2 children              |              | 69·1  | 72·1  | 92·1  | 107·2 | 129·5 | 173·4  | 190·1  | 194·6         |
| Two adults, 3 children              |              | 63·9  | 75·1  | 88·2  | 107·4 | 133·2 | 164·6  | 119·1  | 287·4         |
| Two adults, 4 children              |              | 59·4  | 69·5  | 86·9  | 98·6  | 140·0 | 156·3  | 386·1  | 152·6         |
| <b>Indirect benefits</b>            |              |       |       |       |       |       |        |        |               |
| Single person                       | 5·7          | 5·0   | 5·0   | 5·5   | 4·7   | 4·1   | 4·1    | 4·1    | 4·1           |
| Two adults                          | 10·4         | 9·8   | 9·7   | 10·2  | 9·8   | 9·0   | 8·7    | 8·2    | 8·2           |
| Two adults, 1 child                 | 12·3         | 16·1  | 14·8  | 14·8  | 14·8  | 13·9  | 12·9   | 12·3   | 12·3          |
| Two adults, 2 children              |              | 19·4  | 19·3  | 20·2  | 20·5  | 19·0  | 18·6   | 16·4   | 16·4          |
| Two adults, 3 children              |              | 26·3  | 26·4  | 25·2  | 25·3  | 24·0  | 23·4   | 20·5   | 20·5          |
| Two adults, 4 children              |              | 28·5  | 27·9  | 31·0  | 30·5  | 32·0  | 28·5   | 36·2   | 24·6          |



TABLE  
Average benefits received  
by different types

| Range of pre-redistribution income<br>£ per year | Under<br>195 | 195-  | 260-  |
|--------------------------------------------------|--------------|-------|-------|
| <b>Direct taxes</b>                              |              |       |       |
| Income tax and surtax                            |              |       |       |
| Single person                                    | 2.1          | 9.6   | 11.0  |
| Two adults                                       | 0.9          | 2.9   | 10.4  |
| Two adults, 1 child                              | —            | —     | 4.3   |
| Two adults, 2 children                           | —            | —     | 3.7   |
| Two adults, 3 children                           | —            | —     | —     |
| Two adults, 4 children                           | —            | 2.7   | —     |
| Three adults                                     | —            | —     | 5.0   |
| Three adults, 1 child                            | —            | —     | 0     |
| National insurance contributions                 |              |       |       |
| Single person                                    | 1.6          | 15.3  | 18.7  |
| Two adults                                       | 2.3          | 8.7   | 16.1  |
| Two adults, 1 child                              | 9.0          | 0.7   | 16.1  |
| Two adults, 2 children                           | —            | 45.6  | 25.1  |
| Two adults, 3 children                           | —            | 36.5  | 29.1  |
| Two adults, 4 children                           | 6.4          | 1.3   | —     |
| Three adults                                     | 7.9          | —     | 27.1  |
| Three adults, 1 child                            | 20.8         | —     | 13.1  |
| <b>Direct benefits</b>                           |              |       |       |
| Single person                                    | 125.2        | 42.3  | 35.1  |
| Two adults                                       | 232.2        | 191.8 | 176.1 |
| Two adults, 1 child                              | 268.7        | 311.0 | 193.1 |
| Two adults, 2 children                           | 677.6        | 133.7 | 178.1 |
| Two adults, 3 children                           | 592.1        | 579.5 | 543.1 |
| Two adults, 4 children                           | 543.7        | 619.2 | —     |
| Three adults                                     | 366.1        | 273.2 | 281.1 |
| Three adults, 1 child                            | 244.7        | —     | 418.1 |
| <b>Indirect taxes</b>                            |              |       |       |
| Single person                                    | 29.8         | 36.8  | 46.1  |
| Two adults                                       | 66.8         | 75.3  | 78.1  |
| Two adults, 1 child                              | 59.2         | 72.5  | 74.1  |
| Two adults, 2 children                           | 52.5         | 182.2 | 116.1 |
| Two adults, 3 children                           | 62.9         | 70.4  | 58.1  |
| Two adults, 4 children                           | 142.8        | 148.9 | —     |
| Three adults                                     | 64.8         | 49.8  | 74.1  |
| Three adults, 1 child                            | 55.1         | —     | 85.1  |
| <b>Indirect benefits</b>                         |              |       |       |
| Single person                                    | 5.2          | 5.1   | 5.1   |
| Two adults                                       | 6.7          | 4.9   | 7.1   |
| Two adults, 1 child                              | 6.6          | 21.2  | 1.1   |
| Two adults, 2 children                           | 38.4         | 2.8   | 2.1   |
| Two adults, 3 children                           | 3.5          | 35.8  | 37.1  |
| Two adults, 4 children                           | 27.6         | 2.7   | —     |
| Three adults                                     | 10.8         | 22.8  | 1.1   |
| Three adults, 1 child                            | 2.4          | —     | 2.1   |

Ib  
and average taxes paid  
of family, 1957

£ per year

| 346-  | 463-  | 616-  | 712-  | 822-  | 949-  | 1,097- | 1,266- | 1,464- | 1,950- | Over<br>2,600 |
|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|---------------|
| 36.7  | 52.8  | 69.1  | 102.5 | 126.3 | 147.9 | 208.7  | 271.3  | 293.8  | 970.2  | 1,342.5       |
| 12.0  | 26.0  | 49.5  | 55.6  | 66.1  | 93.1  | 139.9  | 201.6  | 273.9  | 518.5  | 1,013.4       |
| 2.8   | 10.0  | 18.6  | 31.5  | 49.2  | 73.0  | 97.4   | 133.6  | 155.2  | 455.0  | 1,278.6       |
| 5.7   | 2.2   | 12.6  | 14.2  | 30.3  | 59.2  | 90.5   | 125.7  | 177.7  | 336.4  | 695.6         |
| 3.4   | 1.6   | 0.1   | 12.1  | 15.4  | 33.3  | 49.5   | 75.5   | 150.5  |        |               |
| —     | —     | —     | 5.9   | 7.8   | 6.2   | 13.2   |        |        |        | 312.6         |
| 2.5   | 24.6  | 30.2  | 42.5  | 45.8  | 56.4  | 103.8  | 107.4  | 184.4  | 404.9  | 2,240.9       |
| —     | 8.7   | 13.7  | 15.9  | 33.1  | 50.3  | 58.7   | 111.9  | 127.9  | 349.2  | 570.7         |
| 18.9  | 28.4  | 23.9  | 34.0  | 29.3  | 22.1  | 19.6   | 27.0   | 27.0   | 25.3   | 33.2          |
| 27.7  | 34.7  | 34.8  | 38.5  | 43.8  | 44.5  | 45.1   | 42.5   | 40.1   | 43.4   | 41.9          |
| 32.0  | 33.4  | 35.9  | 38.1  | 38.3  | 36.9  | 38.0   | 44.4   | 41.1   | 35.9   | 36.5          |
| 32.9  | 33.6  | 35.7  | 34.9  | 36.0  | 36.8  | 36.8   | 36.0   | 37.3   | 37.6   | 26.9          |
| 31.0  | 34.8  | 34.5  | 37.0  | 39.9  | 39.5  | 37.8   | 42.3   | 33.9   |        |               |
| 33.5  | 29.7  | 34.5  | 22.5  | 38.2  | 46.9  | 39.9   |        |        |        | 36.3          |
| 27.1  | 34.7  | 44.3  | 49.2  | 57.0  | 59.0  | 55.8   | 68.7   | 72.2   | 70.4   | 41.6          |
| 27.0  | 24.3  | 41.4  | 46.7  | 48.8  | 56.4  | 62.3   | 61.2   | 75.5   | 62.9   | 74.5          |
| 39.2  | 22.8  | 30.5  | 9.2   | 12.3  | 14.1  | 45.5   | 9.2    | 9.2    | 9.2    | 9.2           |
| 101.3 | 60.7  | 64.0  | 39.3  | 30.4  | 35.9  | 27.5   | 32.6   | 35.0   | 18.5   | 18.0          |
| 06.0  | 91.5  | 71.8  | 79.1  | 77.4  | 76.1  | 81.0   | 69.9   | 99.6   | 110.3  | 88.7          |
| 55.5  | 147.3 | 142.7 | 158.2 | 166.8 | 160.3 | 175.3  | 148.5  | 156.6  | 143.5  | 228.7         |
| 126.2 | 198.7 | 221.6 | 236.9 | 218.6 | 238.4 | 265.4  | 257.1  | 259.9  |        |               |
| 18.7  | 331.1 | 340.1 | 327.2 | 293.3 | 364.3 | 266.8  |        |        |        | 281.4         |
| 32.8  | 197.5 | 136.5 | 131.3 | 84.0  | 72.7  | 70.6   | 33.6   | 41.8   | 55.3   | 87.4          |
| 37.6  | 222.1 | 176.9 | 180.6 | 154.4 | 115.8 | 105.2  | 103.3  | 101.1  | 127.4  | 98.5          |
| 58.2  | 99.9  | 116.8 | 207.7 | 102.6 | 137.0 | 145.6  | 90.6   | 98.9   | 229.3  | 262.5         |
| 82.8  | 98.5  | 103.5 | 131.9 | 147.1 | 152.3 | 189.4  | 199.0  | 218.0  | 275.0  | 380.3         |
| 59.7  | 96.6  | 120.7 | 156.8 | 136.0 | 150.8 | 147.6  | 185.0  | 156.8  | 81.3   | 228.2         |
| 68.3  | 84.8  | 104.3 | 121.6 | 131.0 | 165.9 | 158.5  | 149.8  | 213.6  | 259.3  | 263.7         |
| 10.0  | 88.1  | 135.8 | 125.9 | 147.0 | 153.9 | 231.3  | 247.7  | 209.1  |        |               |
| 92.0  | 82.6  | 95.3  | 100.2 | 142.8 | 192.3 | 125.4  |        |        |        | 199.9         |
| 56.7  | 115.6 | 158.8 | 109.2 | 157.5 | 195.9 | 227.6  | 185.7  | 275.5  | 198.9  | 396.1         |
| 75.7  | 178.4 | 151.6 | 128.5 | 207.8 | 167.0 | 175.0  | 181.0  | 190.1  | 418.3  | 180.4         |
| 5.4   | 3.1   | 0.7   | 1.0   | 1.0   | 0.9   | 0.8    | 0.7    | 1.6    | 0.3    | 0.9           |
| 8.5   | 10.4  | 7.4   | 11.7  | 6.4   | 7.2   | 6.1    | 4.8    | 1.7    | 1.7    | 1.8           |
| 13.4  | 13.5  | 9.2   | 13.4  | 8.8   | 11.1  | 11.7   | 2.6    | 1.8    | 3.3    | 3.0           |
| 18.8  | 17.7  | 12.8  | 15.4  | 17.6  | 16.1  | 13.1   | 18.0   | 10.6   | 10.3   | 2.8           |
| 18.4  | 22.5  | 10.6  | 12.9  | 19.9  | 15.5  | 12.5   | 13.5   | 2.8    |        |               |
| 10.5  | 29.0  | 18.1  | 39.0  | 23.8  | 10.6  | 12.2   |        |        |        | 6.7           |
| 2.6   | 10.0  | 9.9   | 12.9  | 10.0  | 12.6  | 14.2   | 8.5    | 10.7   | 2.9    | 2.9           |
| 3.6   | 8.1   | 10.6  | 13.8  | 14.4  | 12.3  | 14.2   | 5.9    | 15.3   | 3.1    | 4.1           |

TABLE  
Average benefits received  
by different types

| Range of pre-redistribution income<br>£ per year | Under<br>195 | 195-  | 260-  |
|--------------------------------------------------|--------------|-------|-------|
| Direct taxes                                     |              |       |       |
| Income tax and surtax                            |              |       |       |
| Single person                                    | 2.1          | 10.8  | 18.4  |
| Two adults                                       | 3.2          | 2.9   | 10.8  |
| Two adults, 1 child                              | —            | —     | 11.1  |
| Two adults, 2 children                           | —            | —     | —     |
| Two adults, 3 children                           | —            | —     | —     |
| Two adults, 4 children                           | —            | —     | —     |
| Three adults                                     | —            | 5.4   | 2.4   |
| Three adults, 1 child                            | 23.3         | —     | —     |
| National insurance contributions                 |              |       |       |
| Single person                                    | 1.8          | 8.6   | 24.2  |
| Two adults                                       | 2.1          | 13.1  | 16.8  |
| Two adults, 1 child                              | 0.3          | 23.3  | 6.7   |
| Two adults, 2 children                           | —            | 12.9  | 48.5  |
| Two adults, 3 children                           | 0.2          | —     | 2.3   |
| Two adults, 4 children                           | 3.1          | —     | —     |
| Three adults                                     | —            | 25.0  | 5.3   |
| Three adults, 1 child                            | —            | 24.6  | 22.6  |
| Direct benefits                                  |              |       |       |
| Single person                                    | 168.6        | 112.7 | 65.8  |
| Two adults                                       | 259.0        | 234.3 | 223.9 |
| Two adults, 1 child                              | 451.2        | 262.9 | 280.3 |
| Two adults, 2 children                           | 435.7        | 306.4 | 133.5 |
| Two adults, 3 children                           | 562.3        | 452.6 | 428.0 |
| Two adults, 4 children                           | 563.1        | —     | —     |
| Three adults                                     | 359.0        | 328.6 | 427.2 |
| Three adults, 1 child                            | 360.9        | 250.4 | 448.4 |
| Indirect taxes                                   |              |       |       |
| Single person                                    | 34.4         | 29.6  | 42.8  |
| Two adults                                       | 54.3         | 67.1  | 59.7  |
| Two adults, 1 child                              | 44.4         | 122.0 | 58.4  |
| Two adults, 2 children                           | 104.0        | 106.2 | 57.2  |
| Two adults, 3 children                           | 83.3         | 201.2 | 102.8 |
| Two adults, 4 children                           | 95.5         | —     | —     |
| Three adults                                     | 70.6         | 70.3  | 91.5  |
| Three adults, 1 child                            | 68.3         | 75.6  | 57.1  |
| Indirect benefits                                |              |       |       |
| Single person                                    | 5.7          | —     | 5.8   |
| Two adults                                       | 3.5          | 10.3  | 4.5   |
| Two adults, 1 child                              | 4.4          | —     | 8.9   |
| Two adults, 2 children                           | —            | 15.3  | 31.2  |
| Two adults, 3 children                           | 20.5         | —     | 30.9  |
| Two adults, 4 children                           | 19.7         | —     | —     |
| Three adults                                     | —            | 21.3  | —     |
| Three adults, 1 child                            | 19.0         | —     | 31.2  |

