Compliance with tax rules by private individuals in Denmark

Tax year 2006

Report

SKAT – Danish Tax and Customs Administration

Main Office

Division for Management and Compliance

Office for Compliance

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SKAT

FOREWORD

For the first time in the history of SKAT, the Danish Tax and Customs Administration, it has proved possible to map in a fully systematic manner the ability of Danes to complete their tax returns correctly. The extent of both errors and out-and-out tax fraud has been identified for the tax year 2006. The study is very comprehensive and is based on the rigorous checking of more than 22,000 individual taxpayers and companies distributed across all geographical areas of Denmark. This paper presents the findings for individuals.

In general, the study paints a very positive picture of Danes' ability and willingness to abide by the regulations. A very large proportion of taxpayers completed their returns without errors of any sort, and among the relatively modest proportion where errors were noted, there were only a small minority of cases where the errors can be interpreted as the result of deliberate "cheating".

In Denmark, significantly more information from third parties is pre-entered on the tax declaration forms than is the case in most of the countries with which Denmark is normally compared. This is probably a key explanation for the very high level of compliance with the regulations found among individuals. The study also shows that it is in precisely those areas where third-party data are not available, and where the regulations are very complex, that most errors occur.

This study is unique internationally, and places SKAT in the forefront of the world's tax administration services in terms of describing with great precision both taxpayers' compliance with the requirements of the law and the taxation gap. The new knowledge acquired in this way will contribute to our ability to focus our resources in relevant places and thus ensure an efficient and equitable financing of the state sector.

A group of staff from the Central and Southern Zealand Tax Administration and a working group with members from all the regions have produced these excellent results together, and to them I would like express my great gratitude.

SKAT Main Office, April 2009

Ole Kjær

Director General

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MAIN RESULTS[1]

LEVELS OF COMPLIANCE

- Compliance with the regulations – expressed in terms of an overall average *level of compliance* – was very high for individual taxpayers in general The level of compliance was 5.7, equivalent to a *rating* between *snow white* and *off white*.

- For the *straightforward individual taxpayers* the *degree of compliance* was 5.8 on average, very close to the maximum possible level of compliance with the regulations of 6.0. The figure for the *complex individual taxpayers* was almost as good, with an average level of compliance of 5.5.

- The proportion of real *opponents* – those with a level of compliance between 0 (red) and 2 (pale yellow) – was around twice as high among *complex* as among *straightforward* taxpayers. For both types of taxpayer, however, the level was around 1%, which must be regarded as very low.

ERROR PERCENTAGES

- The average error level for all taxpayers was 8%.

- Among *complex* taxpayers, there was a 14% level of error, whereas the level was only 5% among *straightforward* taxpayers. This is a statistically significant difference. In the latter group, then, it was impossible to find any errors whatsoever in the declarations of 95% of individuals. Even though errors were found in almost one out of every seven declarations among the *complex* individuals, the great majority of these errors were not serious.

- In the cases of both *straightforward* and *complex* individual taxpayers, the error percentage was significantly higher for men than for women. For the *straightforward* taxpayers, the levels of error for men and women were 7% and 4% respectively, while for the complex cases the equivalent figures were 16% and 11%.

- In terms of age, there was a declining level of error with increasing age for individuals aged twenty and upward among *complex* taxpayers. This trend is also statistically significant. For the *straightforward* cases, the error percentage (7-8%) was, however, fairly steady for all age groups in the age range 20-59 years. For the age groups 60-69 and 70+ there was a dramatic fall to 3% and 1% error respectively.

ADJUSTMENT AMOUNTS

- The rounded average amount of adjustment in numerical terms for those cases where adjustments were made was DKK 18,000 for the *complex* taxpayers and DKK 23,000 in the *straightforward* cases. The average

[1] A number of concepts are used in this section which are first defined later in the report. Most of these definitions are in Section *Delimitations and definitions*.

adjustment for all individual taxpayers checked, as opposed to the average for taxpayers where an adjustment was made, was twice as high for the *complex* cases: DKK 2,400 as opposed to DKK 1,200.

- There were large regional variations in the average adjustment amounts for both the *complex* and the *straightforward* individual taxpayers. However, these differences were not statistically significant, and not too much weight should be given to them.

- For both groups of taxpayers, there were around three times as many whose taxable income was adjusted upward as those whose income was adjusted downward. The amounts were also significantly greater in the cases of adjustments upward than they were in the cases of adjustments downward. These differences were statistically significant for the *complex* taxpayers, though not for the *straightforward* cases.

- The adjustment amounts were larger for men then for women. Among the *complex* taxpayers the average amount was just under a quarter more for men than for women, while the adjustment amount for men was almost twice as great as that for women among the *straightforward* taxpayers.

- If the amount per case is taken (and not just the amount per person whose income was adjusted) then the difference between men and women is even more marked. In the *complex* cases the adjustment amount for men was 80% greater than for women, while in the *straightforward* cases the amount was fully three times as high for men as for women.

GEOGRAPHICAL DISTRIBUTION

- The percentage of error was significantly higher in the part of the country east of the Great Belt (which includes the Greater Copenhagen Area) than in the rest of Denmark, both for *straightforward* and *complex* taxpayers, and thus for all taxpayers. In the *straightforward* cases, the levels of error were 6% for the east and 4% for the rest of the country; for *complex* taxpayers, the corresponding levels were 16% and 12%. The highest levels of error were found in Central and Southern Zealand and in Copenhagen itself, whereas the most accurate declarations were from taxpayers in Northern and Central Jutland.

- The regional patterns of compliance with the regulations were almost identical with the above, but the differences were not quite as great. East of the Great Belt, the average level of compliance for *complex* individual taxpayers was 5.50, while for the rest of the country it was 5.59. The corresponding figures for *straightforward* taxpayers were 5.82 and 5.88. In both categories, the three lowest levels of regional compliance were on Zealand. In the case of *complex* taxpayers, those in Northern Jutland conformed most closely to the rules, and those in Copenhagen the least. In the case of the *straightforward* taxpayers, those in Central Jutland came out top of the list, while those in Central and Southern Zealand followed the rules the least closely.

- Regional variations in amounts of adjustment to taxable income were not statistically significant, despite large differences in the amounts. In other

words, the possibility that the regional variations in amounts did not come about through chance cannot be ruled out. This is probably the reason why the clear differences in percentages of error between the eastern and western parts of Denmark did not show up more clearly in the average levels of compliance for east and west.

THE TAX GAP FOR PRIVATE INDIVIDUALS

- *The tax gap for private individuals* may be stated either in terms of money or as a percentage of taxable income from earnings and investments. This report only examines changes to the total tax base, and thus does not measure any revenue effects that result from this.

- The net tax gap for individual taxpayers amounted to DKK 5.03 billion. This figure was composed of increases totalling DKK 5.77 billion and reductions totalling DKK 0.73 billion. It is thought-provoking that the extent of the errors whereby the tax administration was "cheated" of income was eight times the extent of those errors whereby taxpayers cheated themselves. If the adjustments up and down are added together in order to obtain an impression of the overall amount of error that is made in tax declarations, the figure arrived at is DKK 6.50 billion.

- Three-quarters of the total tax gap of DKK 5 billion can be related to people who were attempting to cooperate with the tax authorities and must therefore be regarded as the result of pure error, while only one quarter of the gap can be regarded as true tax evasion. Nevertheless, 46% of the tax gap was associated with taxpayers who were rated as *dark green*, and who were thus tending towards behaviour which was in opposition to the system.

- The entire tax gap was produced by just 8% of taxpayers. Actual tax fraud, accounting for a quarter of the tax gap, was attributable to just 1% of all taxpayers, with the remaining three-quarters of the gap being attributable to genuine errors made by 7% of taxpayers.

- The tax gap for individuals amounted to 0.60% of the total taxable income from earnings and investments.

- There was significant variation between the regions. The tax gap was smallest in Central Jutland, at 0.36%. It was almost twice as great in Northern Jutland (0.70%) and Southern Denmark (0.67%), and nearly three times as great in Central and Southern Zealand (0.99%).

- When the figures above are compared with those obtained by Gunnar Viby Mogensen for the years 1954, 1959, 1972 and 1980 on the basis of the archives of the Århus tax administration, it appears that there has been a steady decline in the size of the tax gap from around 2-2.25% of declared incomes in the 1950s to 0.92% in 1980 to the level of 0.60% found in this study.

TYPES OF ERROR

- The section of the tax declaration form where the proportion of errors is greatest was clearly that headed "Other income from capital". The amount of adjustment here amounted to 70% of the total amount declared in this section. The adjustment sum also represented high proportions of the total amount in the sections *Interest on mortgage deeds not held on deposit* and *Profit/loss on ship investment schemes*, the proportions being 49% and 42% respectively. There were also high proportions of error, amounting to 41% and 28% respectively of the declared amounts, with respect to *Shares covered by transitional regulations* and *Other income from shares*.

- There was a clear tendency, perhaps not surprisingly, for errors to be greatest in those sections of the tax declaration form where the least information is provided in advance by third parties.

INTRODUCTION

For the first time in the history of SKAT, the Danish Tax and Customs Administration, it has proved possible to map in a fully systematic manner the ability of Danes to complete their tax returns correctly. The extent of both errors and out-and-out tax fraud has been identified for the tax year 2006. The study is very comprehensive and is based on a rigorous check of more than 22,000 individual taxpayers and companies distributed across all geographical areas of Denmark. The results presented here are those for individual taxpayers, including all wage-earners and people receiving state transfer incomes, but not including the self-employed. The results for the self-employed and for companies in general will be published separately at a later time.

The basis for the study of individual taxpayers has been provided by almost 11,000 checks made by SKAT. Each of these checks involved a thorough review of the individual's overall tax situation, and documentation was usually requested for all information not already in the possession of SKAT.

In each case where errors were found in the tax declaration, the categories of the errors were recorded, and the overall change in taxable income calculated. SKAT uses the term *adjustment amount* for such alterations; the adjustment is to taxable income, and thus is not a measure of revenue from taxation.

A *level of compliance* was calculated for each taxpayer, this being a measure on a scale of compliance with the regulations from 0 to 6. The grades 0 to 2 were given to individual taxpayers categorised as *opponents*, people who had clearly made incorrect declarations despite possibly having the ability to have made correct declarations; the grades 3 to 6 were given to *team players*, people who were willing to make correct declarations, but who possibly lacked the ability to do so. Actual placement on the scale was made primarily according to objective criteria.

The taxpayers in the study were selected so that the checks provided a representative picture of compliance with the rules across the entire country. Consequently, it was possible to calculate the total national tax gap on the basis of the total adjustment amount found in the study.

By coupling the recorded error types and the extent of the errors to the distribution of levels of compliance, it was possible to build up a picture of the areas which people find complicated with regard to tax declaration or which are particularly susceptible to deliberate under-declaration. A high proportion of errors in a particular area can be taken as an indication that work needs to be done there on reducing the possibility of error.

If the errors are mainly the result of misunderstanding or ignorance of the rules – i.e. are connected with a high level of willingness to comply – then there may be a need to for more information and guidance, or even for a simplification of the rules in the area. If on the other hand the errors come from demonstrable cheating – i.e. are connected with low levels of willingness to comply – then the need may be for targeted checks and the use of sanctions, or the tax evasion behaviour may be combated by restricting or removing the opportunities for

fraudulent declaration. This could be done through legislation, for example, by requiring more information to be entered by third parties.

The results that are presented in this report thus provide invaluable input for determining how SKAT's resources could be best used in the future. The unique dataset which has now been produced also provides much scope for further analysis. The current report already presents a detailed picture of the existing situation, while we expect that a future analysis will also be able to elucidate *why* the situation is as it is.

The report is structured as follows. The introductory section continues with a review of important concepts and definitions, followed by a presentation of average error percentages, levels of compliance and adjustment amounts, first for *complex* and then for *straightforward* individual taxpayers. The section headed *Compliance maps* presents maps of Denmark showing the level of conformity with the rules for each taxation centre. The results for *complex* and *straightforward* taxpayers are then combined in order to present an overall picture of the extent of the total national tax gap. Finally, we examine the error types identified more closely, and consider the distribution of these across the different sections of the tax declaration form.

DELIMITATIONS AND DEFINITIONS

This section introduces much of the special terminology used in this report. The concepts are therefore not presented again in the other sections of the text. We also explain in this section some of the decisions made in relation to the delimitation of what was measured, and outline some of the methods used in calculating the various results.

First, we describe the basic division between *straightforward* and *complex* taxpayers. Then the term *adjustment amount* is introduced, with an explanation of the distinction between the *net* amount and the *numerical* amount. Next, there is a description of the extent of the checks carried out and of the general uncertainty with regard to the results. Then follows a definition of the *error percentage*, and its relationship to the traditionally calculated percentage of adjustments made after checks. We then present the *compliance scale* which has been developed by SKAT in order to rank taxpayers' ability to conform with the regulations. After a presentation of the principles for the calculation of weighted averages, the section concludes with a description of a number of tax gap concepts. This leads on to a definition of the *tax gap for individuals* and a description of how we calculate this from the total adjustment amount.

STRAIGHTFORWARD AND *COMPLEX* INDIVIDUAL TAXPAYERS

A distinction is made between individuals with relatively straightforward tax situations and those whose tax situations are more complex, referred to here as *straightforward* and *complex* taxpayers.

Straightforward taxpayers are primarily ordinary waged employees and people who receive transfer incomes from the state. Their incomes and deductions are almost entirely entered onto their tax declarations automatically by third parties. *Complex* taxpayers are individuals with more complex income situations, for example those with incomes in the form of honoraria or fees of various kinds paid before deduction of social insurance payments (labour market contributions), other deductions from taxable income, profit or loss on certain ship projects, profit or loss on the ending of certain ship projects, yields on shares listed on overseas exchanges, yields on unlisted Danish shares, foreign property, income from renting out property, etc.

Appendix 1 provides a more exact delimitation of who is considered a complex or straightforward taxpayer. Appendix table 1 indicates that using these definitions, there were 2,798,715 straightforward taxpayers and 1,356,673 complex taxpayers in the survey, and thus that the complex taxpayers made up approximately one third of the total of 4,155,388 individuals liable to tax in Denmark.

NET AND NUMERICAL ADJUSTMENT AMOUNTS

When an error is detected in a tax declaration as a result of a check, SKAT amends the amount of taxable income. The difference between the original and the revised amounts is called an *adjustment*. When the adjustment is positive, i.e.

in favour of the tax authority, then this is referred to as an *increase*; conversely, a negative adjustment is referred to as a *reduction*.

When all the adjustment amounts for all taxpayers are combined, the sum is either a *numerical* or a *net* amount. Increases minus reductions produces a *net* adjustment. This is of interest in the context of tax revenue effects. However, when we are interested in calculating the extent of lack of conformity with the regulations, the *numerical* adjustment is the one which is relevant. This numerical adjustment amount is arrived at by calculating the total of increases *plus* reductions. Thus, whereas an increase of DKK 10,000 and a reduction of DKK 10,000 would be combined to produce a net adjustment of zero, the calculation of a numerical adjustment shows a total amount of error of DKK 20,000.

THE NUMBER OF CHECKS MADE AND STATISTICAL UNCERTAINTY

SKAT's compliance project for individual taxpayers involved checks on the tax returns of a total of 10,729 individuals spread across the whole of Denmark 2,719 *straightforward* taxpayers and 8,010 *complex* taxpayers. The total number of checks was much greater for complex than for straightforward taxpayers despite the fact that there are only half as many complex taxpayers as straightforward taxpayers in the country. This was because it was expected that the percentage of errors would be greater among the complex taxpayers than among the straightforward ones. In statistical terms, it would have required a much larger sample to achieve the same level of precision in the results if the proportions of complex and straightforward taxpayers had reflected those of the entire population. At the same time, it also made good sense to carry out the largest number of checks among those individuals where there was most information to examine.

In the cases of both complex and straightforward taxpayers, the checks were made by the Central and Southern Zealand tax region by personnel based at the tax centre in Korsør. Locating the task of checking in one place created a good basis for ensuring that the new checking concept was implemented with complete consistency. This consistency was further supported by the fact that the principles for the checks were laid down with great exactness from the outset. This ensured that the differences observed represented real differences in the levels of compliance of the taxpayers and not simply variations in the process of checking.