*d average taxes paid  
family, 1959*

£ per year

| 46-  | 463-  | 616-  | 712-  | 822-  | 949-  | 1,097- | 1,266- | 1,464- | 1,950- | Over<br>2,600 |
|------|-------|-------|-------|-------|-------|--------|--------|--------|--------|---------------|
| 24.5 | 52.1  | 64.9  | 92.0  | 102.3 | 162.6 | 234.2  | 204.4  | 334.3  |        | 1,100.3       |
| 4.8  | 22.6  | 39.8  | 56.0  | 66.2  | 85.4  | 107.3  | 167.8  | 230.6  | 375.9  | 1,059.5       |
| 5.8  | 7.0   | 17.1  | 26.0  | 46.9  | 61.4  | 84.0   | 123.9  | 218.0  | 299.9  | 553.5         |
| —    | 5.7   | 3.0   | 12.4  | 30.0  | 41.1  | 67.6   | 120.2  | 147.1  | 294.6  | 1,604.2       |
| —    | 1.3   | 0.5   | 4.3   | 15.1  | 31.9  | 50.5   | 62.5   | 150.6  |        | 373.5         |
| —    | —     | 0.3   | 1.8   | 2.6   | 8.5   | 25.0   | —      | 123.3  |        | 786.4         |
| 3.4  | 21.5  | 35.5  | 48.2  | 36.1  | 59.7  | 78.5   | 93.0   | 170.0  | 387.0  | 1,201.0       |
|      | 9.2   | 14.1  | 2.9   | 33.6  | 37.2  | 62.7   | 82.5   | 186.1  |        | 476.7         |
| 3.6  | 38.3  | 48.8  | 30.0  | 36.9  | 37.8  | 25.6   | 38.5   | 30.0   |        | 42.6          |
| 6.8  | 45.0  | 47.4  | 49.6  | 55.5  | 58.4  | 60.7   | 58.4   | 55.5   | 54.1   | 55.2          |
| 2.5  | 49.4  | 51.0  | 50.2  | 52.3  | 52.7  | 56.3   | 48.2   | 53.1   | 51.2   | 84.9          |
| 0.4  | 47.4  | 48.8  | 49.2  | 48.8  | 57.9  | 48.1   | 51.8   | 59.1   | 49.5   | 52.8          |
| 7.9  | 50.5  | 46.7  | 49.2  | 47.6  | 47.3  | 50.3   | 51.0   | 74.6   |        | 57.9          |
| 7.8  | 44.3  | 49.8  | 48.7  | 48.7  | 56.7  | 48.4   | 48.6   | 54.1   |        | 48.1          |
| 9.3  | 42.4  | 50.4  | 61.0  | 77.0  | 86.0  | 86.8   | 91.7   | 92.4   | 70.5   | 91.8          |
|      | 30.4  | 55.1  | 61.5  | 70.9  | 71.7  | 82.0   | 80.0   | 81.1   |        | 71.8          |
| 1.3  | 32.1  | 10.5  | 34.9  | 11.8  | 42.4  | 50.8   | 10.5   | 69.2   |        | 10.8          |
| 2.4  | 97.2  | 85.0  | 64.5  | 59.0  | 50.4  | 36.0   | 59.5   | 38.8   | 78.4   | 44.9          |
| 2.1  | 103.3 | 91.1  | 102.5 | 84.6  | 90.4  | 77.8   | 109.4  | 81.3   | 84.1   | 71.4          |
| 2.2  | 167.5 | 158.6 | 166.4 | 188.9 | 189.9 | 179.3  | 149.4  | 176.0  | 133.3  | 156.7         |
| 2.4  | 211.5 | 217.6 | 237.6 | 227.8 | 283.4 | 272.1  | 330.3  | 233.6  |        | 225.6         |
| 2.7  | 285.7 | 303.5 | 300.6 | 335.2 | 325.1 | 308.3  | 401.5  | 354.4  |        | 334.0         |
| 2.9  | 250.3 | 223.1 | 191.6 | 140.4 | 76.0  | 104.2  | 86.7   | 54.2   | 179.3  | 185.1         |
|      | 283.9 | 198.1 | 219.9 | 202.5 | 163.5 | 133.9  | 152.6  | 202.8  |        | 180.6         |
| 2.6  | 65.5  | 69.4  | 85.4  | 84.7  | 91.8  | 100.5  | 68.9   | 75.2   |        | 162.5         |
| 2.4  | 93.3  | 94.4  | 110.7 | 122.0 | 156.4 | 146.5  | 169.3  | 214.3  | 349.1  | 202.6         |
| 2.7  | 80.2  | 102.0 | 117.0 | 132.9 | 130.6 | 167.2  | 186.6  | 170.6  | 64.6   | 283.4         |
| 2.1  | 83.9  | 91.3  | 119.3 | 105.6 | 127.7 | 157.5  | 226.9  | 175.2  | 226.8  | 218.3         |
| 2.0  | 76.0  | 99.8  | 118.9 | 141.8 | 168.2 | 153.8  | 214.4  | 167.8  |        | 177.5         |
| 2.2  | 92.2  | 102.6 | 123.3 | 127.1 | 188.3 | 349.1  | 214.5  | 88.7   |        | 289.7         |
| 2.6  | 107.7 | 125.5 | 95.4  | 114.8 | 134.2 | 173.9  | 185.5  | 275.6  | 252.0  | 305.2         |
|      | 110.7 | 109.3 | 144.6 | 126.8 | 153.0 | 159.4  | 148.0  | 187.1  |        | 202.3         |
| 8    | 5.7   | 2.4   | 3.2   | —     | —     | —      | —      | —      |        | —             |
| 1    | 6.9   | 5.0   | 5.7   | 7.9   | 3.9   | 3.4    | 3.9    | 3.6    | —      | —             |
| 8    | 6.3   | 9.2   | 6.9   | 7.4   | 6.2   | 5.3    | 6.6    | 9.6    | —      | —             |
| 5    | 14.0  | 14.1  | 15.9  | 8.7   | 13.9  | 12.0   | 7.7    | 2.8    | 4.5    | —             |
| —    | 7.9   | 15.1  | 17.6  | 13.5  | 14.0  | 7.1    | 19.2   | 4.1    |        | —             |
| —    | 8.2   | 19.2  | 15.9  | 10.7  | 14.2  | 16.3   | 31.7   | —      |        | —             |
| 3    | 3.3   | 2.0   | 6.7   | 10.2  | 7.6   | 7.9    | 8.5    | 9.9    | —      | 11.1          |
|      | —     | 9.3   | 20.2  | 16.6  | 8.4   | 11.0   | 5.0    | 4.7    |        | —             |

TABI  
*Average payments of indirect tax*

| Range of pre-redistribution income<br>£ per year | Under<br>195 | 195– | 260– | 346 |
|--------------------------------------------------|--------------|------|------|-----|
| <b>Local rates</b>                               |              |      |      |     |
| Single person                                    | 12.7         | 14.5 | 14.7 | 17  |
| Two adults                                       | 15.5         | 13.0 | 18.6 | 17  |
| Two adults, 1 child                              | 14.2         | 13.4 | 11.0 | 13  |
| Two adults, 2 children                           | 20.7         | 51.0 | 12.0 | 15  |
| Two adults, 3 children                           | 16.3         | 20.8 | 16.2 | 13  |
| <b>Drink</b>                                     |              |      |      |     |
| Single person                                    | 4.8          | 7.9  | 7.9  | 10  |
| Two adults                                       | 18.4         | 37.2 | 15.8 | 16  |
| Two adults, 1 child                              | 3.1          | —    | 5.6  | 1   |
| Two adults, 2 children                           | —            | 41.1 | 16.5 | 3   |
| Two adults, 3 children                           | 3.3          | —    | —    | 15  |
| <b>Tobacco</b>                                   |              |      |      |     |
| Single person                                    | 7.2          | 6.6  | 12.7 | 17  |
| Two adults                                       | 20.1         | 13.9 | 28.0 | 28  |
| Two adults, 1 child                              | 25.4         | 49.0 | 42.9 | 24  |
| Two adults, 2 children                           | 26.1         | 16.0 | 54.0 | 31  |
| Two adults, 3 children                           | 32.5         | 31.6 | 31.7 | 57  |
| <b>Purchase tax</b>                              |              |      |      |     |
| Single person                                    | 2.1          | 3.3  | 4.8  | 5   |
| Two adults                                       | 5.4          | 2.6  | 4.8  | 7   |
| Two adults, 1 child                              | 5.4          | 2.3  | 6.8  | 7   |
| Two adults, 2 children                           | 2.4          | 37.8 | 19.7 | 5   |
| Two adults, 3 children                           | 5.7          | 4.4  | 3.1  | 7   |
| <b>Oil duties</b>                                |              |      |      |     |
| Single person                                    | 0.6          | 1.1  | 1.2  | 1   |
| Two adults                                       | 1.5          | 3.3  | 3.6  | 4   |
| Two adults, 1 child                              | 3.9          | 2.3  | 2.4  | 4   |
| Two adults, 2 children                           | 0.5          | 21.9 | 1.0  | 2   |
| Two adults, 3 children                           | 0.7          | 1.3  | —    | 4   |
| <b>Other indirect taxes</b>                      |              |      |      |     |
| Single person                                    | 2.5          | 3.4  | 5.3  | 5   |
| Two adults                                       | 5.9          | 5.3  | 7.5  | 8   |
| Two adults, 1 child                              | 7.2          | 5.5  | 6.1  | 8   |
| Two adults, 2 children                           | 2.7          | 14.3 | 13.5 | 9   |
| Two adults, 3 children                           | 4.6          | 12.4 | 7.2  | 11  |

*Note:* For the numbers of households of each type in each income range :  
Table Ib.

Figures for fewer than five households are shown in italics.

I

by certain types of household, 1957

£ per year

| 463- | 616- | 712- | 822- | 949- | 1,097- | 1,266- | 1,464- | 1,950- | Over<br>2,600 | Average<br>for all<br>incomes |
|------|------|------|------|------|--------|--------|--------|--------|---------------|-------------------------------|
| 20.9 | 14.1 | 14.8 | 26.9 | 26.4 | 30.8   | 41.2   | 90.2   | 53.3   | 8.4           | 17.4                          |
| 16.4 | 20.9 | 18.2 | 19.8 | 23.2 | 23.8   | 33.4   | 33.2   | 31.4   | 56.6          | 20.1                          |
| 16.8 | 16.0 | 18.9 | 20.9 | 24.5 | 25.6   | 30.8   | 17.3   | 46.7   | 47.2          | 19.6                          |
| 16.0 | 19.0 | 20.5 | 22.0 | 23.8 | 26.3   | 30.2   | 31.1   | 36.3   | 24.1          | 20.9                          |
| 8.6  | 18.0 | 24.8 | 21.4 | 24.4 | 30.0   | 30.6   | 36.2   |        |               | 21.9                          |
| 17.5 | 37.5 | 83.6 | 33.5 | 31.3 | 7.7    | 10.0   | —      | 108.5  | 91.9          | 15.4                          |
| 11.0 | 15.6 | 31.1 | 31.6 | 34.1 | 45.4   | 31.4   | 67.8   | 86.9   | 159.9         | 28.1                          |
| 3.5  | 15.3 | 20.3 | 30.5 | 33.0 | 22.1   | 26.8   | 17.2   | 6.2    | 9.8           | 20.3                          |
| 9.6  | 13.8 | 19.0 | 20.0 | 21.1 | 38.6   | 35.5   | 43.4   | 71.7   | 36.1          | 19.2                          |
| 3.8  | 34.2 | 18.2 | 18.3 | 42.5 | 35.2   | 65.9   | 53.5   |        |               | 24.4                          |
| 0.0  | 45.8 | 75.6 | 24.9 | 55.6 | 42.5   | —      | —      | 39.0   | 80.6          | 18.8                          |
| 4.7  | 38.2 | 50.9 | 42.7 | 49.3 | 55.1   | 48.9   | 52.9   | 62.1   | 50.9          | 40.5                          |
| 0.4  | 42.6 | 52.4 | 47.4 | 37.8 | 53.1   | 53.7   | 40.5   | —      | 75.6          | 43.6                          |
| 6.8  | 42.4 | 43.3 | 47.3 | 57.7 | 45.2   | 26.4   | 54.0   | 74.3   | 92.1          | 44.6                          |
| 3.6  | 42.4 | 47.3 | 49.2 | 47.7 | 73.7   | 48.1   | 44.0   |        |               | 45.0                          |
| 7.4  | 5.7  | 8.7  | 3.6  | 14.9 | 33.0   | 12.3   | 5.6    | 6.3    | 26.0          | 5.4                           |
| 0.0  | 11.6 | 8.4  | 25.6 | 17.8 | 34.8   | 45.2   | 20.6   | 58.8   | 35.6          | 15.9                          |
| 1.5  | 28.3 | 43.9 | 15.4 | 27.9 | 16.9   | 19.7   | 44.8   | 13.3   | 50.7          | 23.7                          |
| 9.0  | 10.3 | 14.7 | 17.2 | 31.0 | 23.2   | 25.7   | 51.0   | 22.0   | 54.9          | 16.9                          |
| 8.1  | 24.8 | 12.4 | 17.9 | 17.7 | 42.7   | 68.8   | 31.7   |        |               | 17.3                          |
| 3.4  | 2.4  | 8.7  | 6.9  | 1.1  | 15.6   | 8.7    | 0.7    | 7.4    | 40.0          | 2.4                           |
| 4.7  | 4.7  | 8.0  | 7.8  | 10.3 | 13.3   | 21.5   | 23.0   | 15.0   | 12.5          | 7.4                           |
| 3.4  | 4.1  | 7.3  | 6.1  | 9.7  | 10.3   | 30.0   | 20.9   | 4.9    | 23.5          | 6.8                           |
| 3.5  | 6.1  | 8.6  | 8.3  | 13.2 | 8.3    | 16.8   | 16.7   | 27.1   | 25.7          | 8.2                           |
| 2.6  | 2.9  | 10.0 | 23.0 | 3.9  | 25.8   | 15.0   | 24.1   |        |               | 9.2                           |
| 3.7  | 11.4 | 16.3 | 6.8  | 7.7  | 15.8   | 18.4   | 2.4    | 14.7   | 15.4          | 6.3                           |
| 1.7  | 12.5 | 15.3 | 19.6 | 17.4 | 17.0   | 18.7   | 20.5   | 20.7   | 64.8          | 14.2                          |
| 1.0  | 14.3 | 14.1 | 15.8 | 17.9 | 19.6   | 24.1   | 16.1   | 10.2   | 21.5          | 14.4                          |
| 3.9  | 12.7 | 15.7 | 16.3 | 19.1 | 17.0   | 15.2   | 17.3   | 27.9   | 30.8          | 14.7                          |
| 1.4  | 13.5 | 13.1 | 17.2 | 17.8 | 23.8   | 19.3   | 19.5   |        |               | 14.4                          |

TABLE  
Average payments of indirect taxes

| Range of pre-redistribution income<br>£ per year | Under<br>195 | 195- | 260- | 346- |
|--------------------------------------------------|--------------|------|------|------|
| Local rates                                      |              |      |      |      |
| Single person                                    | 16.2         | 17.3 | 18.2 | 21.5 |
| Two adults                                       | 17.3         | 18.8 | 20.7 | 18.0 |
| Two adults, 1 child                              | 18.5         | 28.8 | 22.1 | 13.3 |
| Two adults, 2 children                           | 13.9         | 15.3 | 26.9 | 15.3 |
| Two adults, 3 children                           | 20.1         | 20.6 | 14.6 | 21.6 |
| Drink                                            |              |      |      |      |
| Single person                                    | 6.6          | 0.7  | 4.3  | 15.0 |
| Two adults                                       | 8.9          | 12.2 | 5.3  | 13.2 |
| Two adults, 1 child                              | 0.6          | 41.1 | 0.3  | 4.7  |
| Two adults, 2 children                           | 31.2         | 18.8 | —    | 7.8  |
| Two adults, 3 children                           | 10.7         | 39.3 | 12.3 | 27.5 |
| Tobacco                                          |              |      |      |      |
| Single person                                    | 5.7          | 5.1  | 13.3 | 18.4 |
| Two adults                                       | 19.4         | 23.4 | 19.0 | 32.4 |
| Two adults, 1 child                              | 16.3         | 21.1 | 24.2 | 34.3 |
| Two adults, 2 children                           | 50.9         | 30.5 | 20.8 | 23.4 |
| Two adults, 3 children                           | 39.3         | 58.9 | 58.4 | 98.2 |
| Purchase tax                                     |              |      |      |      |
| Single person                                    | 2.2          | 1.9  | 2.5  | 5.6  |
| Two adults                                       | 2.0          | 3.9  | 4.0  | 7.1  |
| Two adults, 1 child                              | 2.2          | 20.0 | 3.5  | 6.4  |
| Two adults, 2 children                           | 1.1          | 20.0 | 2.6  | 2.2  |
| Two adults, 3 children                           | 2.3          | 58.9 | 6.4  | 4.9  |
| Oil duties                                       |              |      |      |      |
| Single person                                    | 0.4          | 0.8  | 1.0  | 2.2  |
| Two adults                                       | 1.5          | 1.6  | 3.3  | 5.4  |
| Two adults, 1 child                              | 1.3          | 2.2  | 2.2  | 3.2  |
| Two adults, 2 children                           | 1.1          | 8.8  | 0.9  | 1.2  |
| Two adults, 3 children                           | 2.3          | 5.9  | 2.9  | —    |
| Other indirect taxes                             |              |      |      |      |
| Single person                                    | 3.2          | 3.8  | 3.5  | 6.9  |
| Two adults                                       | 5.4          | 7.2  | 7.3  | 8.3  |
| Two adults, 1 child                              | 5.4          | 8.9  | 6.2  | 9.8  |
| Two adults, 2 children                           | 5.8          | 12.9 | 6.1  | 6.2  |
| Two adults, 3 children                           | 8.5          | 17.7 | 8.2  | 9.8  |

Note: For the number of households of each type in each income range see Table Ic.

Figures for fewer than five households are shown in italics.

*certain types of household, 1959*

£ per year

| 63- | 616- | 712- | 822- | 949- | 1,097- | 1,266- | 1,464- | 1,950- | Over<br>2,600 | Average<br>for all<br>incomes |
|-----|------|------|------|------|--------|--------|--------|--------|---------------|-------------------------------|
| 4.7 | 17.3 | 26.6 | 19.2 | 28.9 | 54.5   | 18.1   | 31.2   |        | 37.2          | 18.9                          |
| 6.9 | 21.2 | 21.5 | 22.4 | 22.6 | 27.2   | 29.3   | 34.9   | 31.3   | 54.9          | 23.3                          |
| 4.0 | 18.0 | 21.2 | 22.5 | 23.2 | 27.5   | 26.7   | 30.3   | 23.2   | 25.2          | 21.3                          |
| 8.0 | 20.7 | 22.5 | 23.3 | 24.6 | 23.9   | 34.0   | 35.1   | 49.1   | 47.5          | 24.3                          |
| 1.4 | 19.7 | 22.3 | 19.1 | 25.2 | 32.4   | 26.3   | 14.4   |        | —             | 20.9                          |
| 8.5 | 7.4  | 18.3 | 11.7 | 17.5 | 0.2    | —      | 8.9    |        | 18.6          | 9.9                           |
| 6.8 | 11.7 | 15.4 | 19.5 | 32.2 | 14.2   | 20.1   | 44.5   | 38.6   | 51.8          | 19.6                          |
| 8.3 | 11.4 | 12.8 | 15.4 | 17.6 | 20.9   | 26.3   | 29.1   | 6.1    | 43.6          | 15.2                          |
| 9.9 | 10.8 | 11.7 | 13.7 | 15.1 | 16.8   | 12.5   | 25.1   | 26.8   | 48.2          | 14.5                          |
| 1.1 | 8.2  | 16.1 | 18.9 | 32.1 | 12.6   | 41.5   | 33.9   |        | 76.4          | 18.0                          |
| 6.4 | 30.3 | 19.0 | 39.5 | 9.7  | 18.9   | —      | 11.9   |        | 21.0          | 13.2                          |
| 8.2 | 36.9 | 43.6 | 46.4 | 49.8 | 46.1   | 57.1   | 62.1   | 39.7   | 34.3          | 41.0                          |
| 7.2 | 42.1 | 48.6 | 49.9 | 46.7 | 50.7   | 58.4   | 38.5   | 12.2   | 80.7          | 45.2                          |
| 2.5 | 35.1 | 39.4 | 36.7 | 49.8 | 57.0   | 73.2   | 51.9   | 74.9   | 22.6          | 41.3                          |
| 4.8 | 44.2 | 42.5 | 47.5 | 47.8 | 41.6   | 66.1   | 65.1   |        | 54.2          | 46.2                          |
| 4.0 | 6.0  | 4.1  | 5.3  | 2.3  | 10.5   | 16.4   | 0.7    |        | 29.4          | 3.6                           |
| 5.5 | 8.2  | 9.7  | 14.1 | 25.5 | 29.3   | 29.0   | 26.0   | 170.1  | 16.9          | 15.8                          |
| 7.8 | 13.1 | 15.0 | 24.3 | 16.8 | 33.5   | 48.5   | 39.4   | 8.5    | 99.2          | 20.4                          |
| 7.7 | 9.6  | 25.0 | 13.8 | 15.7 | 29.4   | 73.5   | 30.0   | 30.8   | 42.4          | 18.7                          |
| 6.9 | 10.7 | 17.1 | 32.3 | 37.9 | 33.7   | 41.1   | 10.6   |        | 18.5          | 21.3                          |
| 7.7 | 2.8  | 10.0 | 1.3  | 16.8 | 6.9    | 18.1   | 9.5    |        | 35.4          | 2.5                           |
| 7.2 | 5.5  | 8.0  | 6.4  | 11.5 | 13.6   | 17.2   | 11.9   | 43.7   | 22.8          | 8.6                           |
| 7.7 | 5.0  | 6.9  | 8.0  | 10.6 | 17.9   | 11.7   | 14.3   | 3.7    | 13.1          | 8.3                           |
| 7.1 | 3.7  | 7.3  | 5.7  | 10.3 | 12.7   | 16.0   | 15.3   | 28.0   | 30.0          | 8.4                           |
| 7.0 | 6.9  | 6.3  | 7.8  | 10.1 | 11.5   | 16.7   | 23.0   |        | —             | 8.0                           |
| 7.2 | 5.6  | 7.5  | 7.7  | 16.5 | 9.5    | 16.4   | 13.1   |        | 21.0          | 5.8                           |
| 7.7 | 10.8 | 12.6 | 13.1 | 14.7 | 16.1   | 16.7   | 34.9   | 25.8   | 22.0          | 13.6                          |
| 7.3 | 12.3 | 12.5 | 12.9 | 15.8 | 16.8   | 14.9   | 19.0   | 11.0   | 21.6          | 13.3                          |
| 7.6 | 11.4 | 13.4 | 12.5 | 12.3 | 17.8   | 17.6   | 17.9   | 17.1   | 27.7          | 13.5                          |
| 7.8 | 10.2 | 14.5 | 16.2 | 15.1 | 22.1   | 22.5   | 20.8   |        | 28.3          | 14.7                          |

TABLE V  
*Movements from one income range to another: percentage distributions of the numbers of each type of family, 1957*

|                                        | Single person | Two adults | Two adults and |            |            |            | Three adults | Three adults and 1 child | Total of foregoing families |
|----------------------------------------|---------------|------------|----------------|------------|------------|------------|--------------|--------------------------|-----------------------------|
|                                        |               |            | 1 child        | 2 children | 3 children | 4 children |              |                          |                             |
| <i>After direct taxes and benefits</i> |               |            |                |            |            |            |              |                          |                             |
| Down: 3 or more steps                  | —             | 0.1        | —              | 0.4        | —          | —          | —            | —                        | 0.1                         |
| 2 steps                                | 0.5           | 0.4        | —              | —          | —          | —          | —            | —                        | 0.2                         |
| 1 step                                 | 20.6          | 26.2       | 8.9            | 3.4        | —          | —          | 23.5         | 7.0                      | 16.1                        |
| No change                              | 55.1          | 54.0       | 75.4           | 56.9       | 24.3       | 14.1       | 55.7         | 71.2                     | 57.0                        |
| Up: 1 step                             | 15.3          | 10.7       | 12.6           | 37.6       | 67.2       | 51.6       | 16.7         | 17.9                     | 20.3                        |
| 2 steps                                | 8.5           | 4.9        | 1.8            | 1.2        | 3.4        | 23.6       | 1.8          | 2.4                      | 4.0                         |
| 3 steps                                | —             | 3.5        | 0.9            | 0.3        | 2.6        | 2.1        | 1.6          | 0.8                      | 1.7                         |
| 4 or more steps                        | —             | 0.2        | 0.4            | 0.2        | 2.6        | 8.5        | 0.7          | 0.8                      | 0.6                         |
| <i>After all redistribution</i>        |               |            |                |            |            |            |              |                          |                             |
| Down: 3 or more steps                  | 2.0           | 2.7        | 1.0            | 0.6        | —          | —          | 2.2          | 2.4                      | 1.8                         |
| 2 steps                                | 11.8          | 11.6       | 2.7            | 0.8        | 1.0        | —          | 8.3          | 3.2                      | 6.8                         |
| 1 step                                 | 32.6          | 49.3       | 44.5           | 21.1       | 6.2        | —          | 55.0         | 39.9                     | 39.7                        |
| No change                              | 35.2          | 24.6       | 46.7           | 64.7       | 52.6       | 32.5       | 24.9         | 45.9                     | 38.0                        |
| Up: 1 step                             | 15.4          | 6.1        | 2.3            | 12.1       | 35.1       | 41.9       | 6.3          | 6.2                      | 9.5                         |
| 2 steps                                | 3.0           | 4.6        | 1.6            | 0.6        | 1.7        | 19.2       | 1.7          | 0.8                      | 2.9                         |
| 3 steps                                | —             | 0.9        | 1.3            | —          | 0.9        | 2.1        | 1.4          | 1.5                      | 0.9                         |
| 4 or more steps                        | —             | 0.2        | —              | 0.2        | 2.6        | 4.3        | 0.3          | —                        | 0.4                         |

*Note:* One step is a movement from one range to the next, and so on. The upper limit of every income range from which these figures are derived is one-third higher than the lower limit.