The taxpayers to be checked were selected completely at random, with approximately the same number of checks being made for each tax centre (see appendix table 2). This procedure ensured that representative pictures were obtained for the whole of Denmark, for each region, and for each tax centre. It is thus possible to make statements about overall compliance with the rules at all these three geographical levels, though with considerable statistical uncertainty as far as the tax centre level is concerned. Consequently, this report concentrates

primarily on the results at the regional level and for the country as a whole.[2] In general, the degree of uncertainty is smaller for error percentages and levels of compliance than it is for the amounts of money. This is because the variance in the observed values for amounts is significantly greater.

At many points in the following comparisons are made between, for example, error percentages or average adjustment amounts for the different regions, age groups or genders, and it is noted whether or not these differences are *significant*.[3] In the rest of this document, the term *significant* is used to indicate whether or not the observed differences, when evaluated in accordance with the relevant statistical tests and without other explanatory variables, are found to be statistically significant at the 5% level. The results which are found to be significant can thus be considered to be very robust, and more reliance can be placed upon them than upon the results which are not statistically significant.

ERROR PERCENTAGE VS PERCENTAGE OF ADJUSTMENTS AFTER CHECKS

This section introduces the concept of the *error percentage*. It is important that everyone who uses the results from the compliance project is aware of the distinction between the concept of the "error percentage" and the concept traditionally used in Danish taxation administration, namely the "percentage of adjustments made after checks".

If an adjustment is made to the amount declared, whether positive or negative, in this document we say that an *error* has been made. The *error percentage* is the proportion of cases in which there were errors. The error percentage is calculated in relation to all taxable income and thus includes errors in both *taxable earnings* and *income from shares*.

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[2] The statistical level of uncertainty at the **tax centre** level for the percentage of error was between 2.2 and 6.5 percentage points for the straightforward taxpayers and between 3.2 and 5.1 percentage points for the complex taxpayers. For the **regions** other than Copenhagen the corresponding figures were between 1.7 and 2.3 percentage points for straightforward taxpayers and between 1.5 and 2.0 percentage points for the complex taxpayers. For Copenhagen the level of uncertainty was 4.7 percentage points for both types of taxpayer. At the **national** level, however, the level of uncertainty was as low as 1.0 for straightforward taxpayers and 0.9 percentage points for the complex taxpayers. Because of the relatively low levels of error and the limited amount of variation between tax centres, the degree of uncertainty at the tax centre level in nearly all cases made it impossible to detect significant differences, and the results for individual tax centres are thus of little interest.

[3] The level of significance indicates the probability that the results have been arrived at by chance. The null hypothesis is the hypothesis that is being tested – for example, that the level of compliance is the same for Northern Jutland as for Northern Zealand. If that hypothesis can be rejected then we can say that the levels of compliance for the two regions are significantly different. The level of significance is the accepted level of probability of rejecting the null hypothesis when it is in fact correct. A rejection of the null hypothesis is thus not the same as saying that the null hypothesis is incorrect. It simply means that on the basis of the data observed it is not possible to maintain the hypothesis. Selecting a low level of significance thus reduces the risk of drawing incorrect conclusions by rejecting a hypothesis which is in fact true. The level of significance is a measure of the degree of agreement between the data and the null hypothesis proposed.

The decision not to use the term *percentage of adjustments made after checks*, which is conventionally used at SKAT, was made because the two concepts differ in several significant respects. The use of the same term in this presentation could therefore easily lead to misinterpretation.

The percentage of adjustments made after checks is not directly comparable with the error percentage. This is because, first of all, reassessment of wage-earners is based predominantly on SKAT's system of selection of individual taxpayers for checking, which is founded on an assessment of the amount of money involved and probability of error and uses certain set criteria. The system is designed to ensure that a number of wage-earners are selected for checks in accordance with the expected outcome of the checking process.

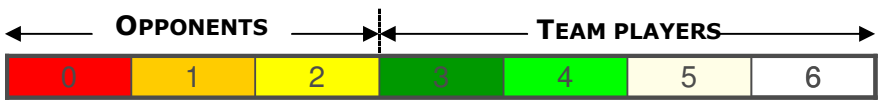
The principle in ordinary tax work is thus that selection for checking is made on the basis of the largest amounts of money likely to be involved and/or the greatest likelihood of errors being found, given the available resources for making checks. Since the individual taxpayers selected for checks can thus in no way be considered representative of taxpayers as a whole, the percentage of errors found after checks will clearly be much higher than the actual error percentage among all taxpayers. The percentage of adjustments made after checks thus cannot be used to make comparisons with the error percentages found in the Compliance Project.

In addition, the Compliance Project has included checks on a large number of factors or specific fields on the tax declaration form which either would not be examined at all in our usual system of checks (because there is no great likelihood that errors will be found there), or would be ignored by case workers because of the small amounts involved. It is for these reasons, then, that we deliberately use the term *error percentage* in this document to indicate the proportion of cases where an adjustment has to be made to taxable income.

SKAT'S SCALE OF COMPLIANCE

When a case worker has completed a case, he or she must assess the degree to which the regulations have been complied with. This evaluation of the case is expressed in a single figure – the *level of compliance*. This is a newly established method of grading on a scale from 0 to 6, where the higher the grade, the greater the degree of compliance with the regulations (see figure 1) .

Figure 1. SKAT's scale of compliance for the ability of the taxpayer to abide by the rules



An overarching distinction is made between taxpayers who are *opponents* and those who are *team players*. *Opponents* include all those who have consciously sought to evade taxes, irrespective of whether or not they understood the rules. The other group, the *team players*, have the will to make a correct declaration, but are not necessarily able to do so. In the case of the latter group, then, an incorrect declaration is assessed as being the result of an unconscious error and

not deliberate fraud. The compliance scale is then further nuanced through the use of seven different levels. Thus, it is possible to be an opponent or a team player in varying degrees: opponents are given a compliance scale grade between 0 and 2, while team players are categorised with a value between 3 and 6. Actual placement on the scale is made primarily according to objective criteria.

An important aim of the scale is thus to provide an explicit measurement of the degree to which an individual taxpayer is an opponent or a team player. This is something which cannot be seen from the adjustment amount alone. Comparison of the levels of compliance and the adjustment amounts for the various types of error can highlight areas where the problems are greatest, and thus provide a good starting point for planning future initiatives.

If the errors are mainly the result of misunderstanding or ignorance of the rules – i.e. are connected with a high level of willingness to comply – then there may be a need for more information and guidance, or even a simplification of the rules in the area. If on the other hand the errors come from a deliberate attempt to cheat – i.e. are connected with low levels of willingness to comply – then the need may be for targeted checks and the use of sanctions, or the tax evasion behaviour may be discouraged by restricting or removing the opportunities for fraudulent declaration. This could be done, for example, by legally requiring more information to be entered by third parties.

Appendix figure 1 shows a process diagram which all case workers used in connection with placements on the scale of compliance after each check was completed. Appendix figure 2 also presents a detailed description of the criteria for placement in the various categories on the scale of compliance.

When, in the following sections, we compare regions, age groups or genders, for example, we often refer to average levels of compliance. Such averages offer the great advantage of expressing the degree of conformity to the regulations in a single figure. It is important, however, to remember that there is variation in the figures that are expressed through such averages. For example, in an instance where half the taxpayers are assessed as dark green and the other half as off-white, the average level of 4.0 is the same as at a tax centre where all the taxpayers were categorised as pale green. In other words, identical average degrees of compliance are not necessarily the same in their underlying composition.

It is also important to note that an absolute difference of only 0.1 in the average level of compliance means that 10% more of the taxpayers in question are removed one category on the scale of compliance. Thus, even very small differences in the average level of compliance between regions or age groups, for example, can definitely be quite significant in their underlying basis.

It is also important to view error percentages, adjustment amounts and levels of compliance in context. High percentages of error may not be very worrying if they occur in combination with high degrees of compliance and/or small adjustment amounts. Such cases may simply indicate that more information and guidance is required.

THE CALCULATION OF WEIGHTED AVERAGES

The method used for selecting taxpayers for inclusion in the random sample is known as *stratified random sampling*. As mentioned previously, this involved selecting an equal number of taxpayers from each tax centre, thus ensuring that the level of accuracy was the same for all centres. The taxpayers in the sample were selected randomly from taxpayers at each centre, not from the total national population of taxpayers.

However, when results are to be presented for each of SKAT's six regions or for the country as a whole, it is not possible simply to sum or average the figures for each tax centre, since these tax centres vary greatly in size. In order to obtain an accurate picture of the situation at regional or national level, results from the tax centres have to be weighted. The weights used are the proportions of the population of taxpayers at regional or national level represented by the population served by each tax centre.

This means that the conformity with regulations of a person in, for example, Copenhagen weighs more heavily in the results for the entire country than the behaviour of a person from a provincial town such as Hjørring, since the number of taxpayers in Hjørring is much lower than the number in Copenhagen. The weighted averages are thus representative of the overall national behaviour pattern.

Note that a distinction is made between the populations of complex and straightforward taxpayers. For the averages which are calculated for the straightforward taxpayers, for example, the weights for each tax centre are calculated purely on the proportion of the population of straightforward taxpayers at that centre – not the proportion of the total population of taxpayers. The average for straightforward and complex taxpayers taken together is then calculated as a weighted average of the average values for straightforward and complex taxpayers calculated separately. The weights used for this calculation are the proportions of taxpayers in the entire population who are categorised as complex or straightforward.

All tables in this report and the comments upon them relate to the **weighted** numbers, averages or totals, unless explicitly stated otherwise. The actual numbers of checks on which the results are based are presented in appendix table 2, shown by tax centre and by straightforward and complex taxpayers.

THE TAX GAP

There are many individual taxpayers and companies who follow the tax regulations in every respect, but there are also taxpayers who are not sufficiently familiar with the rules, and still others who are either unable or unwilling to follow those rules. As a result, there is a difference – or gap – between what people actually declare and pay tax on, and what they should have declared. This difference is often referred to as the tax gap; however, this is not particularly precise definition of it.

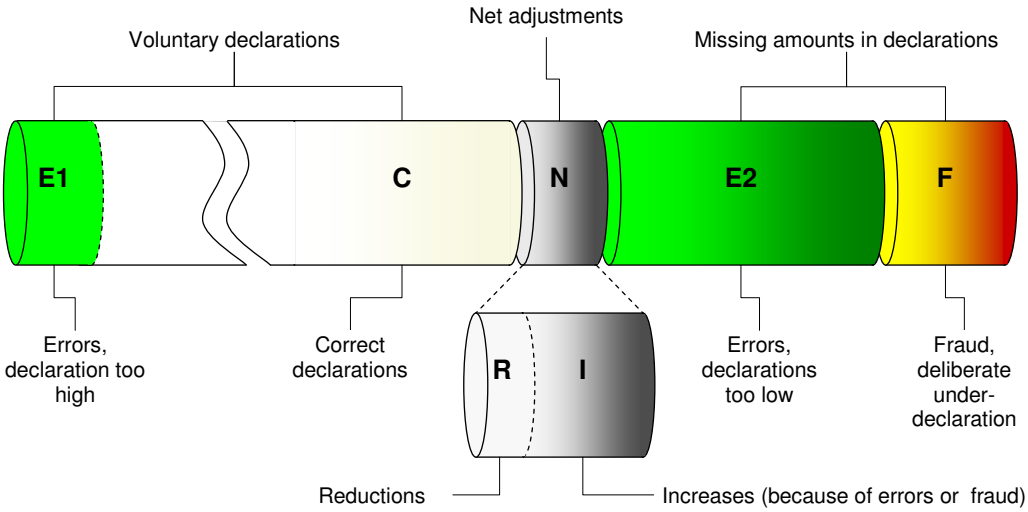
THE TOTAL TAX AND DUTIES GAP

The gap can be calculated in terms of the tax base or the tax revenue, i.e. equivalent to an accounting before or after tax. In line with previous Danish

research, we have elected to calculate the tax gap on the basis of the tax base. This is also clearly the simplest method.[4] If the gap is calculated from the point of view of payments owing and not taxable income, it is also necessary to take into account the question of whether – and how – the tax owing, which may related to several different tax years, can be collected.

Tax declarations in Denmark consist of automated entries from third parties concerning the individual taxpayer's income and deductions, plus the taxpayer's own amendments and additions to these. Figure 2 provides an illustration of how declared taxable income is divided into voluntarily declared income, adjustments implemented as a result of checks by SKAT, and income which should have been declared but was not, and which was not discovered later through checks by SKAT.

Figure 2. Declarations of taxpayers' income and deductions



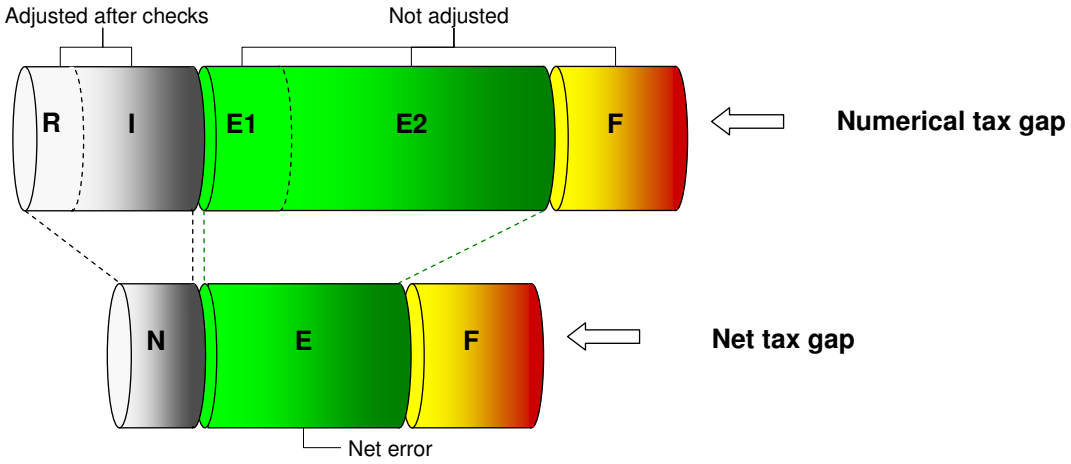
Voluntarily declared income makes up by far the largest part of the total amount, and consists almost entirely of a very large block of correctly declared income (**C**). In accordance with the scale of compliance, this section of the diagram is coloured white. Note the break in the block, which indicates that this part of the tax base is much larger than can be physically represented in the diagram here. The diagram is in any case not to scale. The voluntarily declared income also includes a number of entries which increase the size of the tax base beyond what it should be, either because income is incorrectly declared to be larger than it really is, or because certain legitimate deductions are not used (**E1**). These entries are regarded entirely as errors, since they can hardly be an indication of taxpayers deliberately "cheating" themselves.

A portion of the amount declared includes adjustments made on the initiative of SKAT. Increases (**I**) minus reductions (**R**) gives a *net* adjustment (**N**). A greyscale

[4] It is simple to total the declared amounts to find the total tax base, but in order to calculate the effect of the tax gap on revenue it is necessary to know the effective rate of taxation for the non-declared portion of all taxable income. Alternatively, it would be necessary to calculate the tax due for each taxpayer who had not followed the rules to the letter, and this would not be an easy exercise.

is used here, since adjustments can concern both opponents and team players. Finally, we have the income which in contravention to the regulations is not declared, and which furthermore is not discovered by SKAT. These missing amounts are the result in part of errors (**E2**) and in part of actual fraud (**F**). Figure 3 shows the tax gap on the basis of the elements defined in figure 2.

Figure 3. The tax gap in numerical and net terms



The tax gap is a theoretical sum of the adjustments actually made plus errors and fraud that are not discovered. The gap can be presented in either numerical or net terms. In the net calculation, the amount of over-declaration is deducted from the amount of under-declaration. The numerical tax gap focuses on the overall value of lack of conformity with the regulations, and consequently adds together the increases and reductions. Thus, instead of calculating DKK 1 billion of over-declaration and DKK 1 billion of under-declaration as a total of zero, the calculation of the numerical tax gap results in a total amount of error of DKK 2 billion.

It is difficult to calculate the size of the tax gap, and in practice it is impossible to measure it exactly. In the nature of things, the information which SKAT possesses is incomplete with respect to the amount of under-declaration, and it is not possible to check the declarations of all taxpayers in the county every year.

There are several different methods of calculating the tax gap, but common to them all is the fact that it is inevitably necessary to make compromises between what the measure should ideally encompass and what is possible in practice. Discussion of the tax gap therefore necessitates that the definition and delineation of the calculation be expressed very precisely. What types of taxpayer and of taxes are involved in the calculation of the gap, and which are not?