TABLE VI  
Movements from one income range to another: percentage distributions of the numbers of each type of family,  
1959

|                                        | Single<br>person | Two<br>adults | Two adults and |            |            |            | Three<br>adults | Three<br>adults<br>1 child | Total of<br>foregoing<br>families |
|----------------------------------------|------------------|---------------|----------------|------------|------------|------------|-----------------|----------------------------|-----------------------------------|
|                                        |                  |               | 1 child        | 2 children | 3 children | 4 children |                 |                            |                                   |
| <i>After direct taxes and benefits</i> |                  |               |                |            |            |            |                 |                            |                                   |
| Down: 3 or more steps                  | —                | 0·1           | —              | —          | —          | —          | —               | —                          | —                                 |
| 2 steps                                | 1·0              | 0·3           | —              | —          | —          | —          | —               | —                          | 0·2                               |
| 1 step                                 | 22·4             | 28·3          | 15·3           | 3·4        | 0·7        | 1·6        | 26·5            | 11·5                       | 19·7                              |
| No change                              | 36·8             | 48·8          | 68·9           | 57·8       | 40·4       | 12·6       | 48·6            | 63·0                       | 50·9                              |
| Up: 1 step                             | 20·4             | 9·2           | 11·3           | 35·1       | 48·9       | 68·5       | 17·3            | 18·7                       | 18·7                              |
| 2 steps                                | 18·2             | 6·8           | 2·4            | 2·9        | 2·1        | 6·3        | 3·8             | 1·6                        | 6·1                               |
| 3 steps                                | 0·4              | 5·8           | 1·4            | 0·5        | 0·7        | 1·6        | 1·6             | 2·0                        | 2·8                               |
| 4 or more steps                        | 0·9              | 0·7           | 0·7            | 0·3        | 7·1        | 9·4        | 2·1             | 3·3                        | 1·5                               |
| <i>After all redistribution</i>        |                  |               |                |            |            |            |                 |                            |                                   |
| Down: 3 or more steps                  | 0·7              | 1·4           | 0·2            | 0·5        | —          | —          | 0·9             | —                          | 0·8                               |
| 2 steps                                | 7·5              | 8·8           | 5·2            | 1·1        | 0·7        | —          | 10·5            | 2·9                        | 6·6                               |
| 1 step                                 | 30·2             | 48·8          | 44·5           | 19·3       | 7·1        | 3·2        | 46·2            | 34·4                       | 38·4                              |
| No change                              | 29·6             | 23·8          | 43·6           | 61·5       | 60·5       | 39·2       | 27·2            | 50·6                       | 35·8                              |
| Up: 1 step                             | 22·2             | 7·3           | 3·6            | 15·1       | 22·4       | 43·2       | 9·8             | 6·2                        | 11·2                              |
| 2 steps                                | 8·5              | 6·0           | 1·3            | 2·3        | 2·1        | 4·8        | 2·9             | 1·6                        | 4·3                               |
| 3 steps                                | 0·4              | 3·6           | 0·9            | 0·3        | 2·8        | 8·0        | 2·1             | 1·0                        | 2·2                               |
| 4 or more steps                        | 0·9              | 0·3           | 0·7            | —          | 4·3        | 1·6        | 0·4             | 3·2                        | 0·7                               |

*Note:* One step is a movement from one range to the next, and so on. The upper limit of every income range from which these figures are derived is one-third higher than the lower limit.

TABLE VII  
Gini coefficients of inequality for certain types of family in 1957 and 1959

|                                                                   | Single person | Two adults | Two adults and |            |            |            | Three adults | Three adults and |            | Four adults | Weighted average of family types shown <sup>1</sup> |
|-------------------------------------------------------------------|---------------|------------|----------------|------------|------------|------------|--------------|------------------|------------|-------------|-----------------------------------------------------|
|                                                                   |               |            | 1 child        | 2 children | 3 children | 4 children |              | 1 child          | 2 children |             |                                                     |
| 1957                                                              |               |            |                |            |            |            |              |                  |            |             |                                                     |
| Pre-redistribution income (X)                                     | 42.3          | 33.4       | 22.0           | 23.0       | 24.4       | 31.9       | 29.4         | 22.3             | 24.4       | 31.2        | 29.7                                                |
| X + direct benefits (X + b <sub>d</sub> )                         | 35.5          | 28.1       | 19.1           | 20.3       | 17.5       | 19.4       | 24.6         | 17.8             | 18.9       | 25.6        | 24.8                                                |
| X - national insurance contributions                              | 42.8          | 34.2       | 22.7           | 23.9       | 25.4       | 32.9       | 30.2         | 22.7             | 25.3       | 32.2        | 30.5                                                |
| X - income tax and surtax                                         | 38.1          | 30.4       | 19.8           | 20.8       | 23.3       | 31.2       | 24.6         | 20.3             | 22.5       | 29.6        | 26.8                                                |
| X - all direct taxes (X - t <sub>d</sub> )                        | 38.5          | 31.1       | 20.5           | 21.7       | 24.2       | 32.1       | 25.2         | 20.7             | 23.3       | 30.6        | 27.5                                                |
| X + b <sub>d</sub> - t <sub>d</sub> (Y)                           | 31.0          | 25.2       | 17.6           | 19.1       | 17.0       | 19.1       | 20.1         | 16.1             | 17.6       | 24.3        | 22.2                                                |
| Y + indirect benefits (Y + b <sub>i</sub> )                       | 30.7          | 24.9       | 17.3           | 18.8       | 16.7       | 18.5       | 19.9         | 15.9             | 17.3       | 24.1        | 21.9                                                |
| Y - indirect taxes (Y - t <sub>i</sub> )                          | 32.3          | 26.9       | 19.7           | 20.1       | 18.0       | 21.2       | 21.9         | 18.8             | 20.3       | 25.6        | 23.9                                                |
| Post-redistribution income (Y + b <sub>i</sub> - t <sub>i</sub> ) | 32.0          | 26.5       | 19.3           | 19.7       | 17.6       | 20.5       | 21.7         | 18.6             | 19.9       | 25.4        | 23.6                                                |
| 1959                                                              |               |            |                |            |            |            |              |                  |            |             |                                                     |
| Pre-redistribution income (X)                                     | 47.5          | 35.8       | 23.2           | 30.9       | 25.2       | 32.9       | 30.0         | 25.3             | 27.2       | 22.1        | 32.1                                                |
| X + direct benefits (X + b <sub>d</sub> )                         | 32.9          | 29.9       | 20.2           | 26.8       | 18.8       | 22.0       | 24.6         | 20.6             | 20.9       | 18.3        | 26.1                                                |
| X - national insurance contributions                              | 47.9          | 36.8       | 24.3           | 32.3       | 26.0       | 34.0       | 31.1         | 26.0             | 28.6       | 22.5        | 33.1                                                |
| X - income tax and surtax                                         | 44.9          | 32.8       | 21.2           | 26.6       | 24.0       | 30.6       | 27.4         | 23.8             | 24.0       | 20.2        | 29.4                                                |
| X - all direct taxes (X - t <sub>d</sub> )                        | 45.2          | 33.7       | 22.2           | 27.8       | 24.7       | 31.6       | 28.4         | 24.4             | 25.3       | 20.7        | 30.2                                                |
| X + b <sub>d</sub> - t <sub>d</sub> (Y)                           | 29.3          | 27.1       | 19.1           | 23.8       | 18.1       | 20.4       | 22.5         | 19.4             | 18.9       | 16.5        | 23.8                                                |
| Y + indirect benefits (Y + b <sub>i</sub> )                       | 28.8          | 26.9       | 19.0           | 23.5       | 17.9       | 20.0       | 22.5         | 19.0             | 18.6       | 16.3        | 23.6                                                |
| Y - indirect taxes (Y - t <sub>i</sub> )                          | 31.1          | 29.0       | 20.6           | 25.3       | 19.2       | 21.4       | 23.7         | 20.9             | 19.1       | 18.7        | 25.4                                                |
| Post-redistribution income (Y + b <sub>i</sub> - t <sub>i</sub> ) | 30.5          | 28.8       | 20.4           | 24.9       | 19.0       | 21.0       | 23.6         | 20.5             | 18.8       | 18.4        | 25.1                                                |
| Relative numbers of families in 1958                              | 86.9          | 361.2      | 125.6          | 119.3      | 39.7       | 16.4       | 134.7        | 49.9             | 26.4       | 39.9        | 1,000                                               |

<sup>1</sup> Using the relative numbers of families in 1958.

TABLE VIII  
Average incomes and Gini coefficients of inequality for the main types of family combined

|                                               | Average per family per year |           | Gini coefficients of inequality |      |
|-----------------------------------------------|-----------------------------|-----------|---------------------------------|------|
|                                               | 1957<br>£                   | 1959<br>£ | 1957                            | 1959 |
| <i>Before adjusting for non-response</i>      |                             |           |                                 |      |
| Pre-redistribution income (X)                 | 821.1                       | 929.9     | 28.8                            | 31.2 |
| <i>After adjusting for non-response</i>       |                             |           |                                 |      |
| Pre-redistribution income (X)                 | 837.6                       | 946.0     | 29.7                            | 32.1 |
| X + direct benefits (X + $b_d$ )              | 943.2                       | 1,079.4   | 24.8                            | 26.1 |
| X - national insurance contributions          | 798.4                       | 893.4     | 30.5                            | 33.1 |
| X - income tax and surtax                     | 769.6                       | 862.0     | 26.8                            | 29.4 |
| X - all direct taxes (X - $t_d$ )             | 730.4                       | 809.4     | 27.5                            | 30.2 |
| X + $b_d - t_d$ (Y)                           | 836.0                       | 942.7     | 22.2                            | 23.8 |
| Y + indirect benefits (Y + $b_i$ )            | 846.4                       | 950.1     | 21.9                            | 23.6 |
| Y - indirect taxes (Y - $t_i$ )               | 698.5                       | 814.0     | 23.9                            | 25.4 |
| Post-redistribution income (Y + $b_i - t_i$ ) | 708.8                       | 821.4     | 23.6                            | 25.1 |

<sup>1</sup> Weighted averages for the types of family shown in Table VII, using the relative numbers of such families in 1958.

TABLE IX  
Effects of taxes and benefits on Gini coefficients of inequality

|                                  | Actual effect <sup>1</sup> |        | Effect per £100 of tax or benefit per year per family |        |
|----------------------------------|----------------------------|--------|-------------------------------------------------------|--------|
|                                  | 1957                       | 1959   | 1957                                                  | 1959   |
| National insurance contributions | + 0.74                     | + 0.94 | + 1.88                                                | + 1.78 |
| Income tax and surtax            | - 2.95                     | - 2.80 | - 4.33                                                | - 3.33 |
| Direct benefits                  | - 5.09                     | - 6.22 | - 4.82                                                | - 4.66 |
| Indirect benefits                | - 0.31                     | - 0.24 | - 2.98                                                | - 3.18 |
| Indirect taxes                   | + 1.64                     | + 1.58 | + 1.19                                                | + 1.22 |

<sup>1</sup> Average of the two differences obtainable from Table VIII.

TABLE X  
Gini coefficients of inequality in 1953 and 1959<sup>1</sup>

|                                           | Single person | Two adults | Two adults and |            |            | Weighted average of family types shown <sup>a</sup> |
|-------------------------------------------|---------------|------------|----------------|------------|------------|-----------------------------------------------------|
|                                           |               |            | 1 child        | 2 children | 3 children |                                                     |
| 1953                                      |               |            |                |            |            |                                                     |
| Gross household income                    | 38.4          | 31.6       | 25.7           | 23.8       | 22.6       | 29.6                                                |
| Pre-redistribution income (X)             | 50.3          | 35.9       | 26.0           | 25.0       | 24.9       | 33.5                                                |
| X + direct benefits (X + b <sub>d</sub> ) | 38.6          | 29.9       | 23.6           | 21.0       | 18.2       | 27.8                                                |
| X - direct taxes (X - t <sub>d</sub> )    | 46.5          | 33.5       | 25.9           | 21.9       | 23.1       | 31.3                                                |
| X + b <sub>d</sub> - t <sub>d</sub>       | 33.5          | 26.7       | 23.3           | 17.9       | 16.1       | 24.9                                                |
| 1959                                      |               |            |                |            |            |                                                     |
| Gross household income                    | 42.9          | 31.0       | 21.9           | 30.5       | 20.9       | 30.2                                                |
| Pre-redistribution income (X)             | 47.5          | 35.8       | 23.2           | 30.9       | 25.2       | 33.7                                                |
| X + direct benefits (X + b <sub>d</sub> ) | 32.9          | 29.9       | 20.2           | 26.8       | 18.8       | 27.5                                                |
| X - direct taxes (X - t <sub>d</sub> )    | 45.2          | 33.7       | 22.2           | 27.8       | 24.7       | 31.6                                                |
| X + b <sub>d</sub> - t <sub>d</sub>       | 29.3          | 27.1       | 19.1           | 23.8       | 18.1       | 25.0                                                |

<sup>1</sup> All the Gini coefficients for 1953 and those for gross household income in 1959 were derived manually from estimates of the numbers of households in different ranges of income at each stage.