We define the *total tax and duties gap as follows*.

> The ***total tax and duties gap*** is the difference between the amount for a given tax year which is declared by all taxpayers and companies for the payment of tax, VAT, customs duties and excise duties and the amount which should have been declared if all taxpayers had provided precisely the information and amounts that they were obliged to in accordance with the rules, neither more nor less.

As mentioned previously, the total tax and duties gap is calculated before tax, which is why it is defined in terms of amounts declared and not in terms of amounts paid. This delineation is the broadest conceivable, and the total tax and duties gap covers all types of taxpayer and all forms of taxes and duties. This is also the total amount that SKAT seeks to reduce through new initiatives. The total tax and duties gap can be calculated in net or numerical terms; unless stated otherwise, it is the net amount that is referred to in this paper.

BREAKDOWN OF THE TOTAL TAX AND DUTIES GAP

Taxpayers can be divided into three broad categories:

1. Private individuals, comprising waged employees and people receiving transfer incomes
2. Businesses, including both companies and the self-employed
3. The unregistered, comprising people who live and work in Denmark without the knowledge of the authorities, and people who run what are in effect unregistered businesses by doing undeclared work.

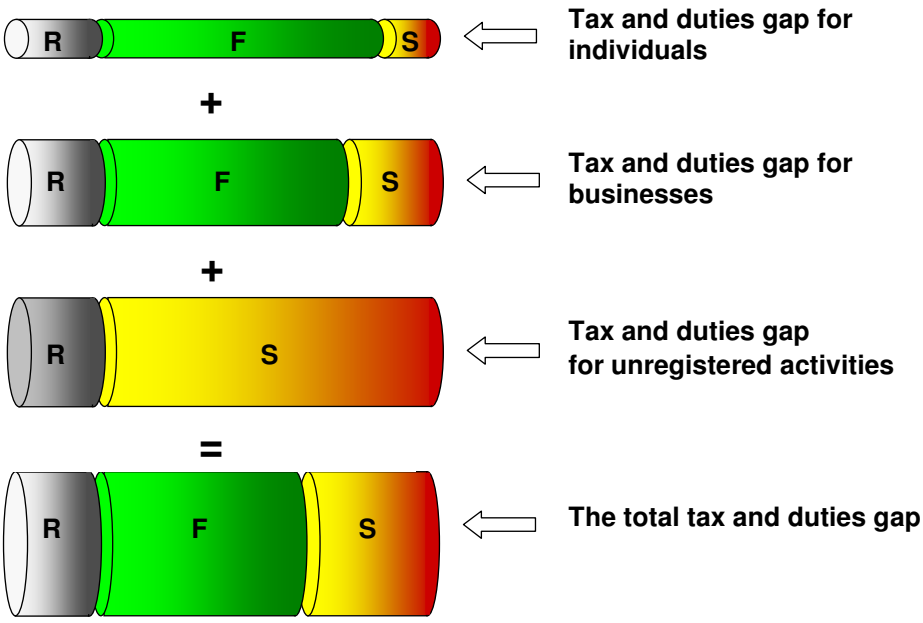
We use the term *private individuals* for the first group. The self-employed are of course also individuals, but for the purposes of this paper we do not include them in this category of taxpayer. Instead, the self-employed are included in group 2, which includes all types of business. This distinction between individual taxpayers and businesses is used in this way throughout the remainder of this paper.

The third taxable group consists of all those who are unregistered. A waged employee or someone receiving a transfer income who also carries out undeclared work in his or her spare time is by definition running an independent business and as such is not regarded as an individual taxpayer even though he or she has both wage or transfer income in addition to the income from undeclared work.

This means that the categories above cover all taxpayers without overlap between them. It is thus possible to divide up the tax gap in terms of the amount attributable to each of these categories, as shown in figure 4. The total tax and duties gap is thus the sum of the tax and duties gaps from private individuals, businesses and the unregistered.

As the figure indicates, the proportions of errors and fraud differ somewhat for the three groups. In particular, it is important to note that all the irregularities connected with unregistered work are naturally regarded as consciously fraudulent.

Figure 4. The composition of the total tax and duties gap in terms of different types of taxpayer



As mentioned in the definition of the total tax and duties gap, the gap is made up of income tax, VAT, and customs and excise duties. The gap can thus be broken down further, as is shown in table 1.

Table 1. The components of the total tax and duties gap. Taxpayers and tax types

	Individual		Businesses				Unregistered	
	Straightforward taxpayers	Complex taxpayers	Companies >250 employees	Companies, 0-250 employees	Self-employed	Other businesses	Unregistered businesses	Illegal residents
Income tax	■	■		■	■			
VAT	▨	▨		■	■			
Excise	▨	▨						
Customs	▨	▨						

Note: The term *companies* covers both publicly quoted and private limited companies. It also includes cooperatives. *Other businesses* in this context includes state-owned companies, etc.

The green colouring indicates the areas for which the compliance study provides information. There are thus no data shown relating to the tax gap for unregistered operations, but some of the most important aspects of the taxation of companies are covered with respect to both taxable income and VAT for all self-employed persons and for companies employing up to 250 individuals.

Private individuals are fairly well covered, since tax evasion with respect to VAT, excise duties and customs duties is not very relevant for individual

taxpayers – hence the shaded areas. In these fields, tax evasion by individuals is mainly related to the illegal import of goods for personal use. In cases where illegal importation is for the purposes of resale and thus capital gain which is not declared, this is automatically considered an unregistered business operation, and thus belongs to the unregistered operations section of the tax gap.

This report concentrates on the proportion of the total tax and duties gap which exclusively concerns **tax** for individual taxpayers, termed the *tax gap for individuals*. This is defined more precisely as follows.

> The ***tax gap for individual taxpayers*** is the difference between the amount for a given tax year which is declared by all individual taxpayers and the amount which should have been declared if all individual taxpayers had provided precisely the information and amounts that they were obliged to in accordance with the rules, neither more nor less.

The tax gap for individuals, like the total tax and duties gap, is calculated before tax.

The *tax gap for individuals* is thus a part of the *total tax and duties gap for individual taxpayers.* In table 1 the *tax gap for individuals* comprises the two green areas on the top left, while the *tax and duties gap for individuals* includes the six shaded areas as well.

THE CALCULATION OF THE TAX GAP FOR INDIVIDUALS ON THE BASIS OF THE COMPLIANCE STUDY

The section above defines what is included in the tax gap for individuals. How, then, is this to be measured? There are several approaches to making this calculation. In general, tax administrations worldwide differentiate between *top-down* and *bottom-up* approaches.[5]

One form of *top-down* approach is based on macro-data, the figures for the economy as a whole. The total of personal incomes shown in the national accounts is compared with the corresponding figure registered by the tax authorities. Any discrepancy can be used as a measure of the tax gap.

The *bottom-up* approach calculates the gap from figures at a lower level, as its name suggests. Errors and fraud are calculated at the individual level for a representative sample of individual taxpayers, and the results are then scaled up to calculate a figure for the entire population. It is this second approach to calculating the tax gap for private individuals that is used in this report.

In this study, separate average adjustment amounts are calculated for complex and straightforward taxpayers at each tax centre on the basis of the 10,729 checks carried out. These two averages for each tax centre are then multiplied by

[5] In research, there is often a differentiation between direct and indirect methods. The national accounts method would be considered an indirect method, while checking a randomly selected sample of individuals is counted as a direct method.

the size of the respective populations of complex and straightforward individual taxpayers covered by the tax centre. The amounts thus calculated can then be added together to produce a total amount for all the individual taxpayers covered by the tax centre, and the regional total can subsequently be calculated by summing the totals for all the tax centres in the region. Finally, a Danish national total can be calculated by combining the figures for the six regions. This method produces a reliable picture of the size of the tax gap for the whole country, because the results for each tax centre can be relied on to be representative of the population covered by that centre, being based on a stratified random sample.

The calculation presented here is based on a very large number of checks, which means that the level of accuracy is relatively high. In addition, this bottom-up method makes it possible to break down the results in many different ways – for example, by gender, age, tax centre, region, income, level of compliance, etc. This is not possible when a top-down approach is used. The final result of this process is a unique dataset in which the records of each type of error are linked to adjustments made to taxable amounts. This means that it is possible to subdivide the tax gap according to various types of error, which is a very useful thing to be able to do in relation to the planning of future initiatives and the use of resources.

This concludes the section on delimitations and definitions, and we will now proceed to the actual results.

LEVELS OF COMPLIANCE, ERROR PERCENTAGES AND ADJUSTMENT AMOUNTS

This section elucidates conformity with the regulations through average levels of compliance, error percentages and adjustment amounts broken down by region, gender, and age groups for both complex and straightforward individual taxpayers. In addition to the average figures, this section presents the distributions of adjustment amounts and levels of compliance – first for the complex taxpayers and then for the straightforward individuals.

CONFORMITY WITH THE REGULATIONS – COMPLEX TAXPAYERS

Table 2 shows the results of checks on compliance for complex individual taxpayers. Nationwide, there were errors in the declarations of 14% of complex taxpayers. The error percentage was greatest in Copenhagen at 18%, followed by the rest of Zealand, where the figure was 15%. The lowest rate of error, 10%, was in Northern Jutland. These differences were statistically clearly significant.[6] More specifically, the proportion of errors was markedly greater in the part of Denmark east of the Great Belt than in the rest of the country: 16% as opposed to 12%, a clearly significant difference statistically.

Table 2. Error percentage, numerical adjustment amounts and compliance rating for complex taxpayers, by region

Region	No errors	Errors	Numerical adjustment amounts, DKK '000	Compliance level	Checks
	– Percent –		*—— Average ——*		*Number*
Copenhagen	81.6	18.4	19.0	5.43	848
Central and Southern Zealand	84.9	15.1	21.5	5.53	1,238
Central Jutland	85.6	14.4	18.5	5.54	1,666
Northern Jutland	90.5	9.5	17.2	5.65	1,092
Northern Zealand	85.0	15.0	15.4	5.50	1,379
Southern Denmark	88.0	12.0	14.2	5.60	1,787
Denmark as a whole	86.2	13.8	17.5	5.55	8,010

Note: Adjustments shown are to taxable income from earnings and dividends. Appendix table 3 shows error percentages, numerical adjustment amounts and ratings for complex individual taxpayers by individual tax centres**.**

If we wish to obtain a picture in terms of monetary value of the extent of the failure of taxpayers to follow the regulations, then as described previously it is

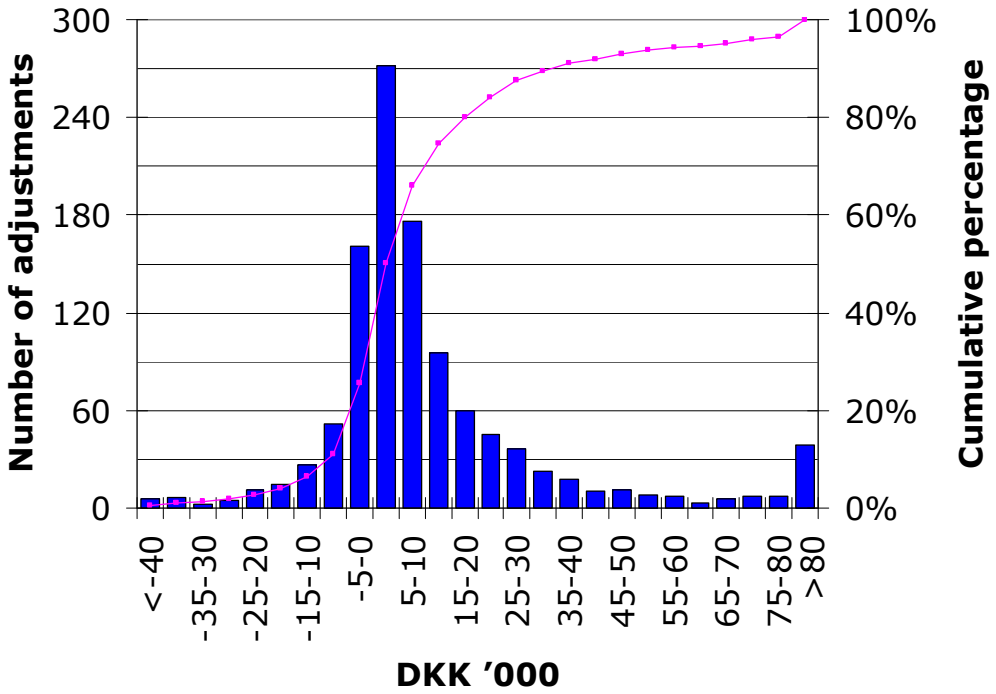
[6] A χ^2 test (with 5 degrees of freedom) was performed to check whether the levels of error were the same across the regions. The null hypothesis was rejected at the 5% significance level, which meant that there were statistically significant differences between the regions. All the tests reported are based on the same statistical principles.

necessary to consider all differences between what people declared and what they should have declared if they had followed the rules to the letter, regardless of whether the errors are in favour of the tax authority or the taxpayer.[7] We have therefore used the *numerical adjustment amount*, calculated as the sum of increases and reductions. If one were interested in tax revenue, it would be more relevant to examine the *net adjustment amount* – increases minus reductions – which indicates the overall effect on the tax base.

Over the whole of Denmark, the average numerical adjustment amount was DKK 18,000, but the average varied between DKK 21,000 in Central and Southern Zealand, where the amount was greatest, and DKK 14,000 in Southern Denmark, where it was least. However, these differences in the adjustment amounts were not statistically significant.

Figure 5 shows the distribution of the adjustments made by the size of the amounts. The number of adjustments is indicated by columns (scale on the left), while the s-shaped curve is the cumulative frequency in percent (scale on the right).

Figure 5. Distribution of adjustment amounts for complex taxpayers (histogram)



[7] An adjustment of DKK -5,000 for one taxpayer and one of DKK +10,000 for another thus gives an average numerical adjustment amount of DKK 7,500 for the two taxpayers. However, it is only when summing separate cases that the plus or minus sign is ignored, not within the calculations for an individual taxpayer. If an individual has one adjustment of DKK -5,000 and another adjustment of DKK +10,000, the adjustment amount for that taxpayer is taken as DKK +5,000 for calculating the average numerical amount. It should also be noted that the average adjustment figure is exclusively an average of all cases where adjustments were made, and not an average of all taxpayers checked. These principles are applied throughout wherever an average numerical amount is given, unless explicitly stated otherwise.

The distribution is concentrated on the interval DKK 0-5,000 (the *mode*); a quarter of all adjustments are in this range. A half of all adjustments made are under DKK 5,000 (the *median*), and the rest are over this amount. Amounts above DKK 20,000 account for exactly 20% of the total number of adjustments. The distribution is clearly *right-skewed*.

Note that the very large sample size for complex taxpayers results in a very smooth distribution, even out in the tails of the distribution curve. The most extreme intervals, <-40 and >80, account for 0.5% and 3.5% of cases respectively. Note also that these are very large interval groups and significantly greater than the DKK 5,000 represented by the other columns.

In those cases where an adjustment was made, the amount was reduced in 26% of cases, meaning that the individual had paid too much tax (see table 3). In the remaining cases, the taxable income from earnings or shares was increased.

Table 3. Adjustments upward or downward, and the numerical adjustment amounts for complex taxpayers

Adjustment	Proportion	Numerical adjustment amounts, DKK '000	Adjustments
	Percent		*Number*
Upward	25.7	8.8	285
Downward	74.3	20.6	824
In total	100.0	17.5	1 109

Note: Adjustments are to taxable income from earnings and dividends.

On average, the numerical adjustment amount for complex taxpayers where taxable income was reduced was DKK 9,000, as opposed to DKK 21,000 in the case of increases. The difference in the amounts is significant.

Table 4 shows the average levels of compliance for complex taxpayers by region, as well as the relative distributions across the seven different levels of the compliance scale.

On average, the level of compliance was very good for the country as a whole. The figure was 5.55, which is equivalent to a rating between *snow white* and *off white*.

If we consider the underlying distribution on each level of the scale, shown on the bottom row of the table, almost four fifths of taxpayers were in the snow white area, equivalent to a rating of 6, while there were around 6-7% in each of the categories from 3 to 5. It is interesting to note that on a national level, there were only just over 1% of all complex individual taxpayers who after checks had been carried out were found to be clearly "opponents" and given a compliance grade of 2 or lower. Of these, the great majority were categorised in the pale yellow segment. When this distribution is considered in relation to the fact that almost one in seven of the complex taxpayers had made errors of some kind in their declarations, it becomes evident that these errors were not serious in nature in the vast majority of cases.