<sup>2</sup> Using the relative numbers of families in 1958.

Chart 1a.

1953

## INCOMES BEFORE AND AFTER DIRECT TAXES AND BENEFITS

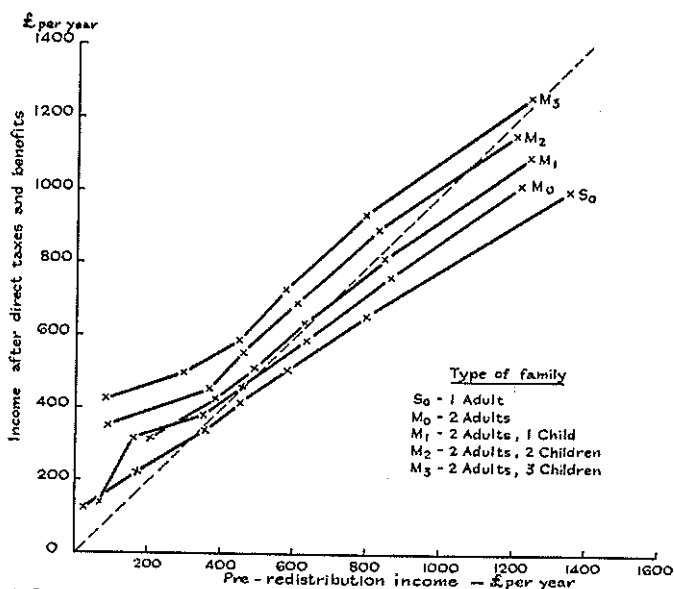


Chart 2a.

## INCOMES BEFORE AND AFTER ALL REDISTRIBUTION

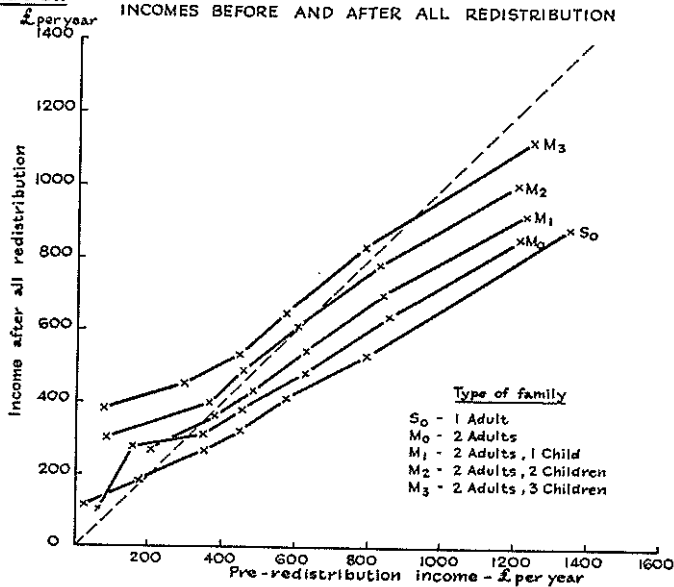


Chart 1b.

1957

INCOMES BEFORE AND AFTER DIRECT TAXES AND BENEFITS

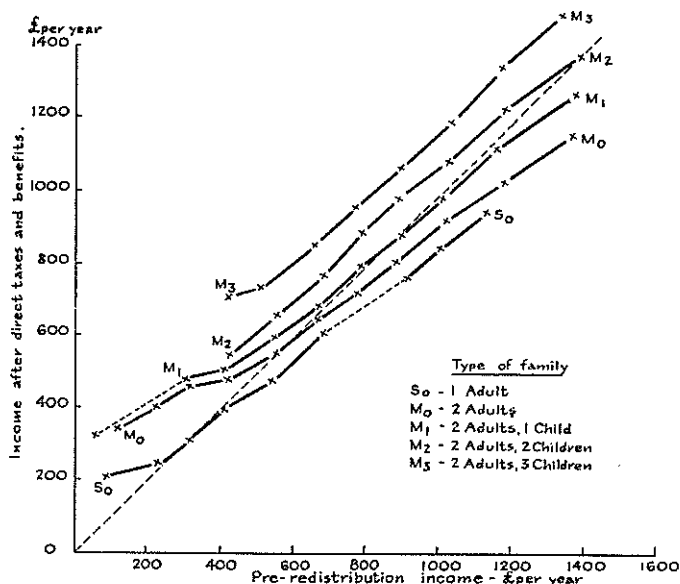


Chart 2b

INCOMES BEFORE AND AFTER ALL REDISTRIBUTION

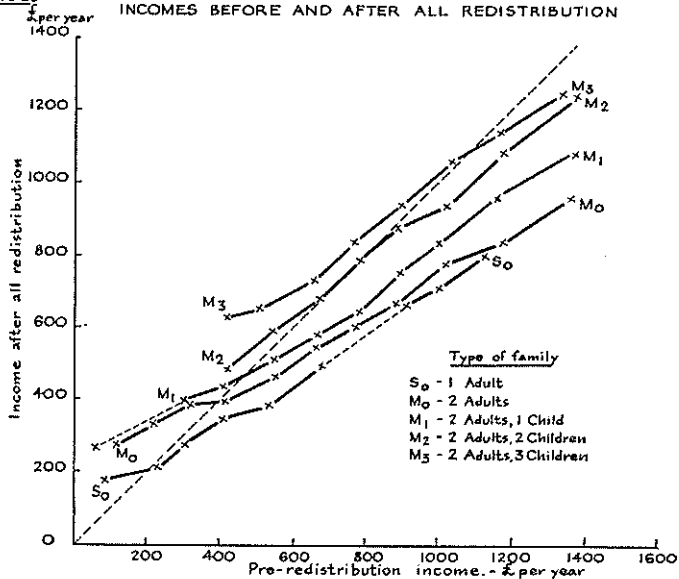


Chart 1c

1959

## INCOMES BEFORE AND AFTER DIRECT TAXES AND BENEFITS

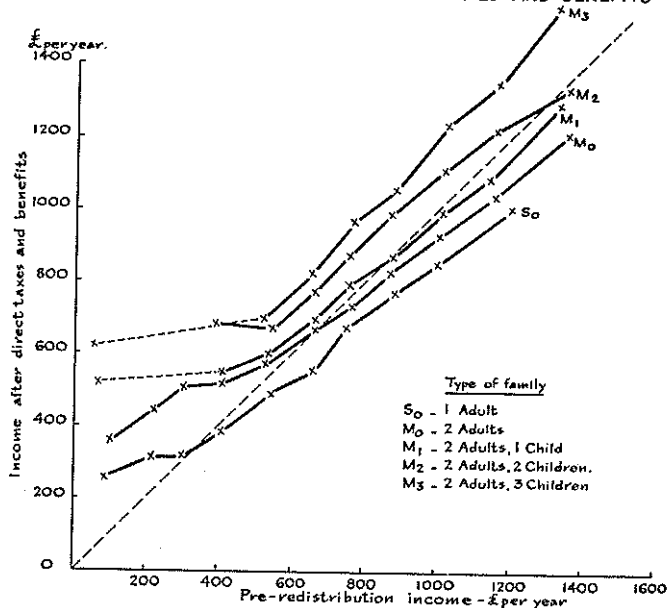


Chart 2c

## INCOMES BEFORE AND AFTER ALL REDISTRIBUTION

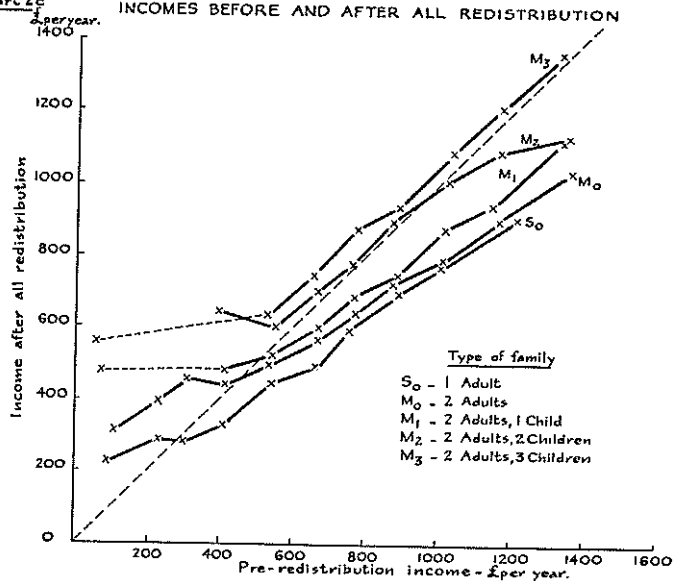


TABLE  
*Distribution of households i  
before (upper left) and after*

| Type of household     | P <sub>1</sub> | S <sub>0</sub> | P <sub>2</sub> | M <sub>0</sub> | M <sub>1</sub> | M <sub>2</sub> |
|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Net income £ per year |                |                |                |                |                |                |
| Under 195             | 129            | 42             | 15             | 4              |                |                |
|                       | 252.4          | 79.0           | 41.1           | 13.9           |                |                |
| 195-260               | 4              | 30             | 48             | 17             | 1              | 1              |
|                       | 4.9            | 39.0           | 72.7           | 27.9           | 0.7            | 0.8            |
| 260-346               | 3              | 43             | 22             | 61             | 5              | 2              |
|                       | 4.5            | 64.4           | 24.5           | 68.7           | 10.1           | 5.8            |
| 346-463               |                | 42             | 1              | 103            | 32             | 15             |
|                       |                | 125.9          | 4.2            | 107.9          | 53.2           | 20.0           |
| 463-616               |                | 27             | 1              | 171            | 107            | 78             |
|                       |                | 104.2          | 0.6            | 224.9          | 156.4          | 66.6           |
| 616-712               |                | 4              |                | 82             | 71             | 83             |
|                       |                | 23.1           |                | 186.5          | 127.6          | 84.5           |
| 712-822               |                | 5              |                | 93             | 66             | 69             |
|                       |                | 14.1           |                | 136.3          | 110.3          | 74.2           |
| 822-949               |                | 4              |                | 56             | 65             | 56             |
|                       |                | 9.4            |                | 84.1           | 64.3           | 55.0           |
| 949-1,097             |                | 3              |                | 58             | 30             | 38             |
|                       |                | 11.8           |                | 52.1           | 34.1           | 26.4           |
| 1,097-1,266           |                |                |                | 31             | 15             | 13             |
|                       |                |                |                | 31.4           | 27.5           | 14.1           |
| 1,266-1,464           |                | 1              |                | 6              |                | 11             |
|                       |                | 4.9            |                | 18.0           |                | 8.0            |
| 1,464-1,950           |                | 1              |                | 10             | 6              | 13             |
|                       |                | 5.7            |                | 18.0           | 12.6           | 9.4            |
| 1,950-2,600           |                | 1              |                | 4              | 1              | 4              |
|                       |                | 5.2            |                | 7.8            | 2.5            | 3.4            |
| 2,600 and over        |                |                |                | 1              |                | 1              |
|                       |                |                |                | 6.0            |                | 2.7            |
| Total                 | 136            | 203            | 87             | 697            | 399            | 384            |
|                       | 261.8          | 486.7          | 143.1          | 983.5          | 599.3          | 370.9          |

Notes: P<sub>1</sub> and P<sub>2</sub> denote households comprising of one and two pensioners respectively.

Net income is equal to income after direct taxes and benefits, excluding benefits in kind from State education and the national health services and maternity and death grants.

XI

*the 1957 Family Expenditure Survey*  
*(lower right) adjustment for non-response*

Number of households

| M <sub>3</sub> | M <sub>4</sub> | T <sub>0</sub> | T <sub>1</sub> | T <sub>2</sub> | F <sub>0</sub> | Other        | Total            |
|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------------|
|                | 1<br>0.4       |                |                |                |                | 1<br>2.3     | 192<br>389.1     |
|                |                |                |                |                |                | 6<br>4.8     | 107<br>150.8     |
|                |                | 4<br>8.0       | 1<br>2.1       |                | 1<br>4.9       | 6<br>11.3    | 148<br>204.3     |
| 4<br>15.2      | 3<br>7.8       | 8<br>11.0      | 1<br>2.3       | 1<br>1.3       | 1<br>4.1       | 10<br>10.9   | 221<br>363.8     |
| 22<br>30.6     | 12<br>14.1     | 25<br>31.4     | 8<br>9.2       | 5<br>6.8       | 5<br>6.0       | 17<br>25.7   | 478<br>676.5     |
| 23<br>22.9     | 4<br>7.5       | 35<br>40.8     | 10<br>12.5     | 3<br>6.1       | 2<br>4.5       | 11<br>10.9   | 328<br>526.9     |
| 23<br>23.2     | 6<br>7.8       | 31<br>50.9     | 15<br>19.0     | 9<br>10.6      | 6<br>5.5       | 10<br>36.4   | 333<br>488.3     |
| 16<br>17.1     | 11<br>8.9      | 47<br>66.3     | 28<br>36.4     | 13<br>15.3     | 3<br>8.2       | 23<br>23.1   | 322<br>388.1     |
| 19<br>10.1     | 4<br>5.4       | 41<br>65.3     | 29<br>40.5     | 11<br>11.5     | 9<br>11.1      | 31<br>33.4   | 273<br>301.7     |
| 8<br>4.1       | 6<br>3.8       | 39<br>58.4     | 15<br>23.9     | 6<br>8.5       | 7<br>14.0      | 24<br>37.8   | 164<br>223.5     |
| 6<br>2.3       |                | 18<br>29.8     | 9<br>10.4      | 5<br>4.5       | 17<br>23.2     | 26<br>41.7   | 99<br>142.8      |
| 5<br>5.4       |                | 14<br>25.2     | 6<br>7.9       | 1<br>4.1       | 14<br>18.8     | 35<br>57.3   | 105<br>164.4     |
|                |                | 6<br>9.5       | 1<br>1.7       | 3<br>1.9       | 4<br>5.5       | 10<br>16.7   | 34<br>54.2       |
|                | 1<br>1.1       | 2<br>4.1       | 1<br>1.4       | 1<br>0.8       | 2<br>2.7       | 4<br>6.8     | 13<br>25.6       |
| 126<br>130.9   | 48<br>56.8     | 270<br>400.7   | 124<br>167.3   | 58<br>71.4     | 71<br>108.5    | 214<br>319.1 | 2,817<br>4,100.0 |

TABLE  
Distribution of households in the  
before (upper left) and after (lower

| Type of household                     | P <sub>1</sub> | S <sub>0</sub> | P <sub>2</sub> | M <sub>0</sub> | M <sub>1</sub> | M <sub>2</sub> |
|---------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Net income<br>£ per year<br>Under 195 | 128<br>194.8   | 35<br>50.3     | 1<br>2.4       | 7<br>11.9      |                |                |
| 195-260                               | 23<br>30.8     | 49<br>69.2     | 35<br>48.5     | 3<br>4.8       |                | 1<br>1.0       |
| 260-346                               | 4<br>5.3       | 57<br>94.0     | 51<br>70.6     | 42<br>62.4     | 6<br>6.4       | 3<br>3.7       |
| 346-463                               |                | 49<br>67.8     | 2<br>3.0       | 104<br>151.7   | 15<br>16.6     | 6<br>6.4       |
| 463-616                               | 1<br>3.1       | 40<br>65.9     | 2<br>2.5       | 163<br>255.9   | 76<br>98.1     | 60<br>74.3     |
| 616-712                               |                | 6<br>8.4       |                | 102<br>150.7   | 71<br>86.1     | 78<br>102.8    |
| 712-822                               |                | 11<br>19.3     |                | 108<br>173.7   | 65<br>80.5     | 59<br>71.2     |
| 822-949                               |                | 3<br>4.3       |                | 91<br>145.8    | 62<br>81.4     | 50<br>63.9     |
| 949-1,097                             |                | 6<br>8.0       |                | 81<br>121.2    | 43<br>58.7     | 43<br>48.9     |
| 1,097-1,266                           |                | 3<br>3.1       |                | 49<br>74.5     | 15<br>20.3     | 21<br>22.7     |
| 1,266-1,464                           |                | 2<br>3.0       |                | 37<br>63.0     | 17<br>19.6     | 13<br>14.7     |
| 1,464-1,950                           |                | 3<br>4.6       |                | 19<br>27.3     | 7<br>8.2       | 15<br>24.6     |
| 1,950-2,600                           |                | 1<br>1.1       |                | 10<br>16.9     | 2<br>2.1       | 5<br>8.8       |
| 2,600 and over                        |                |                |                | 7<br>24.2      | 3<br>4.0       | 8<br>9.0       |
| Total                                 | 156<br>234.0   | 265<br>399.0   | 91<br>127.0    | 823<br>1,284.0 | 382<br>482.0   | 362<br>452.0   |

Notes: P<sub>1</sub> and P<sub>2</sub> denote households comprising one and two pensioners respectively.

Net income is equal to income after direct taxes and benefits, excluding benefits in kind from State education and the national health services and maternity and death grants.

## III

959 Family Expenditure Survey  
 (ight) adjustment for non-response

Number of households

| M <sub>3</sub> | M <sub>4</sub> | T <sub>0</sub> | T <sub>1</sub> | T <sub>2</sub> | F <sub>0</sub> | Other        | Total            |
|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------------|
|                | 2<br>2.1       | 1<br>1.6       | 1<br>4.1       |                |                | 2<br>3.9     | 177<br>271.1     |
|                |                |                |                |                |                | 4<br>4.3     | 115<br>158.6     |
| 2<br>2.0       |                |                |                |                |                | 12<br>16.4   | 177<br>260.8     |
| 4<br>4.1       | 1<br>1.2       | 9<br>17.2      | 4<br>7.6       | 2<br>2.0       |                | 10<br>15.8   | 206<br>293.4     |
| 17<br>21.2     | 8<br>9.5       | 17<br>33.9     | 4<br>7.4       | 1<br>1.0       |                | 19<br>26.6   | 408<br>599.4     |
| 25<br>28.9     | 8<br>11.2      | 15<br>28.1     | 7<br>10.5      | 3<br>4.6       | 1<br>10.4      | 14<br>17.1   | 330<br>458.8     |
| 20<br>23.5     | 12<br>14.2     | 39<br>69.4     | 12<br>23.9     | 14<br>24.6     | 5<br>7.7       | 16<br>21.1   | 361<br>529.1     |
| 25<br>28.8     | 10<br>12.0     | 35<br>60.6     | 17<br>21.7     | 13<br>20.3     | 6<br>10.5      | 34<br>45.5   | 346<br>494.8     |
| 17<br>21.2     | 10<br>11.8     | 31<br>56.7     | 24<br>32.7     | 14<br>17.7     | 14<br>26.1     | 34<br>40.9   | 317<br>443.9     |
| 13<br>16.8     | 1<br>1.0       | 45<br>96.2     | 17<br>23.4     | 8<br>10.5      | 13<br>19.4     | 32<br>44.5   | 217<br>332.4     |
| 6<br>7.7       | 4<br>4.5       | 22<br>51.2     | 21<br>29.9     | 8<br>8.8       | 19<br>27.3     | 38<br>46.0   | 187<br>275.7     |
| 4<br>4.8       | 2<br>2.5       | 20<br>29.3     | 9<br>9.7       | 7<br>10.5      | 24<br>47.3     | 49<br>67.7   | 159<br>236.5     |
|                |                | 8<br>12.9      | 3<br>3.1       | 4<br>4.0       | 4<br>4.3       | 22<br>30.6   | 59<br>83.8       |
| 1<br>1.0       | 1<br>1.0       | 2<br>7.9       | 1<br>1.0       | 2<br>2.0       |                | 8<br>12.6    | 33<br>62.7       |
| 34<br>160.0    | 59<br>71.0     | 244<br>465.0   | 120<br>175.0   | 76<br>106.0    | 86<br>153.0    | 294<br>393.0 | 3,092<br>4,501.0 |

Chart 3a.