Table 4. Distribution of levels of compliance from 0 to 6 for each region among complex taxpayers

Region	Rating (percentage share)							Av. rating	Checks
	0	1	2	3	4	5	6		*Number*
Copenhagen	0.4	0.7	1.1	9.4	7.5	3.4	77.5	5.43	848
Central and Southern Zealand	0.2	0.2	0.9	7.7	5.9	6.2	79.0	5.53	1 238
Central Jutland	-	0.3	1.0	7.3	6.3	6.1	79.0	5.54	1 666
Northern Jutland	0.1	0.2	1.0	5.1	3.2	7.5	82.9	5.65	1 092
Northern Zealand	0.1	-	0.8	7.4	6.8	10.1	74.7	5.50	1 379
Southern Denmark	0.0	0.2	1.1	4.2	7.2	7.4	79.9	5.60	1 787
Denmark as a whole	0.1	0.2	1.0	6.6	6.2	7.0	78.8	5.55	8 010

Note: If there are no cases with a given rating in a region, this is indicated in the table by a dash, whereas an entry of 0.0 means that the proportion was greater than zero but not large enough to be rounded up to 0.1.

The variation in the levels of compliance across the regions was very small, as can be seen from the table. The lowest and the highest levels of conformity to the rules were found in Copenhagen and Northern Jutland respectively, with levels of compliance of 5.43 and 5.65. If we compare the underlying distributions of the compliance scale for these two regions, the pattern becomes very clear despite the modest difference. The proportions of individuals given a rating of 5 or 6 are in both cases 4-5 percentage points higher in Northern Jutland, while Copenhagen lies higher in all the other points on the scale, especially on the green levels, 3 and 4, where Copenhagen is in each case more than 4% higher than Northern Jutland.

Northern Zealand had the lowest number of cases categorised as *snow white*, 75%. On the other hand, the region is clearly the most strongly represented in the category *off white*, with 10% of cases falling into this category. Overall, Northern Zealand is thus only marginally worse than the national average.

If eastern and western Denmark are contrasted, then it is clear that the area east of the Great Belt had the three lowest regional levels of compliance, while the west had the three highest. However, the difference is very small. East of the Great Belt the weighted average level of compliance was 5.50, while to the west the level was 5.59 (not shown in the table).

Table 5 shows the error percentages, the numerical adjustment amounts and the levels of compliance for complex taxpayers broken down by gender and age. The error percentage was fully 5 percentage points higher for men than for women, or, to put it another way, it was almost 50% greater.This is also a clearly significant difference.

The average numerical adjustment amount per adjustment carried out was also higher for men than for women, by about a quarter. However, this difference was not statistically significant. If the difference in the frequency of compliance with the rules is taken into account by calculating the overall average adjustment amount for all cases and not just those cases where an adjustment was made, the average found is DKK 3,100 for men and DKK 1,700 for women (not shown in

the table). This is a difference of more than 80%. The average numerical adjustment for men and women taken together for all cases, irrespective of whether or not there was any declaration error, was DKK 2,400.

Table 5. Error percentages, numerical adjustment amounts and compliance ratings among complex taxpayers, by gender and age

	No errors	Errors	Numerical adjustment amounts, DKK '000	Compliance level	Checks
	– Percent –		—— Average ——		Number
Gender					
Women	88.9	11.1	15.3	5.63	3,803
Men	83.7	16.3	18.9	5.48	4,207
Age					
0-19	96.7	3.3	16.3	5.83	174
20-29	83.6	16.4	15.1	5.48	783
30-39	84.5	15.5	15.2	5.51	1,364
40-49	84.2	15.8	19.5	5.49	1,604
50-59	85.2	14.8	15.4	5.51	1,410
60-69	86.4	13.6	20.0	5.53	1,275
70+	91.0	9.0	20.4	5.72	1,399
Population as a whole	86.2	13.8	17.5	5.55	8,010

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated for the cases where an adjustment was made.

The difference between men and women also reflects to some extent a difference in the average levels of compliance. The fact that the difference is not even larger may be connected with the fact that the larger amounts and higher percentages of error occur because men tend to be "more complex" than women among complex taxpayers. They have more complicated income situations and larger amounts of wealth, and in the case of married couples it may be that savings and investments are more often registered in the man's name. However, it is in any case in the vast majority of cases still a question of errors and not fraud, even if such errors occur more often and concern a larger amount of money among men.

We know from a previous survey conducted by the Rockwool Foundation Research Unit in 2004-5 that the difference between the sexes is much greater with regard to undeclared work, which is not included in the calculations here. Just under 30% of the men in the survey stated that they had done undeclared work within the previous year, while the corresponding figure for women was just under 12% (*Nyt fra Rockwool Fondens Forskningsenhed. April 2006*).

Table 5 also shows that the proportion of errors falls with increasing age, if we ignore the 0-19 age group. The older people are, the lower the likelihood of them making errors with their tax declarations. This trend was clearly statistically significant. A similar pattern was found by the Rockwool Foundation Research

Unit with respect to undeclared work, which also decreases with increasing age (*op. cit.*).

If conformity with the rules is measured by level of compliance, then all those groups of working age, from 20 to 69 years old, are rather similar in terms of their conformity with the rules, and at a very high level of conformity. The picture is even better for the youngest and the oldest age groups, however. The fact that the age group 0-19 exhibits such a low level of error is probably because many of them have very simple income situations or have their tax declarations "administered" by their parents.

CONFORMITY WITH THE REGULATIONS – STRAIGHTFORWARD TAXPAYERS

Table 6 shows the results of checks on compliance for straightforward individual taxpayers. On average across the country there were errors in 5% of cases, which, as expected, was a much lower figure than that for the complex taxpayers. The average numerical adjustment amount for straightforward taxpayers was found to be just under DKK 23,000, if we omit from the calculations one extremely high adjustment of over DKK 1.7 million.

Table 6. Error percentages, numerical adjustment amounts and compliance ratings among straightforward taxpayers, by region

Region	No errors	Errors	Numerical adjustment amounts, DKK '000	Compliance level	Checks
	– Percent –		*—— Average ——*		*Number*
Copenhagen	94.4	5.6	20.0	5.84	388
Central and Southern Zealand	92.6	7.4	26.5	5.77	413
Central Jutland	97.0	3.0	16.1	5.90	549
Northern Jutland	95.6	4.4	31.2	5.86	312
Northern Zealand	94.2	5.8	14.4	5.84	472
Southern Denmark	94.5	5.5	27.1	5.86	585
Denmark as a whole	94.8	5.2	22.7	5.85	2,719

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated for the cases where an adjustment was made. The calculations of the average adjustment amount ignore a single extremely high adjustment of more than DKK 1.7 million, which would otherwise have had a sizeable effect on the average adjustment figure. Appendix table 4 shows the error percentages, numerical adjustment amounts and ratings on the scale of compliance for straightforward taxpayers for each tax centre.

Table 6 also shows that the error percentage and the average adjustment amount were lowest in Central Jutland. In this tax region, 97% of all straightforward declarations were completely free of error. The highest proportion of errors was in Central and Southern Zealand, where the adjustment amount was also high – although not as high as in Northern Jutland, where the recorded figure of DKK 31,000 was not only the highest in Denmark, but also more than twice as high as

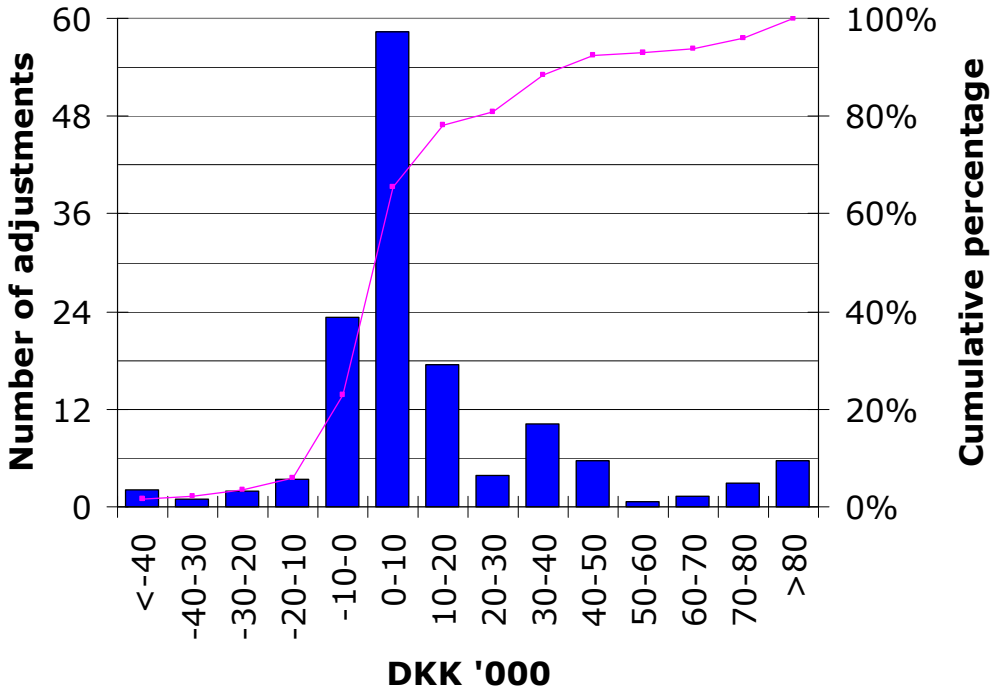
the average of DKK 14,000 recorded for Northern Zealand, the lowest figure for the country. There is thus no clear connection between the numerical adjustment amount and the percentage of errors compared across the regions.

On the other hand, examining error percentages alone reveals a clear pattern. The three highest regional percentages of error were concentrated on Zealand, and the difference in the proportions of errors east of the Great Belt and in the rest of the country was a full 2 percentage points – the proportions being 6% and 4% of errors respectively (not shown in the table). This is a statistically significant difference.

In future research on the dataset, an examination will be made of how any differences between the regions in terms of size of incomes, patterns of education, socioeconomic factors, etc. may have had an effect on the observed differences in percentages of error. Such an analysis will naturally cover both complex and straightforward taxpayers.

The actual distribution of the size of all adjustments carried out for straightforward taxpayers is shown in figure 6.

Figure 6. Distribution of adjustment amounts for straightforward taxpayers (histogram)



As with the complex individuals, the adjustment amounts are concentrated in the smallest positive interval, DKK 0-10,000 (the *mode*).[8] 42% of all adjustments fall within this interval. The *median* is once again exactly DKK 5,000; however,

[8] Note that the size of the intervals is greater than in Figure 5, being DKK 10,000; this is because there are only around an eighth of the number of observations for straightforward taxpayers as there were for complex individuals.

amounts above DKK 20,000 make up 22% of all adjustments, which surprisingly enough is actually a little more than for complex taxpayers.

As with the complex taxpayers, the distribution is right-skewed; however, the curve is not as smooth as the distribution for complex individuals. This is largely the result of the smaller sample size and the lower percentage of errors, both factors which contribute to the smaller number of adjustments. The outermost intervals <-40 and >80 make up 1.5% and 4.1% of adjustments respectively, but it should be noted that the intervals in these cases are much greater than the DKK 10,000 represented by all the other columns.

Table 7 shows that there were reductions of taxable income in under one fourth of cases, and correspondingly an increase in more than three quarters of all cases. This pattern is very similar to the picture for complex individual taxpayers, though with slightly fewer reductions; see table 3 and table 7.

Table 7. Adjustments upward or downward and the numerical adjustment amounts for straightforward taxpayers

Adjustment	Proportion	Numerical adjustment amounts, DKK '000	Adjustments
	Percent	*Average*	*Number*
Downward	23.0	9.6	32
Upward	77.0	26.6	106
In total	100.0	22.7	138

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated for the cases where an adjustment was made. One extremely high adjustment of more than DKK 1.7 million was excluded from the calculations, since it would have had a marked effect on the average adjustment amount.

Not only was it more often the case that taxable income was adjusted upward rather than downward, but the upward adjustments were also larger, being DKK 27,000 on average as opposed to DKK 10,000. However, this difference is not statistically significant.

Table 8 shows the average levels of compliance for straightforward taxpayers by region. The relative distributions across the values 0 to 6 of the compliance scale are also given for each region.

The average level of compliance for the entire country was 5.85, which is considered very high. Straightforward taxpayers were very close to being fully compliant with the regulations, and had an average rating 0.3 percentage points higher than that of complex taxpayers. The average level of compliance for all individual taxpayers was 5.7.

The underlying distribution of levels of compliance shows that fully 93% of straightforward taxpayers were assessed as being in the *snow white* category. Out of the 2,719 checks made, no cases were categorised as *red*, and only 0.6% of individuals were judged to be "opponents" in any category; of these, twice as many were viewed as *pale yellow* as were considered *dark yellow*. There were

thus few serious errors, and these were much more often genuine errors rather than actual attempts at fraud.

Table 8. Distribution of levels of compliance from 0 to 6 for each region for straightforward taxpayers

Region	Rating (percentage share)							Av. rating	Checks
	0	1	2	3	4	5	6		*Number*
Copenhagen	-	-	-	1.1	4.5	3.4	91.0	5.84	388
Central and Southern Zealand	-	0.5	1.0	2.0	3.7	3.3	89.5	5.77	413
Central Jutland	-	0.3	0.4	1.0	0.9	2.1	95.3	5.90	549
Northern Jutland	-	0.7	-	0.9	2.3	2.8	93.2	5.86	312
Northern Zealand	-	0.3	0.4	1.6	3.2	2.2	92.5	5.84	472
Southern Denmark	-	-	0.5	1.6	3.5	0.5	93.9	5.86	585
Denmark as a whole	-	0.2	0.4	1.4	3.0	2.2	92.8	5.85	2 719

Note: If there are no cases with a given rating in a region, this is indicated in the table by a dash, whereas an entry of 0.0 means that the proportion was greater than zero but not large enough to be rounded up to 0.1.

Variation between regions was very slight. With an average level of 5.77 in Central and Southern Zealand and 5.90 in Central Jutland, the largest difference was only 0.13. Note that it was also these two regions which had the largest and smallest proportions of errors.

If the underlying distribution of levels of compliance for the two regions is considered, a clear pattern emerges, even though the average ratings are very close. The proportion of *snow white* ratings in Central Jutland was six percentage points higher than that in Central and Southern Zealand, with correspondingly lower percentages across all the other categories between *dark yellow* and *off white*. In Central and Southern Zealand there were approximately twice as many instances of categories 1, 2 and 3 – for each category separately, and for these categories taken as a whole. There were four times as many instances that were assessed as *pale green*. Note, however, that these relatively large proportional differences are based on a relatively low number of instances, and thus do not give serious grounds for concern.

It is in any case necessary to interpret these underlying distributions with considerable caution, since the size of the sample for straightforward individuals was around one third of the size of the sample for complex taxpayers, and the error percentage was also only just over one third as great among the straightforward taxpayers. There were thus rather few observations in some of the categories, with the result that we cannot rely too much on any conclusions drawn from them. This is particularly true for the Copenhagen region, the figures for which – as shown in appendix table 2 – are based on only 89 completed checks. The figures for other regions are based on between 362 and 634 checks. Thus, the fact that no individual was assessed as an "opponent" in Copenhagen must be treated as unlikely to be representative of the true overall situation.

If we compare the eastern and western halves of the country, we find the same pattern as for complex taxpayers. The lowest levels of compliance with the

regulations were in the three regions which make up Zealand, while the three highest levels were to be found west of the Great Belt. However, the differences were very small. East of the Great Belt, the weighted average level of compliance was 5.82, while to the west the level was 5.88 and thus closer to the ideal (not shown in the table).

If we combine the results for straightforward and complex taxpayers we arrive at an average level of compliance for the whole country of 5.75 (see appendix table 5). Since there are approximately twice as many straightforward taxpayers as complex ones, it is not surprising that the national average for all taxpayers was closer to the level of compliance of 5.85 for straightforward taxpayers than to the level of 5.55 for complex individuals.

Table 9 shows the distribution of error percentages by gender and age for straightforward taxpayers. Men had a higher percentage of errors (nearly 7%) than that of women, who had just over 4%. This is a statistically significant level of difference. There was also a clear difference in the average adjustment amount, which was almost twice as high for men as for women. This is again a statistically significant level of difference.

Table 9. Error percentages, numerical adjustment amounts and compliance ratings for straightforward taxpayers, by gender and age

	No errors	Errors	Numerical adjustment amounts, DKK '000	Compliance level	Checks
	– Percent –		*—— Average ——*		*Number*
Gender					
Women	95.9	4.1	15.3	5.88	1 504
Men	93.4	6.6	28.7	5.81	1 215
Age					
0-19	99.0	1.0	6.4	5.98	336
20-29	92.6	7.4	26.7	5.84	468
30-39	92.3	7.7	41.1	5.74	410
40-49	93.1	6.9	10.6	5.79	421
50-59	92.7	7.3	23.7	5.77	374
60-69	96.8	3.2	6.6	5.90	362
70+	98.7	1.3	7.0	5.96	348
Total	94.8	5.2	22.7	5.85	2,719

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated for the cases where an adjustment was made. One extremely high adjustment of more than DKK 1.7 million was excluded from the calculations, since it would have had a marked effect on the average adjustment amount.

The difference is even more evident if the average adjustment amount is calculated for all cases and not just as an average among the cases where adjustments were made. For men, that average numerical amount is DKK 1,900, three times that for women at only DKK 600 (figures not shown in the table). Combining the average adjustment amounts for men and women gives a figure for all straightforward taxpayers of DKK 1,200, exactly half the corresponding amount for complex individuals.

The differences in error percentages across age groups were relatively large. The lowest levels of error at around 1% were recorded for the youngest group (0-19 years) and the oldest (over 70). The highest levels of error were approximately evenly distributed across the age groups 20-29, 30-39, 40-49 and 50-59 years. After this, the level of error decreases with increasing age. Among the age groups with the highest percentages of error, the average adjustment amount was relatively low for those aged 40-49, but relatively high – at DKK 41,000 – for the 30-39-year-olds.

There was no major difference between men and women with respect to the average compliance rating, but there was a certain amount of variation across age groups. As with the complex taxpayers, there was a tendency for the youngest and those aged over 60 to be the most compliant. The high levels of compliance for these age groups should be viewed together with the low average adjustment amount of only DKK 6-7,000. In contrast, the lowest levels of compliance were among those aged 30-39 years, and it was also for this age group that the highest adjustment amounts were recorded.

As already noted, however, the overall level of compliance for straightforward taxpayers was high, and the vast majority of individuals could be regarded as "team players".

COMPLIANCE MAPS

From the outset, it was our intention to make a visual presentation of any geographical differences found in taxpayers' conformity with the regulations in the form of one or more *compliance maps*. These maps of Denmark use greyscale to show where the greatest and least concentrations of error and fraud occur in the country.

Variation in conformity with the tax regulations across Denmark is shown through separate maps for the levels of compliance and error percentages. Furthermore, separate maps are presented for straightforward and complex taxpayers with respect to both these aspects of the ability to complete tax declarations correctly. An additional map shows error percentages for the two types of taxpayer combined. There are thus a total of five compliance maps.

The maps show Denmark divided into 30 zones corresponding to the 30 tax centres which existed in the country up until the end of 2008. The division is thus finer than for the regional data presented earlier in this report.

It was decided to use a greyscale ranging from white to black for the maps. As the level of compliance falls or the error percentage increases, the shading on the map becomes darker.[9] The greyscales used are consistent across the maps in terms of representation of levels of compliance and error percentages, allowing direct visual comparisons to be made between complex and straightforward taxpayers on the basis of the maps.

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[9] A more common approach to the graphical representation of data on a map is to split the data up according to a small number of data intervals, each represented by a specific colour code. This has not been done in this instance. Instead, the intensity of the shading on the map changes to represent visually the exact levels of compliance or error percentages in each of the thirty tax centres. This means that interpretation of the map is not dependent on subjectively-determined data intervals, and in principle it is possible to see the differences in the results for all the tax centres.

The greyscale solution was chosen for this purpose in part to make to make the document more "printer-friendly", and in part because it would not have been possible to graduate the various colours on a linear scale if we had used a coding based on the different colours from our compliance scale, though this would otherwise have been the obvious choice. A compliance level of 6 is represented on our compliance scale by the colour white, and a level of 5 by off-white; if these colours had been used, it would have been impossible to see a difference between, for example, 5.4 and 5.6 – especially not on a print-out.

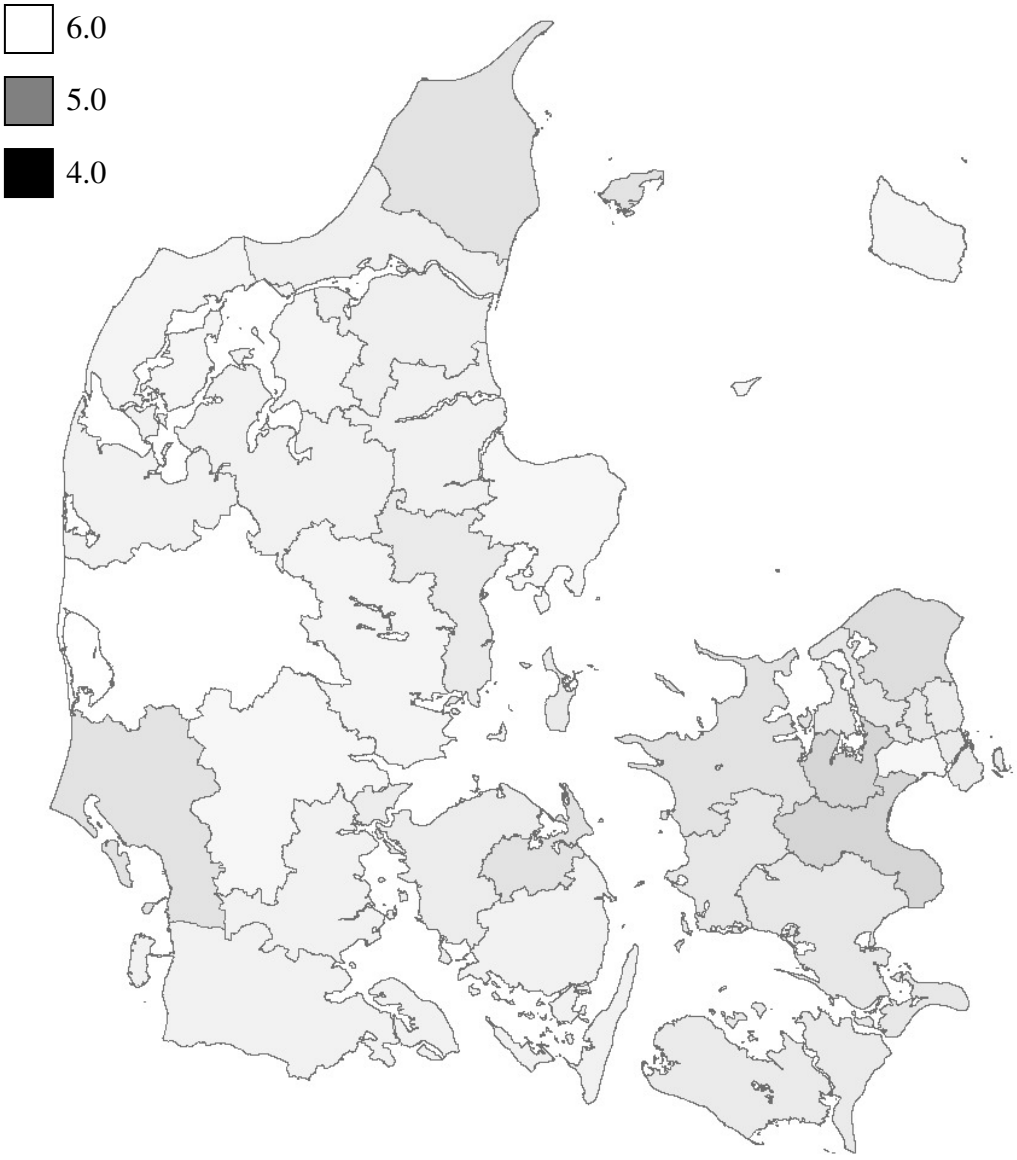
In practice, the greyscale used only allows differences of a certain size to be distinguishable from one another. The scale was created by varying the RGB parameters linearly between 0 and 255 for each of the colours in proportion to the relative placement of the value on the scale. In the case of the level of compliance the scale ranged from 4.0 to 6.0, and for the error percentage the scale ranged from 0 to 40. Thus, a level of compliance of 4.0 would be shown as pure black, and 6.0 as pure white; similarly, an error percentage of 0 would be shown as pure white, and a percentage of 40 as pure black.

MAPS OF DENMARK SHOWING LEVELS OF COMPLIANCE

On the regional level, as described earlier in this paper, the variation in levels of compliance across the country was very small. The amount of variation was greater at the level of the tax centre, though it was nevertheless still small.

The clearest pattern visible in figure 7 is that compliance with the regulations was marginally lower east of the Great Belt, and also that it was a shade lower in the large conurbations of Aarhus and Odense than in the adjoining tax centres, though the same was not true of Copenhagen.

Figure 7. Levels of compliance shown by tax centre for *straightforward* individual taxpayers

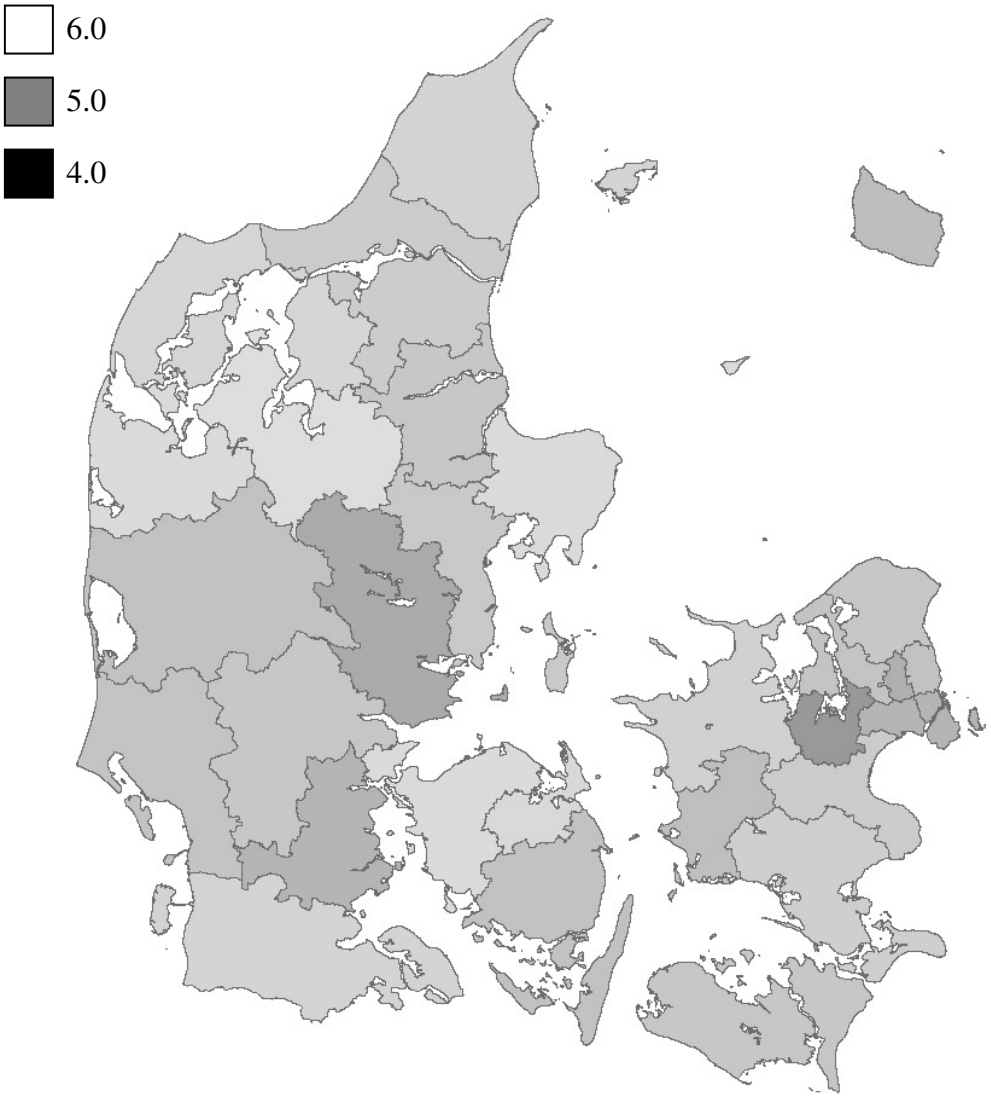


Note: The darker the shading, the lower the level of compliance with the regulations. Pure white represents a level of compliance of 6.0, and pure black a level of 4.0. See appendix table 4 for a list of the ratings for each tax centre.

Figure 8 shows the corresponding distribution of levels of compliance for complex individual taxpayers The pattern found for the straightforward

taxpayers is not discernable here. However, the map does show clearly that compliance with the regulations is lower throughout the country for complex individual taxpayers than it is for straightforward taxpayers, in that the map is considerably darker in shade overall. The variation between tax centres is a little greater than for straightforward taxpayers, but no clear pattern can be identified.

Figure 8. Levels of compliance shown by tax centre for *complex* individual taxpayers



Note: The darker the shading, the lower the level of compliance with the regulations. Pure white represents a level of compliance of 6.0, and pure black a level of 4.0. See appendix table 3 for a list of the ratings for each tax centre.

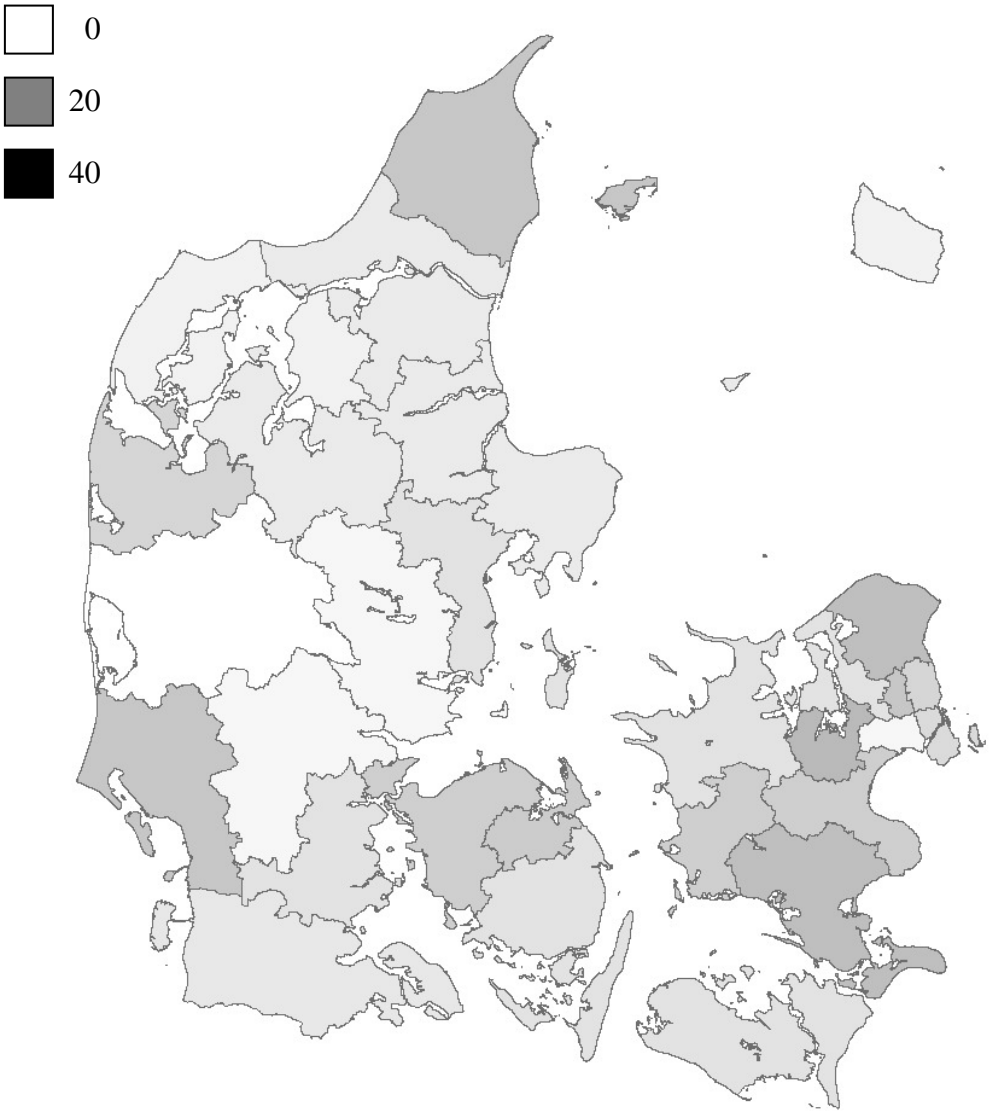
MAPS OF DENMARK SHOWING ERROR PERCENTAGES

The maps presented in this section show percentages of error. Once again, it is relevant to compare the intensity of the shading on the maps for straightforward and complex individual taxpayers. However, the method of establishing the

degree of shading is slightly different for error than for compliance; see footnote 9 and the notes below the maps.