THE INCIDENCE OF TAXES AND BENEFITS ON DIFFERENT  
TYPES OF HOUSEHOLD IN DIFFERENT INCOME RANGES  
1953

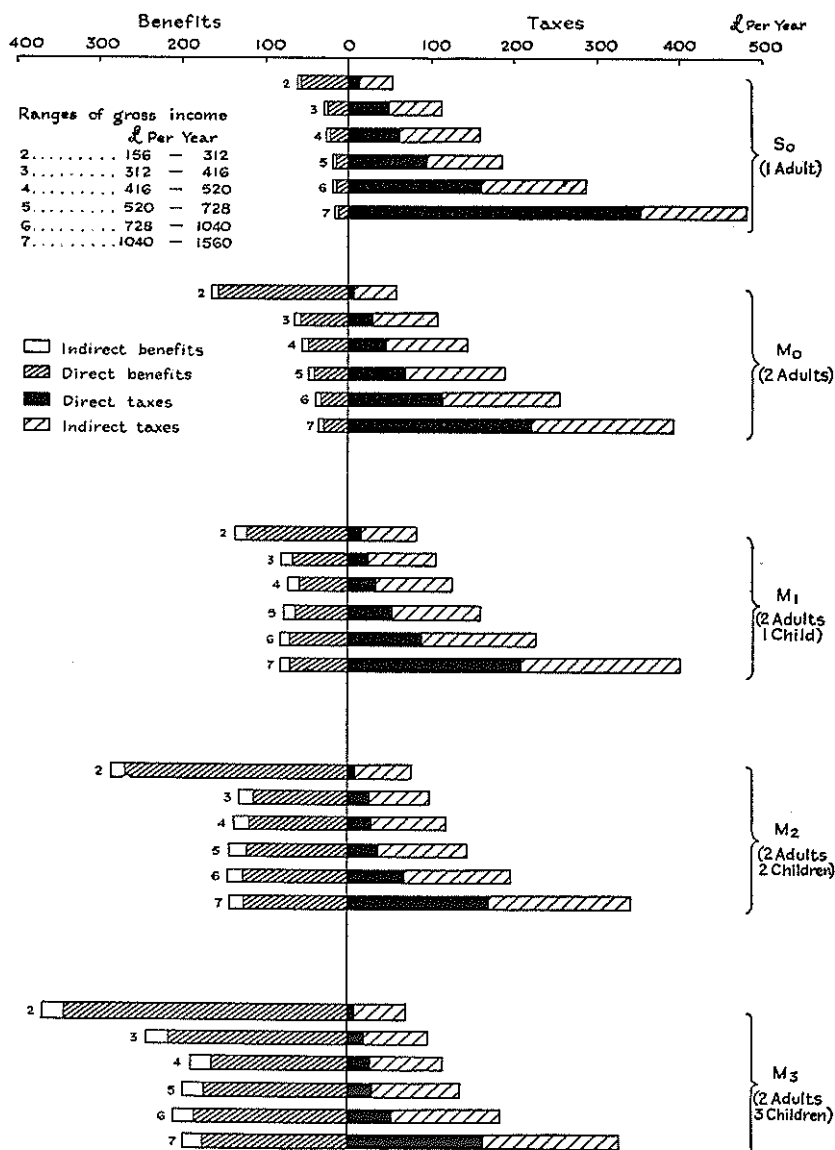


Chart 3b

THE INCIDENCE OF TAXES AND BENEFITS ON DIFFERENT  
TYPES OF HOUSEHOLD IN DIFFERENT INCOME RANGES  
1957

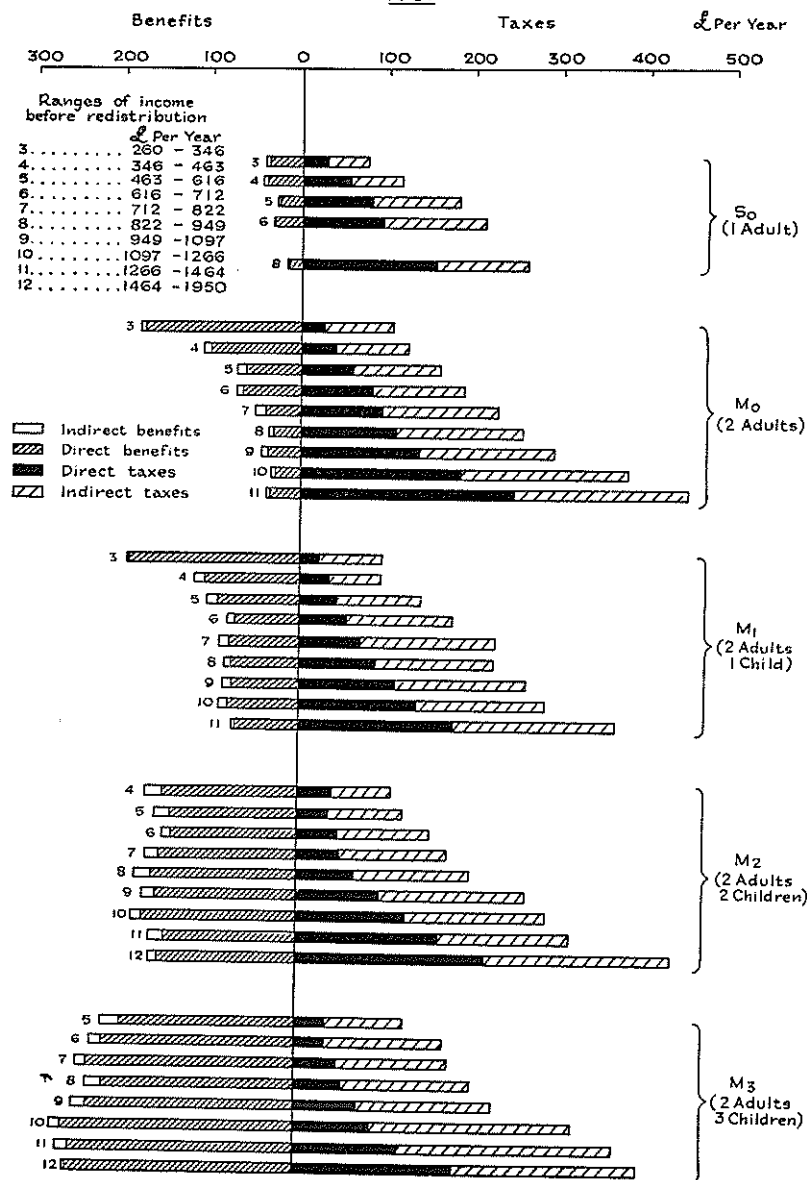
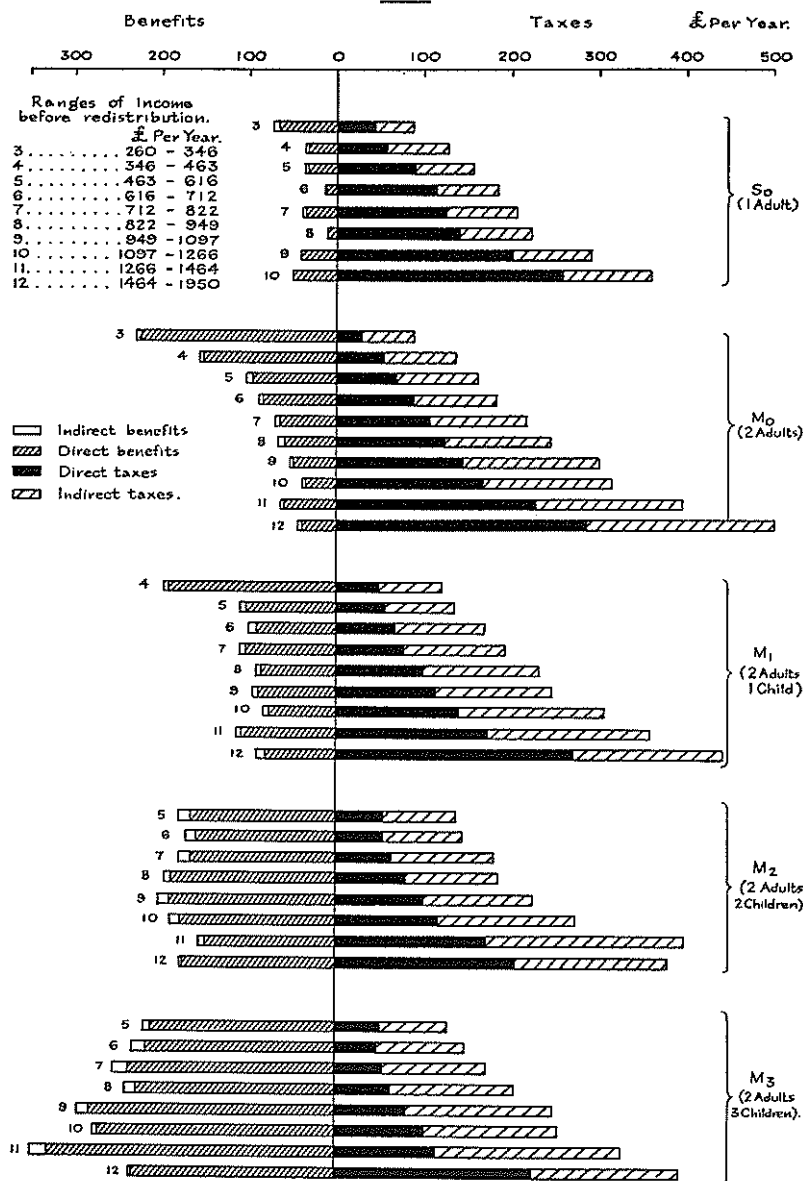


Chart 3c.

## THE INCIDENCE OF TAXES AND BENEFITS ON DIFFERENT TYPES OF HOUSEHOLD IN DIFFERENT INCOME RANGES

1959



## APPENDIX

1. *Notes on the tables and charts*

The sub-divisions a, b, c, of the tables and charts refer to the years 1953, 1957 and 1959 respectively.

The letters S, M, T and F denote families with 1, 2, 3 and 4 adults respectively. The subscripts attached to these letters indicate the number of children in the family.

In Tables IIb, IIc, III and IV, the symbol signifies that no taxes were paid by households in that income group.

Tables I-IV and both sets of charts show averages for families grouped by ranges of gross income in 1953 and by ranges of pre-redistribution income in 1957 and 1959. Gross income is broadly equal to pre-redistribution income *plus* direct benefits in cash *less* employers' national insurance contributions.

The reliability of the detailed information in the tables and charts depends very much on the numbers of families which provided the information. These are shown in Table I.

Charts 1 and 2 omit points at the two ends of the distribution where the numbers of families were very small (often only one or two).

Charts 3a, b, c, refer only to the middle ranges of income. The number of families in each income range shown was at least five in all cases and over ten in most cases.

2. *National health services*

We do not have any direct information about the use which different people make of the national health services. People over retirement age and young children are likely to derive more benefit than adults in young and middle age groups. Rough estimates were made, with the help of the Statistics Branch of the Ministry of Health, of the average annual value of all the national health services obtained by (i) children under 16 (ii) adults below retirement age (65 for men and 60 for women) and (iii) adults above retirement age, excluding patients who had been in hospital for at least ten weeks, members of the Armed Forces and inmates of prisons.

The coded information from the Family Expenditure Survey distinguishes adults and children, but not adults of different ages. The estimated average value of the benefits obtained by (ii) was therefore attributed to all adults; the difference between the estimated average values of the benefits obtained by (iii) and by (ii) was expressed as percentages of the standard rates per head of retirement pensions, and of the modal values per head of old age pensions, and an additional benefit was thus attributed to each household receiving such pensions. (The benefit per head being different for married and single persons, we used an arbitrary proportion, slightly nearer to that for single persons in each case.)

It was not possible to attribute different benefits to different groups of people in 1953, and so each person was then assumed to obtain the same benefit, viz. the total expenditure on all health services divided by the number of people registered with national health service doctors.

### 3. *Education*

In the 1959 survey, schoolchildren were classified by the following five categories of education: grant-aided primary; secondary modern, grammar and technical, and equivalent streams; and independent (including direct grant) schools.

Figures are available of public expenditure on primary schools and all secondary schools combined. As there was no way of separating expenditure on secondary grammar and secondary technical schools, the same benefit was attributed to children in both: the sub-division of expenditure between secondary modern and these two other types of secondary school combined was based on estimates of the numbers of teachers.

Information about different types of grant-aided school was not obtained in the 1957 or 1953 surveys. The benefit obtained by all children of school age in 1957 and 1953, and by children in independent schools in 1959, was taken to be the average expenditure per child by public authorities (on current account) on all grant-aided schools.

The benefit obtained from university education in 1959 and 1957 was taken to be the average expenditure per student by public authorities (on current account) on all universities.

All full-time students at technical colleges in 1959 and 1957 were attributed a benefit equal to the estimated average expenditure per full-time student by public authorities on all types of courses in all such colleges. The total numbers enrolled in various categories (full, and part-time, day students, evening students, etc.) were known and the total public expenditure. We estimated the number of equivalent full-time students and hence the average expenditure per equivalent full-time student.

It was not possible to take account of the benefits of public expenditure on universities and technical colleges in 1953, or on teachers' training colleges or other educational institutions in any of the three years.

### 4. *Housing subsidies*

Housing subsidies are defined as the excess of current expenditure by public authorities on housing over the amounts received in rents from tenants. In each of the three years, the total subsidy was divided by the number of local authority dwellings (including houses owned by public corporations) and the average subsidy, thus obtained, was attributed to every household occupying such a dwelling. Where dwellings were occupied by more than one household, the whole benefit was attributed to the principal tenant.

### 5. *Additional notes on the 1953 estimates*

The estimates for 1953 make use, as far as possible, of the information obtained from the 1953 Household Expenditure Enquiry. But that enquiry was not designed to provide all the detailed information needed for the present analysis and had to be supplemented by other sources. The other notes describe the methods used in compiling the 1953 estimates for the items mentioned, and how they differ from the estimates for 1957 and 1959. Two further points are worth mentioning.

- (i) As the information about income tax payments obtained from the 1953 enquiry was evidently incomplete in many cases, direct estimates were made of the amount of income tax payable on the average income of the households in each income range. These

estimates take account of the average number of earners in each type of household, but it was not possible to allow for unearned income.

- (ii) The figures for expenditure on certain items by the same type of household at different income levels in 1953 showed some irregularities which could be explained only by the errors associated with sampling. In a few extreme cases of this kind adjustments were made to provide a smoother run of figures.

#### 6. *Estimates of usual earnings*

The general aim was to estimate, as nearly as possible, the normal rate of annual income of the household. Income in the previous year was used if it was known. We examined most of the cases among the six main types of household ( $S_0$ ,  $M_0$ ,  $M_1$ ,  $M_2$ ,  $M_3$ ,  $T_0$ ), where current earnings, generally because of sickness or unemployment, and sometimes because of holiday pay or bonuses, were evidently much lower or higher than usual. People who were sick or unemployed at the time of the survey often gave information about their most recent earnings, but some of them gave little or no indication of their usual earnings.

In most of the cases examined, the information about recent earnings, though it may have been incomplete, was sufficient to enable us to make estimates which should be tolerably accurate. There were, however, twenty-six cases in 1957 and forty-six in 1959 where information about normal earnings was lacking or appeared to be very incomplete. In such cases, the individual's net income was generally assumed to be slightly higher than the excess of the total expenditure of the household (apart from unusual items) over the net income of the other members, if the excess was substantial. In a few cases (eleven in 1957 and seventeen in 1959), this excess was not very different from the amount received in national insurance, etc., benefits, and arbitrary guesses were then made, having regard to the individual's age, sex, occupation, the neighbourhood of the dwelling and the household's pattern of expenditure; all these guesses were of very low earnings.

#### 7. *Gini coefficients in 1959 with estimated annual in place of weekly direct benefits*

From the examination of the records of individual households which were receiving direct benefits in cash, required for estimating their normal incomes (see Note 6), we were able to find out (or to estimate) how long in each case such benefits had been received. This information was used to estimate the chances of a household of a given type, in a given income range, receiving each form of benefit for 1, 2, 3 . . . weeks in the course of a year. On the assumption that the chances of receiving such benefits were the same throughout each income range, it was possible to estimate graphically the changes in the numbers of households in each income range resulting from the substitution of estimates of cash benefits reckoned on an annual basis for the weekly cash benefits which were being received at the time of the survey.

Gini coefficients of inequality in the distribution of income at two stages, including these estimates of cash benefits reckoned on an annual basis, were derived from freehand curves for each of the six main types of household which were examined. The results are shown below, in comparison with the Gini coefficients for the same households based on weekly benefits.

|                                              | S <sub>0</sub> | M <sub>0</sub> | M <sub>1</sub> | M <sub>2</sub> | M <sub>3</sub> | T <sub>0</sub> | Weighted average* |
|----------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|
| Gini coefficients of inequality in 1959:     |                |                |                |                |                |                |                   |
| X                                            | 47.5           | 35.8           | 23.2           | 30.9           | 25.2           | 30.0           | 33.3              |
| X + b <sub>d</sub> (annual)                  | 32.5           | 28.8           | 19.7           | 26.6           | 18.6           | 24.4           | 26.4 (27.0)†      |
| X + b <sub>d</sub> (annual) - t <sub>d</sub> | 28.7           | 25.9           | 18.4           | 23.5           | 17.8           | 22.4           | 23.8 (24.6)†      |
| Reduction in Gini coefficient‡ from:         |                |                |                |                |                |                |                   |
| annual direct benefits                       | 15.75          | 7.4            | 3.65           | 4.3            | 6.75           | 5.8            | 7.2               |
| weekly direct benefits                       | 15.25          | 6.25           | 3.05           | 4.05           | 6.5            | 5.65           | 6.5               |

\* Weighted average of Gini coefficients for the six types of family, using the relative numbers of families in 1959 (after adjusting for non-response). The corresponding weighted average for X - t<sub>d</sub> is 31.3.

† Using weekly direct benefits.

‡ Average of 'forward' and 'backward' differences.

### 8. Standard errors of Gini coefficients

The Gini coefficient is defined as the mean difference divided by twice the mean. The standard error of the Gini coefficient is therefore a function of the standard error of the mean difference, the standard error of the mean and the covariance of the mean and mean difference. It depends on the form of the income distribution and the expression for it is very complicated. Further complications are introduced by the two-stage design of the sample and the use of several stratification factors in a certain order (cf. *Family Expenditure Survey - Report for 1957-59*, Appendix I).

The standard error of the mean difference has been evaluated for normal, exponential and rectangular distributions (see M. G. Kendall's *Advanced Theory of Statistics*). An heuristic argument based on these special cases suggests that, for the distributions with which we are concerned, the standard error of the Gini coefficient may be expected to be somewhere in the neighbourhood of  $\frac{1}{4\sqrt{n}}$ .

This rough estimate was confirmed by a Monte Carlo experiment, based on thirty sub-samples of each of three main types of household, selected at random from the 1957 survey.