Figure 9 shows the percentages of error for straightforward individual taxpayers, which as mentioned earlier are significantly greater east of the Great Belt. Overall, the three Zealand regions have the nation's highest error percentages, but as the map shows there is a degree of variation between the tax centres in each of these regions. Consequently, the significant differences between regions are not very clearly visible on the map.

Figure 9. Error percentages shown by tax centre for *straightforward* individual taxpayers

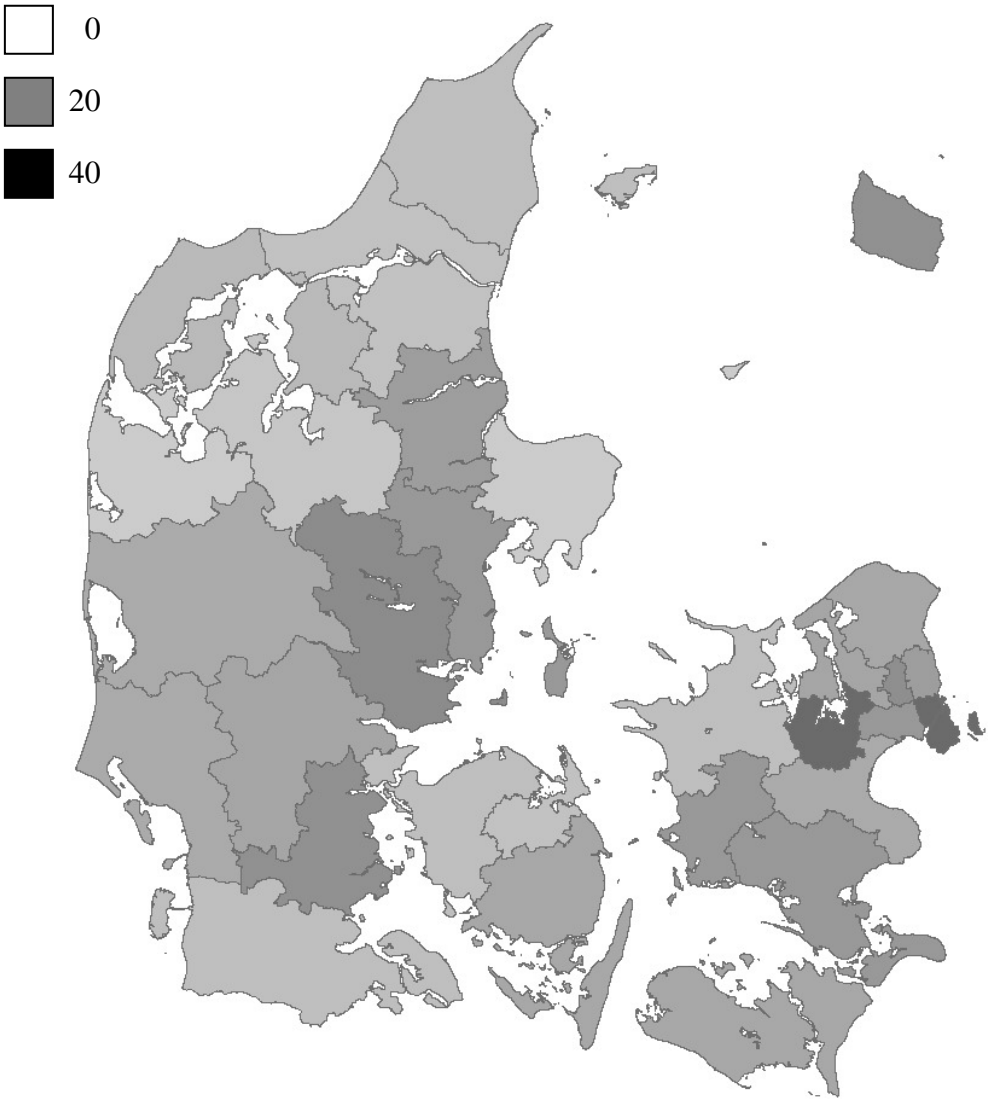


Note: The darker the shading, the greater the percentage of error. Pure white represents an error percentage of 0, and pure black an error percentage of 40. See appendix table 4 for a list of the error percentages for each tax centre.

No systematic pattern is evident with regard to the largest conurbations. The degree of variation across the tax centres of the country is generally a little greater than is the case for levels of compliance; there is a difference of around 10 percentage points between the top and the bottom of the scale.

The variation between tax centres is even a little greater for complex individual taxpayers than is the case for straightforward taxpayers; see figure 10 and appendix table 3. The highest percentage of error is a full 15 percentage points above the lowest level. This highest level was, however, recorded for just one tax centre, and since the confidence interval for these observations is ± 5 percentage points, the actual degree of variation may well be less.

Figure 10. Error percentages shown by tax centre for *complex* individual taxpayers



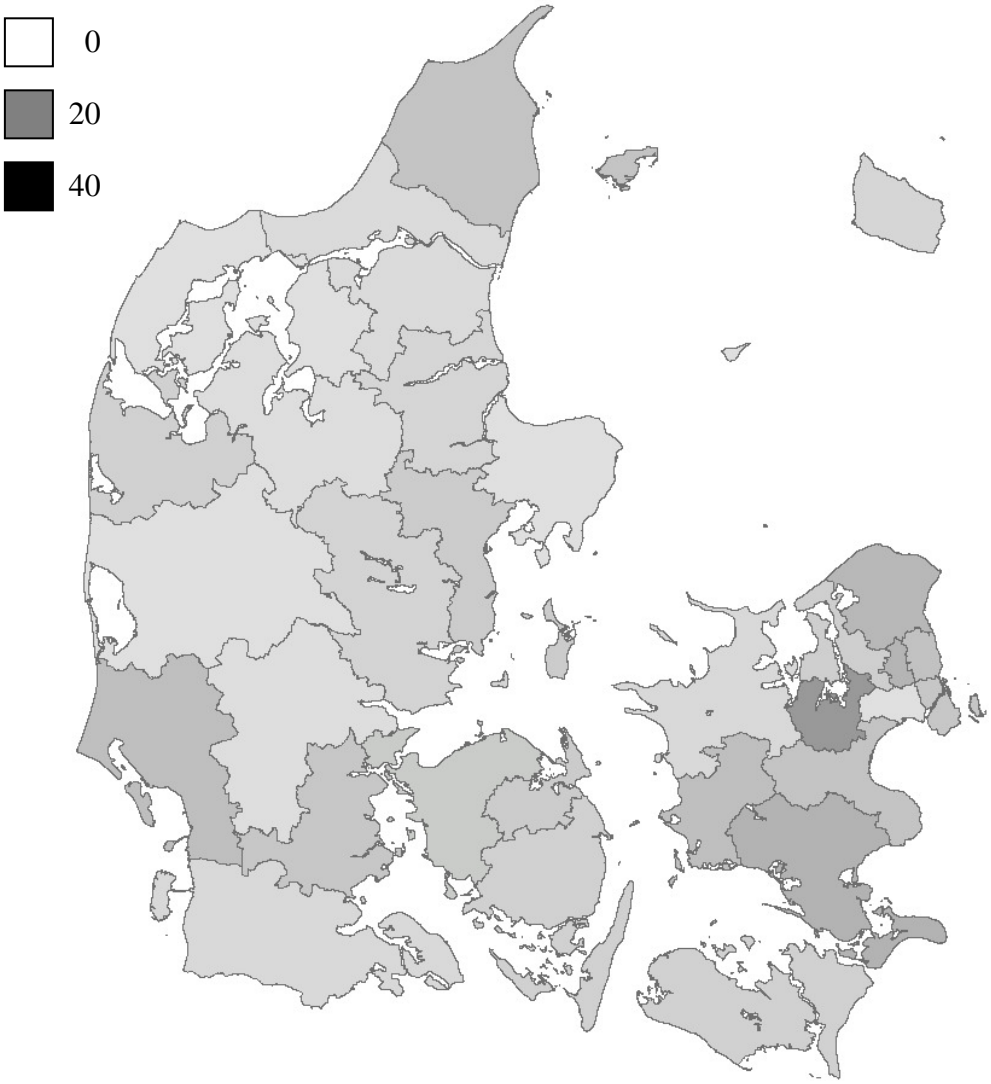
Note: The darker the shading, the greater the percentage of error. Pure white represents an error percentage of 0, and pure black an error percentage of 40. See appendix table 3 for a list of the error percentages for each tax centre.

The overall picture of significantly poorer general compliance with the regulations east of the Great Belt is once again blurred on the map as a result of variations between tax centres in each region. Zealand is thus not obviously darker in shade than the rest of the country, despite the fact that the three highest regional percentages of error recorded were for the three regions of Zealand.

In general, it is again very clear that the ability to conform to the regulations, represented here through the factor of percentages of errors made, is rather lower for complex individual taxpayers than for straightforward taxpayers.

If we consider the error percentages for all individual tax payers combined, both complex and straightforward, then the resulting national map is figure 11.

Figure 11. Error percentages shown by tax centre for all individual taxpayers



Note: The darker the shading, the greater the percentage of error. Pure white represents an error percentage of 0, and pure black an error percentage of 40. See appendix table 5 for a list of the error percentages for each tax centre.

In general, the shading is lighter than on the map for complex taxpayers but a little darker than that for straightforward taxpayers. This is of course due to the fact that the figures use weighted averages for the two types of taxpayer, with the average for straightforward taxpayers accounting for around two thirds of the total and that for complex taxpayers the remaining third.

Overall, the average level of error for the whole country is 8.0%. The difference between east and west is clearly significant here; the weighted average for

Zealand alone is over 9%, while it is exactly 7% for Jutland and Fyn combined. This difference is visible on the map to some extent.

Since the error percentages are generally higher for complex than for straightforward taxpayers, a high proportion of complex taxpayers in a given tax centre will raise the average error percentage for all individual taxpayers in comparison with the averages in other tax centres. On a regional level, the proportions of straightforward and complex individual taxpayers are homogenous across the country, except in Northern Jutland, where the proportion of complex taxpayers is rather lower than in the rest of the country, and Copenhagen, where it is somewhat higher. Thus the map of all taxpayers taken together does not significantly alter the conclusion concerning a comparison of east and west arrived at by considering complex and straightforward taxpayers separately, either qualitatively or quantitatively; the country is almost homogenous with respect to error percentages.

THE TAX GAP FOR PRIVATE INDIVIDUALS

Another way of expressing conformity with the rules in the country as a whole is to calculate the tax gap. In *Breakdown of the total tax and duties gap* on pages 15ff we defined the tax gap for private individuals as follows:

> The ***tax gap for individuals*** is the difference between the amount for a given tax year which is declared by all individual taxpayers and the amount which should have been declared if all taxpayers had provided precisely the information that they were obliged to in accordance with the rules, neither more nor less.

We have calculated the Danish tax gap for individuals for the tax year 2006 on the basis of the average adjustment amount for each tax centre. These average adjustment amounts were calculated on the basis of the compliance checks carried out for the study. As table 10 shows, the figure was DKK 5.03 billion for the complex and straightforward taxpayers taken in combination. This net adjustment figure was the result of increases totalling DKK 5.77 billion and reductions totalling DKK 0.73 billion. If the adjustments up and down are added together in order to obtain an impression of the overall amount of error that was made in tax declarations, the figure arrived at is DKK 6.50 billion.

Table 10. The tax gap for straightforward and complex individual taxpayers, broken down into increases and reductions

	The tax gap for individual taxpayers			Number of adjustments	
Adjustment	**Strfwd**	**Cmplx**	**Total**	**In sample**	**Est. whole country**
	— DKK millions —			*— Number —*	
Increases	2,898	2,871	5,769	642	248,593
Reductions	312	423	735	208	80,729
None	-	-	-	9,879	3,826,311
Net	2,586	2,448	5,034	10,729	4,155,388
Numerical	3,210	3,294	6,504		

Note: Adjustments are to taxable income from earnings and dividends. One extremely high adjustment of more than DKK 1.7 million was excluded from the calculations, since it would have had a marked effect on the tax gap.

Adjustments upward were generally much larger than those downward. This is evident from the fact that the sum of upward adjustments is nearly eight times greater than the sum of reductions, even though there were only just over three times as many individuals whose taxable income was increased as there were individuals for whom it was reduced. It is estimated that in the whole of Denmark taxable income was adjusted for almost 330,000 individuals, of whom around three quarters had their taxable income increased.

Table 10 also shows the distribution of the tax gap across straightforward and complex taxpayers. The amounts contributed to the tax gap by the two groups

were approximately equal, irrespective of whether the gap is calculated in net or numerical terms. This comparison obviously conceals a significant difference in the average adjustment amount, which was approximately twice as high for complex taxpayers as for straightforward individuals, since there are around half as many complex as straightforward taxpayers. The amounts of the increases were also approximately of the same order for straightforward and complex taxpayers, while the reductions were a little greater for the complex individuals. In relation to the numerical tax gap, reductions in taxable income averaged 10% for straightforward taxpayers and 13% for complex taxpayers.

Table 11 shows the tax gap for individuals broken down across the seven levels of the compliance scale. This provides an interesting overall view of the division between error and fraud for the tax gap. Insofar as we regard all adjustments made to the taxable incomes of opponents as manifestations of deliberate cheating, we can calculate the overall total value of fraud by private individuals as DKK 1.24 billion. Similarly, we can calculate the overall value of error at DKK 3.79 million by adding together the adjustment amounts for all the team player categories, i.e. those from 3 to 6.

In all, then, tax fraud accounts for only one quarter of the tax gap for individuals. It is, however, worth noting that the majority of the errors lie in the dark green category. This category alone accounts for 45% of the tax gap for private individuals. When an individual is categorised as dark green, it means that he or she is on the borderline of acting as an opponent – and such behaviour can easily tip over the edge into actual fraud. It is the task of SKAT to ensure that this does not happen.

Table 11. The tax gap for individual taxpayers, broken down by levels of compliance

Compliance level	0	1	2	3	4	5	6	Whole of Denmark
Percentage	0.0	0.2	0.6	3.1	4.0	3.8	88.2	100.0
Tax gap, DKK millions	169	669	402	2,291	1,468	8	26	5,034
- as a percentage of total income	38.1	33.8	7.3	5.4	3.5	0.02	0.00	0.60
- as a percentage of the whole of Denmark	3.4	13.3	8.0	45.5	29.2	0.2	0.5	100.0
Number in sample	4	26	63	333	432	406	9,464	10,729
Number in thousands in the whole of Denmark	1	10	25	129	167	157	3,666	4,155

The percentage distribution across categories shows that the proportion of the total number of taxpayers who are categorised as opponents and thus who cheated in their tax declarations makes up only 1% of the total. This 1% accounts for a quarter of the entire tax gap. The remaining three quarters of the tax gap, attributable to those who made errors in their declarations, is accounted for by

7% of all individual taxpayers. Thus, 8% of all taxpayers account for the entire tax gap for individuals.[10]

The finding that three quarters of the tax gap is the result of error alone provides support for SKAT's strategy for reducing the gap and the decision that the organisation has made to focus on information and guidance directed at helping taxpayers to complete their declarations correctly.

The tax gap is also shown as a percentage of total taxable income, i.e. the sum of income from earnings and from investments. This analysis shows, as might be expected, a very clear pattern of an increasing percentage of errors associated with declining levels of compliance with the rules. In particular, the dark yellow and red sectors display very high figures, with adjustments equivalent to more than one third of total taxable income.

In table 12, the tax gap for individual taxpayers is shown by region. The figures are for complex and straightforward taxpayers in total. The table shows that the tax gap for the whole of Denmark is under 0.60% of the income of individual taxpayers.

Table 12. The tax gap shown by region for complex and straightforward taxpayers combined, in DKK millions and in percentage of total taxable income

Region	The tax gap	The tax gap as a percentage of income	Checks	Individual taxpayers
	DKK millions	*Percent*	*— Total —*	
Copenhagen	679	0.57	1,402	543,056
Central and Southern Zealand	1,240	0.99	1,639	634,914
Central Jutland	577	0.36	2,189	847,676
Northern Jutland	641	0.70	1,306	505,851
Northern Zealand	735	0.45	1,857	719,382
Southern Denmark	1,162	0.67	2,335	904,509
Whole of Denmark	5,034	0.60	10,729	4,155,388
Straightforward taxpayers	2,586	0.55	2,719	2,798,715
Complex taxpayers	2,448	0.68	8,010	1,356,673

Note: One extremely high adjustment of more than DKK 1.7 million was excluded from the calculations, since it would have had a marked effect on the tax gap.

Table 12 also shows that the tax gap is highest in Central and Southern Zealand, where it is just under 1% of taxable income, followed by Northern Jutland and Southern Denmark, where the extent of errors and fraud together total around 0.7% of income. In contrast, the tax gap is smallest in Central Jutland at a level

[10] Strictly speaking, no part of the tax gap should be accounted for by anyone with a rating of 5 or 6. Where this does nevertheless occur, it is either because a case worker dealing with some very small adjustment has judged that the taxpayer in question should still be categorised as snow white or off-white, or because of an error in categorisation. In any case, the amount in question, a total of DKK 34 million, is equivalent to only 0.7% of the tax gap of over DKK 5 billion, and is thus scarcely a major problem.

of only 0.36% of income. This is around a half or even less of the levels in the three regions where the tax gap is largest in relation to taxable income.

Note that the pattern seen in the number of errors, where the majority occurred in the regions east of the Great Belt, is not repeated with regard to the size of the errors. Of the eastern regions, only Central and Southern Zealand is above the average national level. However, when the whole of the east of the country is compared with the whole of the west, there is a difference, with the tax gap comprising 0.65% of income in the east and only 0.56% in the west (not shown in the table).

The last two columns show the weighted totals of taxpayers in the sample and the actual number of taxpayers in each region and for Denmark as a whole. Measured in terms of the number of individual taxpayers, Southern Denmark is the largest region, followed by Central Jutland; Northern Jutland and Copenhagen are the smallest regions.

We saw earlier that the tax gaps for all complex taxpayers and all straightforward taxpayers were approximately the same in size. On an individual basis, complex taxpayers average about twice as large a contribution to the tax gap as straightforward individuals, since there are about twice as many straightforward individuals as complex. However, table 12 shows that the tax gap for complex individuals is "only" just under 25% larger than that for straightforward individuals when measured as a proportion of total income: 0.55% for straightforward individuals and 0.68% for complex individuals. A large proportion of the difference between the amounts for the different type of taxpayer is thus simply a matter of "volume" of income. Without doubt, the fact that tax situations are more complicated for complex taxpayers also makes it more likely that errors will occur. The opportunities for cheating are also greater for this group.

HISTORICAL TRENDS IN THE TAX GAP FOR INDIVIDUALS

Gunnar Viby Mogensen, former Head of Research at the Rockwool Foundation Research Unit, studied the trends in tax fraud in his doctoral thesis, which was entitled *Skattesnyderiets historie. Udviklingen i underdeklarationen i Danmark i 1900-tallet* (The history of tax fraud: Trends in under-declaration in Denmark in the twentieth century).

Viby Mogensen analysed under-declaration with respect to personal income, but did not consider under-reporting of VAT, smuggling, or company tax fraud. He also ignores tax avoidance, i.e. instances where there is technically no violation of the law, but where the intention of the law is flouted.

Under-declaration can be positive or negative, respectively equivalent to upward or downward adjustments in taxable income. Under-declaration is thus the same as we term the adjustment amount, in that both are calculated on the basis of the income declared. The sum of under-declaration for the whole country thus corresponds to what we term the tax gap. There are however a few differences in the delimitation of the tax gap and the method of calculating it between Viby Mogensen's study and the Compliance Survey by SKAT.

First, Viby Mogensen's results are based solely on checks carried out by the tax administration in Århus, and not from all parts of the country. Second, the retrospective checks were carried out using a different approach than that adopted for the Compliance Survey. In addition, the results presented by Viby Mogensen included the self-employed as well as wage-earners and people with transfer incomes. However, the thesis also presented figures for individual taxpayers as defined in this study.

Viby Mogensen examined randomly selected samples for selected years from the period 1950-1980 from the tax declaration archives for residents of Århus, as described in Chapter 8 of his thesis. In total, the declarations of 6,400 taxpayers were checked, from the years 1954, 1959, 1972 and 1980. The extent of under-declaration for the year 2006, whether deliberate or through error, revealed in the present study can with caution be compared with the results from Viby Mogensen's thesis.[11]

This comparison is presented in table 13, which shows that there has been a drop in the level of errors and deliberate under-declaration from over 2% of taxable income in the 1950s to 0.92% in 1980s and to 0.60% in 2006.[12] The fall in the extent of tax fraud over the past 50 years is even clearer if we compare it with the figure of 0.36% under-declaration for Central Jutland, the tax region of which Århus is a part (see table 12).

A review of the archive material showed that the under-declaration for 1980 was spread across "more or less all social groups". It also turned out that the under-declaration found, measured in terms of an average percentage upward adjustment across the whole of each of five income brackets, was more or less equally great in all the income groups.

There thus exists some previous material in Denmark on the extent of tax fraud in the past, calculated on the basis of the Tax Administration's own data for a single area, Århus, which can with caution be scaled up to indicate the extent of tax fraud and tax error in the whole country.

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[11] Viby Mogensen drew attention to the fact (chapter 7, note 3) that the Municipality of Århus and other large municipalities were among the top one third in the country with respect to tax assessment efficiency during the period covered by the study, which means that the extent of under-declaration for the country calculated on the basis of data from Århus would have been a little above the level that would have been identified across the whole country.

[12] Note that Viby Mogensen presented the tax gap in relation to taxable income from earnings and transfer incomes, whereas the tax gap in the present report, based on checks on compliance for the year 2006, related the tax gap to total taxable income, meaning the sum of income from earnings and transfers plus income from shares. However, until 1991 income from shares was included in the concept of taxable income from earnings, and the two calculations of the tax gap are thus in harmony. There were also no separate deductions of labour market contributions on salaried income before 1980, but since our calculations concern taxable income before the deduction of labour market contributions there is again no difference. Thus, the effect of labour market contributions on tax revenue is not included in the calculations, just as we also do not calculate the tax revenue effects of tax payments in general.

Table 13. The size of the tax gap over time for individual taxpayers as a percentage of taxable income

	Århus				Whole of Denmark
	1954	1959	1972	1980	2006
Tax gap for individual taxpayers as a percentage of total taxable income	2.01	2.25	1.44	0.92	0.60
Number of taxpayers	1,036	936	2,250	2,134	10,729

Note: Viby Mogensen's figures for the years 1954, 1959, 1972 and 1980 are for Århus, whereas the figures for 2006 are for the whole of Denmark. The taxable income used in the calculation for 2006 includes income from investments in order to make the two datasets comparable, as explained in the text.

Sources: Table 8.3 on page 277 of Gunnar Viby Mogensen (2003), *Skattesnyderiets historie. Udviklingen i underdeklarationen i Danmark i 1900-tallet* and new calculations for the tax year 2006 carried out by SKAT in connection with the Compliance Study.

The Compliance Study calculated the tax gap in terms of adjustments to taxable income, i.e. figures before tax, which was in line with Viby Mogensen's study. The calculation thus differed from the most recently published official figure for the tax gap in the USA, which is also based on net increases, but on increases in the tax actually paid. In other words, the Americans calculate the direct net increase in tax revenue rather than the increase in the tax base; see Eric Toder (2007), *What is the Tax Gap?*[13]

BOTTOM-UP AND NATIONAL ACCOUNTS METHODS OF MEASURING THE TAX GAP

As part of SKAT's strategic programme, the organisation tracks trends in total under-declaration of personal income. Various methods can be used to measure the tax gap (see *The calculation of the tax gap for individuals on the basis of the compliance study*, page 17. As previously explained, a general distinction is made between *top-down* and *bottom-up* methods, the latter approach being used as the basis for the calculations in this report. Traditionally, however, SKAT has used the National Accounts method, which is a top-down approach.

The Danish Finance Act requires SKAT to calculate the tax gap annually using the National Accounts method. Under-declaration is given as a proportion of GDP, and is given as a five-year moving average. In 2006, the Danish tax gap was calculated using the National Accounts method as approximately DKK 58 billion, or 3.6% of GDP. This figure is a five-year moving average for the period 2002 to 2006.

There are several explanations for the difference between the figure of just over DKK 5 billion calculated on the basis of the compliance checks and the figure of almost DKK 60 billion calculated using the National Accounts method.

[13] Available for download at http://www.urban.org/publications/1001112.html

First, undeclared work, which is defined as being unregistered and thus is largely not covered at all by the Compliance Survey, is included in the estimate using the National Accounts method. Gunnar Viby Mogensen's research shows that up to two-thirds of under-declaration as calculated using the National Accounts method is related to undeclared work (*Skattesnyderiets historie* p 380, Figure 12.8). Studies by the Rockwool Foundation have shown that a very large proportion of undeclared work – around 60% of it – is paid for in kind or in return favours, and such payments are extremely difficult for SKAT to trace.

Second, it is not possible for SKAT to discover all tax fraud through even very thorough checks of tax declarations, while in principle these amounts are included in the National Accounts calculation method. It should be noted, however, that even if tax declaration checks does not uncover such fraud, it is often revealed through actions taken in collaboration with other authorities.

Third, the Compliance Survey is concerned only with private individuals, defined here as wage earners, students, pensioners, the unemployed, etc but not the self-employed, who are also included in calculations based on the National Accounts method.

Fourth, as explained previously, the National Accounts method is based on a moving average of data from the previous five successive years (2002-2006), while the Compliance Survey is based on one tax year only, 2006.

Finally, and just as important, there is a greater degree of uncertainty associated with the calculation of the tax gap by the National Accounts method.

In addition to factors connected with the delimitation of what is measured, there are significant differences between the two methods of calculation. The bottom-up method makes it possible to break down the tax gap by all factors on which information is available concerning individuals – for example by age, gender, income and tax centre, or as in table 11 by level of compliance. None of these possibilities exist with the National Accounts method. In addition, as mentioned earlier, the bottom-up method offers a unique opportunity to break down the tax gap by various types of error. The following section presents a series of examples of this.

TYPES OF ERROR

For the purposes of the compliance survey it has been important to record the various types of error that are made. In the section of the survey concerning individual taxpayers it has been possible to examine where errors occur using the various fields on the tax declaration form. For some of the fields, however, it is not possible to identify immediately the precise source of error. For example, with respect to the tax deduction for transportation to and from work, errors can arise in determining the distance between home and work, in calculating the number of working days in the year, or in selecting the wrong rate per kilometre (which is dependent on whether a person lives more or less than 100 km from his or her workplace).

It was decided after careful study that there were five specific fields on the tax declaration form where it was necessary to make a more detailed categorisation of error type in order to be able to use the error type analysis in further work on identifying areas which needed new initiatives to reduce error. These were:

Field 29: Other deductions from personal income

Field 37: Rental income from the letting of a normal residence for part of the year, a holiday home, or a room

Field 39: Other income from capital

Field 51: Transportation to and from work

Field 53: Other employment-related costs[14]

We present below a general division of errors according to the main areas of personal income tax, and then a rather more detailed breakdown – first of the four main categories in which errors are greatest, and then in the five selected fields. As in the previous sections, the figures presented here are all calculated at the macro level, and can thus be seen as components of the total tax gap for individual taxpayers.

Table 14 displays the first results of analyses of where errors typically occur on the tax declaration forms. The errors are presented using the numerical adjustment amounts, scaled up to the macro level. The amounts can thus be regarded as elements of the numerical tax gap for individual taxpayers. The table is constructed so that it follows the sequence of the Danish tax declaration form, showing first personal income (income from salary, etc.), then deductions from personal income, income from capital, etc.

The table shows that errors and fraud in the fields related to personal income amounted to DKK 3.3 billion. It is thus this section that accounts for the by far the largest proportion – 46% – of the overall numerical adjustment amount. However, if this amount is viewed in relation to the total of personal income declared in 2006, the percentage of error is only 0.4%.

[14] Appendix 2 contains a detailed overview of the error categories used for these five fields.

Among the main sections of the tax form, the one that accounts for the largest amount of error in percentage terms is income from investments in shares. Errors here amounted to fully 8% of the declared amount after adjustments (see note to table 14). Errors in declaring income from investments in shares also accounted for 18% of the total numerical adjustment amount of DKK 7.2 billion, and was thus one of the larger contributors to the total.

Table 14. Numerical adjustment amounts and declared amounts in DKK millions, and percentages of total error shown for the main sections on the Danish tax form

Main section	Numerical adjustment amount	Total amount declared [1)]	Percentage of error	Num. adj. as % of total
Personal income	3,333	907,614	0.4	46.3
Deductions, personal income	257	13,320	1.9	3.6
Income from capital	686	13,028	5.3	9.5
Deductions, income for capital	332	57,877	0.6	4.6
Assessed deductions	1,148	36,140	3.2	15.9
Income from shares	1,281	16,547	7.7	17.8
Overseas income	84	2,989	2.8	1.2
Other	77	1,020	7.5	1.1
Total [2)]	7,199	1,048,533	0.7	100.0

[1)] This figure is based on the most recent declarations for 2006 of the 10,729 taxpayers in the random sample. The amount includes both the declared amount and the amounts of any adjustments made by the Tax Administration, and is scaled up to reflect the figure for the whole of Denmark.

[2)] Note that the total numerical adjustment amount of DKK 7.2 billion is higher than the numerical tax gap of DKK 6.5 billion (see table 10). This is because the calculation of the total adjustments of DKK 7.2 billion is made numerically for each main section (Personal income, income from capital, etc.) on the tax declaration form. If, for example, a taxpayer has adjustments made to his or her personal income and income from capital of DKK -5,000 and DKK +10,000 respectively, an amount of DKK + 5,000 is carried over for this taxpayer into the calculation of total taxable income, i.e. it forms a part of the calculated figure of DKK 6.5 million. However, when each section of the tax declaration is counted separately, the numerical adjustment for this taxpayer is DKK +15,000, the sum of the two errors irrespective of the plus or minus sign, and this forms a part of the calculated figure of DKK 7.2 billion.

If we disregard the section marked *Other*,[15] the next highest proportion of errors, 5%, occurs with in relation to income from capital. The third largest error percentage is associated with assessed deductions, with the numerical adjustment amount representing 3% of the total amount of assessed deductions. This section accounts for 16% of the total numerical adjustment amount.

Table 15 presents a more detailed account of the subsections.

[15] The section headed *Other* covers deductions in income for seamen, and various adjustments related to income from businesses (Fields 111-118). There were very few adjustments relating to income from businesses in the declarations of individual taxpayers, and those there were mostly occurred because amounts had been entered in the wrong field.