### 9. Comparisons with 1937

The only systematic analysis of the redistribution of income in the United Kingdom for any pre-war year is Professor T. Barna's *Redistribution of Income through Public Finance in 1937* (Oxford, 1945). His estimates are on a very different basis from ours. The principal differences are as follows. His analysis was based on income tax units without any distinction between large and small families, whereas we have obtained weighted averages of separate Gini coefficients for each size and type of household. Barna allocated undistributed profits and income of life funds and societies which we have made no attempt to allocate. Our estimates for 1957 and 1959 make use of data for individual households from the Family Expenditure Survey and therefore depend on a more refined method of analysis than his estimates, which relied on the combination of data from two main sources, Inland Revenue statistics and the 1937/38

Household Expenditure Enquiry, in the form of averages for a limited number of incomes ranges which were not identical in those two sources.

Barna gave estimates for income defined in several different ways. Those that are most nearly comparable to our 'pre-redistribution income' and 'post-redistribution income' are what he calls 'producers' income' and 'consumers' income' respectively. For what the comparison is worth, the two sets of Gini coefficients of inequality are as follows:

| <i>Gini coefficients (percentages)</i> |      |                            |      |
|----------------------------------------|------|----------------------------|------|
| <i>1937 (Barna)</i>                    |      | <i>1959</i>                |      |
| Producers' income                      | 35.0 | Pre-redistribution income  | 32.1 |
| Consumers' income                      | 26.5 | Post-redistribution income | 25.1 |

Barna's estimates include some income (undistributed profits, income of life funds and societies, investment and trading income of Government and charities) which is very unequally distributed; if this income were excluded, his Gini coefficient for producers' income would become 33 instead of 35 and his Gini coefficient for consumers' income would be reduced to about 25. Thus the degree of inequality in producers', or pre-redistribution, income seems to have been very similar in the two years. There appears to have been little increase in the amount of vertical redistribution between 1937 and 1959, but the extent of the increase, if any, depends on how much the estimates of the amount of redistribution in 1937 would have been reduced if they had been made on the same basis as our estimates for 1959.

#### 10. Results for pensioner households

A household is here defined as a pensioner household if it contains one or two persons and at least three-quarters of their (gross) income is obtained from national insurance retirement or similar pensions and/or national assistance supplementing or instead of such pensions. By definition, therefore, most of such households have little or no pre-redistribution income.

The results for pensioner households are summarized in the table below.

*Average incomes, benefits and taxes of pensioner households*  
£ per year

|                                        | 1957  | 1959  |
|----------------------------------------|-------|-------|
| One-person pensioner households:       |       |       |
| Taxes: direct                          | 0.3   | 0.1   |
| indirect                               | 23.1  | 21.6  |
| Benefits: direct                       | 172.0 | 199.4 |
| indirect                               | 9.3   | 6.3   |
| Income before redistribution           | 10.5  | 8.8   |
| Income after direct taxes and benefits | 182.3 | 208.1 |
| Income after all redistribution        | 168.5 | 192.8 |
| Two-person pensioner households:       |       |       |
| Taxes: direct                          | 1.1   | 0.6   |
| indirect                               | 38.7  | 50.9  |
| Benefits: direct                       | 280.3 | 301.5 |
| indirect                               | 9.3   | 8.8   |
| Income before redistribution           | 29.0  | 24.1  |
| Income after direct taxes and benefits | 308.2 | 325.0 |
| Income after all redistribution        | 78.8  | 282.8 |

11. *Adjustments for inter-week bias*

Households included in the Family Expenditure Survey are asked to record full details of their expenditure in two consecutive weeks. The mean differences between the expenditure recorded in the two weeks, under forty-seven headings, were tested against the standard errors of the differences, using Student's (two-sided) *t*-test. The test applied to the cumulated data for the three years 1957, 1958 and 1959, showed twenty-three headings with significant values of *t* at the chosen level of significance ( $P = .02$ ,  $t = 2.33$ ) and, in all these cases, recorded expenditure was higher in the first than in the second week.

For all items of expenditure included in these twenty-three headings, the estimates in this paper for 1957 and 1959 rely on the second week's figures alone.

No adjustments were made for inter-week bias in the expenditure recorded in the 1953 enquiry, which covered three consecutive weeks.

12. *Adjustments for non-response*

The households which co-operated fully in each of the surveys amounted to 67 per cent of the effective sample in 1953, 59.1 per cent in 1957 and 67.9 per cent in 1959.

## 1953

Only very rough adjustments could be made for non-response in the 1953 enquiry. Comparison of the numbers of all types of household in different income ranges with Inland Revenue figures of the distribution of all types of income tax units suggested that the largest numbers of non-respondent households were in the highest and lowest income ranges. As a result of this comparison, the following rough adjustments were made: the numbers of all types of households in the highest income range (gross income of £2,600 a year or more) were doubled, the numbers in the next highest income range (gross income of £1,560–£2,600 year) were increased by 75 per cent and the numbers in the lowest income range (gross income of less than £156 a year) were increased by 10 per cent.

1957, *Tables I to VI*

No attempt was made to collect any information from households which had indicated that they were unwilling to co-operate in the 1957 survey. The adjustments were based, instead, on Inland Revenue figures of the distribution, by eleven income ranges, of each of the eleven types of income tax unit shown in the following list; but the 121 possible groups of tax units were reduced by consolidation to sixty-seven for the calculation.

*Types of income tax unit used in the calculation*

- Single person without dependants
- Single person with one or more dependant child
- Single person with one adult dependant and one or more dependant child
- Married couple without dependants
- Married couple with one, two, three, and four or more children (four types)
- Married couple with one adult dependant and no dependant child
- Married couple with one adult dependant and one or more dependant children; and
- all other types of tax unit

Tabulations were made of the corresponding numbers of income tax

units belonging to households in the sample in each cell of the two-way distribution by household composition and range of net household income. For this purpose we used the fourteen income ranges shown in Table XI (p. 170), and fifteen types of household: the twelve specific types shown in that table being supplemented by two which in 1959 were in the miscellaneous group, viz. one adult and one child, and three adults and three children. The 210 groups of households were then reduced by consolidation to seventy to avoid having cells with small numbers.

We then estimated a set of weights  $w_t$  to be applied to all the  $n_t$  households of a given type in a given income range, and a constant,  $a$ , which would minimize:

$$\phi^2 + \lambda = \sum_s \frac{(\sum_t w_t n_{st} - u_s)^2}{u_s} + \sum_t n_t (w_t - a)$$

where  $u_s$  is the number of tax units of a given type in a given income range in the Inland Revenue distribution (appropriately scaled down), and  $n_{st}$  is the number of such tax units in the  $n_t$  households in the  $t^{\text{th}}$  cell of the two-way distribution of households by type and income range.

The first term in this expression, denoted by  $\phi^2$ , is a measure, similar to chi-squared, of the overall difference between the distribution of tax units in the sample and the Inland Revenue distribution. The second term, denoted by  $\lambda$ , is a constraint limiting the total variation in the weights. It was found that minimization of  $\phi^2$  without any constraint led to many large positive and large negative weights which were not considered acceptable.

Each correction factor,  $w_t$ , was applied to all the data obtained from households within that cell. These correction factors were calculated before the adjustments described in Note 6 were made to the income figures; households which were moved, as a result, from one income range to another retained the correction factors appropriate to the income range from which they were moved.

The method just described, based on minimizing  $\phi + \lambda$ , was used in making the estimates for 1957 shown in Tables I to VI, and succeeded in reducing  $\phi^2$  by 85 per cent. Although most of the discrepancies compared with Inland Revenue data were thus removed, the method does not ensure that the relative numbers of households of each type in different income ranges, after re-weighting, are reliable. The method is therefore thought to be less efficient than that used in 1959, or than the more elaborate method subsequently used in estimating the Gini coefficients of inequality in 1957, shown in Tables VII to IX.

#### *1957, Tables VII to IX*

The following method of adjustment for non-response, due to Miss C. H. West, is being used in the analyses for more recent years and was also used in estimating the Gini coefficients for 1957, shown in Tables VII to IX.

Households co-operating in full, in each cell of the two-way classification by composition and range of household income, were further classified by the type and income range of each income tax unit in the household. The two-way distribution of the tax units in fully respondent households was subtracted from the population distribution of tax units (appropriately scaled down) to give the distribution of the tax units in 'missing' households. The different categories of tax units (defined by type and income range) in the missing households were then placed in a particular sequence which was based on assumptions about the relationship between the

response of tax units and that of households. One category of tax unit was dealt with at a time and, at each step, the numbers of respondent households were increased to give the requisite number of tax units of that category. The numbers of all the respondent households containing the given category of tax unit were increased in the same proportion, except that those containing two or more tax units were given 15 per cent extra weight because they appeared to have a lower response rate. The numbers of tax units belonging to households which were added at each stage were subtracted from the distribution of all tax units which were missing up to that stage; and so on, until all the missing tax units had been allocated to households. The distribution of tax units in the households of the adjusted sample agreed with the distribution for the whole population based on the Inland Revenue's information. The resulting sample distribution was considered acceptable because the relative numbers of households of different composition (defined by category of tax unit without regard to tax unit income) agreed closely with the corresponding numbers in the pooled distribution of fully *plus* partially respondent households information from which was obtained from 1958 onwards; and these formed a high proportion of the original sample. Table XI shows the distribution of households in 1957 before and after adjustments for non-response by an earlier version of this method.

#### 1959

Households which had indicated that they were unwilling to co-operate fully in the 1959 survey were asked a limited number of questions about the composition of the household; the type of dwelling; the amount paid in rent, rates and other housing costs; and whether they owned each of the following: motor-car, motor-cycle, television set, refrigerator, washing machine, and garage (owned or rented). The proportions of households in the sample giving different amounts of information were as follows:

|                                                                                           | <i>% of households<br/>giving information</i> |
|-------------------------------------------------------------------------------------------|-----------------------------------------------|
| (a) All the information requested                                                         | 67.9                                          |
| (b) Household composition, type of dwelling, housing costs and ownership of durable goods | 13.4                                          |
| (c) Household composition, type of dwelling and housing costs                             | 0.3                                           |
| (d) Household composition and type of dwelling                                            | 6.8                                           |
| (e) Household composition only                                                            | 10.4                                          |
| (f) No information (including non-contacts)                                               | 1.2                                           |
|                                                                                           | <hr/> 100.0 <hr/>                             |

Thirteen types of household composition were distinguished (those shown in Tables XI and XII), three types of dwelling (council, other rented or owned), seven ranges of housing costs, eight combinations of durable goods (owning or not owning a car or motor-cycle or garage (owning or renting), combined with nought, one, two or all of the three other durable goods) and fourteen ranges of net household income (those shown in the tables). Every household which co-operated in full was allocated to one of the 30,576 possible cells in this fivefold classification.

The households which gave incomplete information were allocated to the different cells of this fivefold classification in four steps, as follows: First, the households of any one composition in group (e) were allocated to different types of dwelling in proportion to the numbers of that composition in the three types of dwelling in groups (b), (c), and (d) combined.

Next, the households of any one composition in any one type of dwelling in group (d), plus those in group (e) allocated as just described, were allocated to different ranges of housing costs in proportion to the numbers of that composition in that type of dwelling in the seven ranges of housing costs in groups (b) and (c) combined; and so on. In the fourth and final step, the households in group (b) in any one cell of the fourfold classification by composition, type of dwelling, housing costs and ownership of durable goods, plus those allocated from groups (c), (d) and (e), were allocated to different income ranges in proportion to the numbers in that cell in the different income ranges in group (a).

The adjustments for non-response consisted in attaching a weight, equal to the ratio of the resulting estimate of the number of households in each cell of the twofold classification by household composition and income range to the number of fully co-operating households in that cell, to all the data obtained from each of these households. Table XII shows the distribution of households in the 1959 sample before and after adjustment for non-response.

#### *Postscript*

Gini coefficients have now been estimated for the six principal types of family combined, using the following equivalent adult scale:

| $S_0$ | $M_0$ | $M_1$ | $M_2$ | $M_3$ | $M_4$ |
|-------|-------|-------|-------|-------|-------|
| 0.54  | 1.00  | 1.31  | 1.55  | 1.75  | 1.935 |

This scale was estimated by comparing the levels of income at which the different types of family had the same ratio of expenditure on food to net household income. The resulting Gini coefficients reflect the relative numbers of families of each type in the sample (after adjustment for non-response) in each year.

When the results are compared with weighted averages of the Gini coefficients for the same six types of family, income tax and surtax turn out to have a slightly larger effect than is shown by the figures in Table IX—the effect per £100 per family being increased by 1.8 per cent in 1957 and 0.6 per cent in 1959. The effect of direct benefits is also increased, by about 0.8 and 0.9 per cent in the two years. The effect of national insurance contributions shows no change in 1957 and a small reduction of 0.2 per cent in 1959. The combined effects of indirect taxes and indirect benefits (not estimated separately) show a slight reduction in regressiveness, by 0.3 per cent in both years.

It is of some interest that the extent of horizontal and vertical redistribution combined, resulting from each main group of taxes or benefits, does not seem very different from the extent of vertical redistribution alone.

Estimates for 1961 and 1962 similar to those in Tables I, II and III have in the meantime appeared in *Economic Trades*, February, 1964, H.M.S.O.

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