Table 15. Numerical adjustment amounts and declared amounts in DKK millions, and percentages of total error shown for selected main sections and fields within them on the Danish tax form

Main section *Field number. Field description*	Numerical adjustment amount [1)]	Total amount declared [2)]	Percentage of error	Av. adj. DKK '000	No. of adj.
Personal income	3,338	907,614	0.4	32	267
11. Salary, fees for board membership, use of car, etc.	2,175	664,324	0.3	58	85
12. Honoraria and fees	251	3,989	6.3	49	20
14. Anniversary bonuses and retirement payments	.	1,485	.	.	.
15. Other personal income, e.g. provision of telephone, child care, cleaning, etc.	397	2,220	17.9	19	67
16. Pensions, unemployment pay, etc. and student grants	385	231,774	0.2	17	41
17. Distributions from foundations etc.	95	3,445	2.7	7	39
18. Testimonials etc	.	285	.	.	.
19. Maintenance payments	13	83	15.9	14	3
20. Other personal income not liable to deduction of labour market contribution	22	285	7.8	11	12
Income from capital	952	13,028	7.3	13	348
31. Interest	172	10,414	1.7	13	28
33. Payments from reserve funds	.	15	.	.	.
34. Investment funds	4	539	0.8	11	2
35. Profit/loss on ship investment schemes	55	414	13.4	13	21
36. Profit/loss on completed ship investment schemes	49	116	42.3	41	9
37. Rental income from house/holiday home	102	636	16.1	11	53
38. Interest on mortgage deeds [4)]	138	280	49.2	6	111
39. Other income from capital	431	614	70.2	20	124
Assessed deductions	1,167	36,140	3.2	7	632
51. Transportation to and from work	688	9,781	7.0	6	385
52. Union fees	107	20,949	0.5	6	46
53. Other employment-related costs	166	641	25.9	17	56
54. Standard deduction for child care	50	2,036	2.5	26	9
55. Donations to associations	37	464	7.9	2	66
56. Maintenance payments	112	2,041	5.5	6	69
57. Payment to an account for establishing a business	7	228	3.1	7	1
Income from shares	1,317	16,547	8.0	25	261
61-65. Income from shares	54	12,241	0.4	22	9
66-67. Other share income	1,066	3,807	28.0	26	212
68. Transitional ordinance shares	198	483	40.9	22	40
Fields 313, 314, 503 and 504 Overseas share income [5)]	.	16	.	.	.

te that the numerical adjustment amounts for each of the three main sections *Income from capital, Assessed deductions* and *Income from shares* do not tally with the figures in table 14. This is because the amount here is calculated as the sum of the numerical adjustments for each sub-section separately. If a taxpayer has adjustments in Fields 31 and 39, for example, of DKK +10,000 and DKK -5,000 respectively, this counts DKK 5,000 towards the numerical adjustment amount for income from capital in table 14, while here it counts DKK 15,000, as it is a sum of the changes in each sub-section.

[2)] This figure is based on the declarations for 2006 of the 10,729 taxpayers in the random sample. The amount includes both the declared amount and the amounts of any adjustments made by the Tax Administration, and is scaled up to reflect the figure for the whole of Denmark.

[3)] The number of adjustments is the weighted total for the random sample, but the amounts in the table are the scaled-up amounts for the whole of Denmark.

[4)] The full wording for Field 38 is *Interest on mortgage deeds not held on deposit. Profit/loss on holdings in investment funds and investment companies that invest in mixed investments and bonds.*

[5)] The field numbers are from a special declaration form no. 04.012 *Declaration of overseas income*. Income from shares covered here includes foreign yields and profit/loss on shares, whether listed or unlisted, that are not registered in Denmark.

Particular problems occur with regard to *Income from stocks and shares*, *Income from capital* and *Assessed deductions* – the main sections where the proportions of error are greatest. In addition, the *Personal income* section is broken down further, since the numerical adjustments here account for almost half the total adjustment amount.

The single field where the proportion of error is greatest in terms of the actual amount of money is *Other income from capital*, Field 39 on the declaration form. For 2006, the numerical adjustment amount for this field accounts for fully 70% of the total amount declared in the field.

Other income from capital covers profits from property, profit or loss on the cashing in or sale of debts in Danish kroner (for example bonds, mortgage deeds and other securities), profit or loss on debts in foreign currencies, and profits from life insurance policies, etc. As mentioned earlier, a more detailed breakdown of errors was made for this field, and this will be described below.

The numerical adjustment amounts for the fields *Interest on mortgage deeds not held on deposit* (Field 38) and *Profit/loss on ship investment schemes* (Field 36) are very high in relation to the total amount on the tax declaration: 49% and 42% respectively. Note that adjustments under Field 38 are primarily related to profit and loss on mixed and bond-related investments with investment funds and companies.

The fourth largest proportion of errors occurred with regard to *Transitional ordinance shares,* where the numerical adjustment amount is 41% of the total amount declared under Field 68. There are also relatively high proportions of errors with respect to *Other income from shares* (Fields 66-67) and *Other employment-related costs* (Field 53), where the numerical adjustment amounts are 28% and 26% respectively of the total amounts declared in these fields. *Other income from shares* is also the largest single field in terms of adjustments, with adjustments made totalling over DKK 1 billion. The next largest field is deductions for transportation costs, where adjustments amount to nearly DKK 700 million.

There was a clear tendency, perhaps not surprisingly, for errors to be greatest in the sections of the tax declaration where the amount of information provided by third parties is relatively small. This is illustrated clearly by the declarations of income from capital, where the percentage of error is very high, as described above, especially for Fields 36, 38 and 39. This same tendency is also very clear with respect to Fields 66-68 related to shares, where the problem is in part connected with the fact that SKAT only receives information from third parties on the sale of shares but not on purchases, and thus cannot immediately calculate the size of the profit or loss. Obligatory registration of purchase information for bond-based investment fund certificates would also reduce the number of errors under Field 38.

Deductions for transportation expenses to and from work, the area for which errors are largest in absolute terms, is also a good example of a place where insufficient information is provided by third parties. In contrast, the information provided by third parties regarding income in the form of interest (Field 31) is typically very good; here, the adjustment amount is under 2% of the total amount of interest.

The proportion of error for *Personal income* as a whole is very modest at only 0.4% of the total amount. There are, however, fields on the tax form where there are major levels of error, both in relative and absolute terms, especially for *Other personal income* and *Honoraria and fees*. In the case of the former, it is perhaps thought-provoking that 99.8% of the adjustments are increases (see appendix table 6).

By far the largest adjustments in absolute terms for personal income come within Field 11, which accounts for two-thirds of the adjustment amount for this section of the declaration form. The proportion of error is however very modest, accounting for only 0.3% of the declared amount. The number of errors is also relatively small, although this does, of course, mean that the adjustments that are made are rather large. At an average of DKK 58,000 per adjustment, the numerical amount here is the greatest among all the fields and, for example, three times as great as for Field 15, nine times as great as for Field 51 and fully twenty-five tames as great as the average adjustment amount for Field 55.

Table 16 shows whether the adjustments are increases or reductions for each of the main sections on the declaration form, and the size of the proportions of the total numerical adjustment represented by each section.

As mentioned earlier in connection with table 14, *Personal income* is by far the largest item in the total numerical adjustment at DKK 3.3 billion. The vast majority of adjustments for this item are increases, 88% of the adjustment amounts being upward.

In the field concerning income from shares, which is the next largest item with respect to adjustments, there is an even larger proportion of increases: DKK 1.2 billion in increases as opposed to only DKK 0.1 billion in reductions, accounting for 92% and 8% respectively of the adjustment amounts for share income.

With regard to deductions – *Deductions in personal income, Deductions in income from capital* and *Assessed deductions* – it should be noted that when the

adjustment made is downward, this means that the amount of the deduction is actually increased.

Table 16. Adjustment amounts for the main sections of the tax declaration form, showing increases and reductions

Main section	Adjustment Amounts				Adj. up/down
	Numerical	Net	Up	Down	
	— DKK millions —				Percent
Personal income	3,333	2,550	2,941	391	88 / 12
Deductions, personal income	257	197	227	30	88 / 12
Income from capital	686	415	550	136	80 / 20
Deductions, income for capital	332	166	249	83	75 / 25
Assessed deductions	1,148	603	876	272	76 / 24
Income from shares	1,281	1,071	1,176	105	92 / 8
Overseas income	84	-39	23	62	27 / 73
Other	77	69	73	4	95 / 5
Total	7,199	5,034	6,116	1,082	85 / 15

There are relatively high proportions of taxpayers who cheat themselves with respect to the last two categories. The amounts involved in both cases are equivalent to around a quarter of the overall adjustment amount, and result from the deductions declared being too small, or from no deductions being made at all. By far the largest proportion of "self-swindling" occurs with respect to the declaration of *Overseas income*, where almost three-quarters of the adjustments are in the taxpayer's favour. However, this figure is based on relatively few cases and should be regarded as less reliable than the figures for the other items.

Table 15 above shows that by far the greatest number of adjustments in assessed deductions concern the deduction for transportation to and from work. These adjustments make up almost DKK 700 million of the numerical adjustment amount. Of this amount, cuts to the amount deducted account for DKK 521 million (not shown in the table); in isolation, these would lead to an increase in taxable income, and thus count as adjustments upward. In net terms, the tax base is increased by adjustments to this item by DKK 353 million (see appendix table 6).

As mentioned previously, a more detailed breakdown was made of the types of error under five selected fields on the tax declaration form. The results of this breakdown are shown in table 17.

For technical reasons, it was unfortunately not possible to register the amounts involved in connection with each type of error in KMD, SKAT's reporting system, which is why table 17 shows only the number of errors and not the amounts involved. The table shows that there were very few instances of several of the error types recorded. The comments made below are confined to those areas where there are sufficient observations to comment with a degree of statistical certainty.

Table 17. Classification by error type for selected fields on the tax declaration form

Types of error	Percent	Number
Other deductions from personal income (Field 29)	100	10
- SL § 6a (distinguishing between business-related and private costs)	30	3
- Other	70	7
Rental income from letting (Field 37)	100	30
- Normal residence – standard deduction	3	1
- Normal residence – accounting method	10	3
- Holiday home – standard deduction	53	16
- Holiday home – accounting method	3	1
- Room in a house – standard deduction	7	2
- Room in a house – accounting method	3	1
- Change of basis	-	-
- Other	20	6
Other income from capital (Field 39)	100	111
- Profit on real estate	3	3
- Profit on rate changes	55	61
- Profit on shares	29	32
- Other	13	15
Transportation costs to and from work (Field 51)	100	318
- Rates	10	33
- Number of days	21	66
- Distance/route	18	58
- 24 km basic reduction	7	23
- Deductions claimed for transportation paid for by employer	2	8
- Deductions claimed when costs had been reimbursed free of tax	3	10
- Other (including multiple problems or generally excessively high figure)	38	120
Other employment-related costs (Field 53)	100	32
- Rules connected with journeys – other points	37	12
- SL § 6a (distinguishing between business-related and private costs)	13	4
- Other	50	16

The field which clearly gives rise to the greatest number of errors among the five selected fields is that concerned with transportation to and from work. As the table shows, taxpayers tend to make errors in calculating both the number of days and the distance. Thus, 21% of the errors relating to transportation are concerned with incorrect calculation of the number of days, and 18% are concerned with incorrect calculation of the distance between home and work.

The category *Other* for transportation includes a variety of other errors, and also refers to the lack of adequate documentation for the deductions made.[16]

With regard to *Other income from capital*, where errors occur next most frequently, 55% of errors relate to profit on changes in rates, while errors in profits from shares make up 29% of the total number of errors.

This concludes the presentation of the main results from the Compliance Survey for Individual Taxpayers for the tax year 2006. The material will be subjected to closer analysis in due course, and it is expected that this will lead to a fuller understanding of the results presented here.

[16] Note that the number of observations in Table 17 concerning errors in specific fields does not tally with the number of observations recorded in Table 15. This is because detailed records of error types were not always made when errors were discovered in the declaration.

APPENDIX 1. DEFINITIONS OF *COMPLEX* AND *STRAIGHTFORWARD* TAXPAYERS

Complex taxpayers are regarded as all those who have entries in one or more of the following fields on the tax declaration form:

- 12/210 Honoraria and fees in the form of certain benefits, before social security contributions
- 29/425 Other deductions in personal income
- 35/217 Profit/loss on certain ship investment schemes
- 36/254 Profit/loss on the termination of certain ship investment schemes
- 37/218 Rental income from the renting of a normal residence, a summer residence or a room
- 38/239 Interest on mortgage deeds not held on deposit. Profit/loss from investment associations and companies specialising in mixed investments or bonds
- 51/417 Transportation – only complex income earners who also enter tax-free reimbursement of transportation costs
- 53/449 Other employment-related costs
- 61/501 Yield from Danish shares held on deposit
- 62/505 Yield on Danish shares or investment associations not covered in Field 61
- 63/509 Yield from foreign listed shares
- 64/310 Declared yield from unlisted Danish shares
- 65/316 Yield from unlisted Danish shares, etc. not covered by Field 310
- 66/502 Profit and loss on listed shares where tax on yields is not withheld at source
- 67/312 Profit and loss on unlisted shares where tax on yields is not withheld at source
- 68/828 Proportion of profit on shares declared in Field 502 or Field 312 which have been owned for under 3 years

Complex taxpayers also include all those who have submitted an appendix to the tax declaration concerning:

- Overseas income
- Declared losses on shares
- Declared losses on real estate

In addition, taxpayers are treated as *complex* if – despite the lack of any declaration of taxable or deductible amounts – there is information registered for them concerning:

- Transfer of securities (purchase or sale of shares, investment bonds, financial contracts, etc.)
- Purchase or sale of real estate.

All other wage earners, etc. not covered by the above are considered to be *straightforward* taxpayers.

APPENDIX 2. ERROR REGISTRATION FOR INDIVIDUAL TAXPAYERS

Field 29: Other deductions from personal income

1) - SL § 6a (distinguishing between business-related and private costs)
2) LL § 9B (business-related transportation)
3) Other

Field 37: Rental income from the letting of a normal residence for part of the year, a holiday home, or a room

1) Normal residence – standard deduction
2) Normal residence – accounting method
3) Holiday home – standard deduction
4) Holiday home – accounting method
5) Room in a house – standard deduction
6) Room in a house – accounting method
7) *Change of basis*
8) Other

Field 39: Other income from capital

1) Profit on real estate
2) Profit on rate changes
3) Profit on shares
4) Other

Field 51: Transportation to and from work

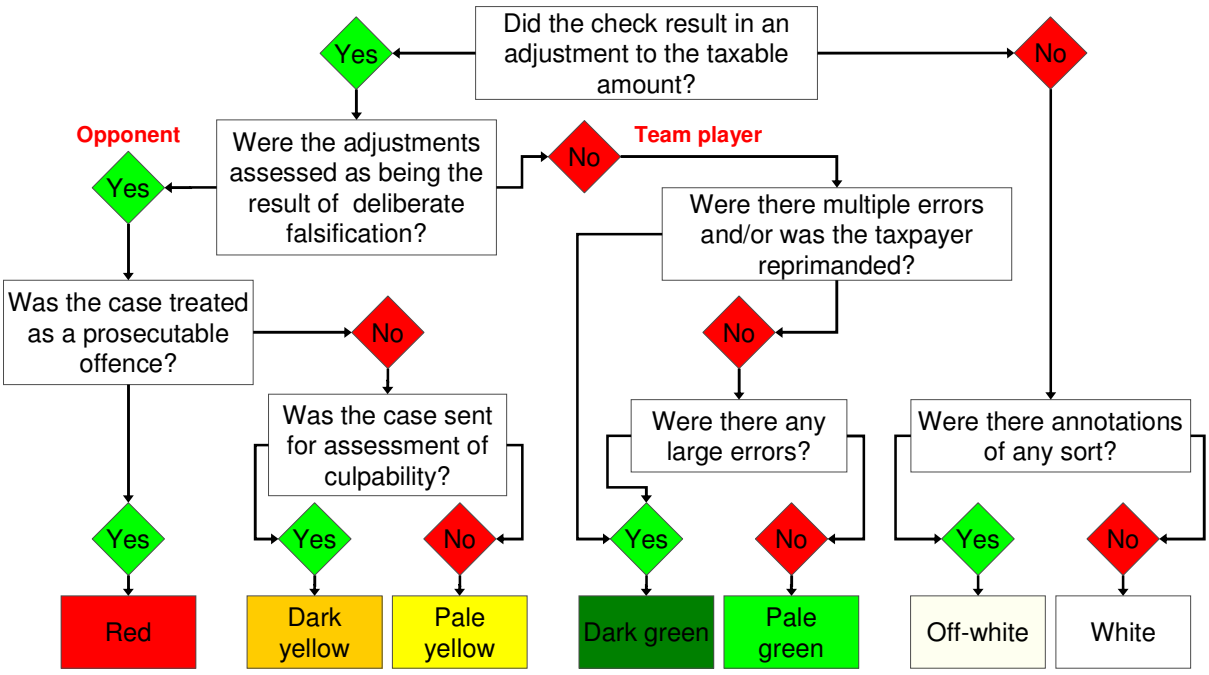
1) Rates
2) Number of days
3) Distance/route
4) 24 km basic reduction
5) Deductions claimed for transportation paid for by employer
6) Deductions claimed when costs reimbursed free of tax
7) Other (including multiple problems or generally excessively high figure)

Field 53: Other employment-related costs

1) Travel rules – requirements regarding distance
2) Travel rules – deduction claimed when receiving tax-free reimbursement
3) Travel rules – other points
4) SL § 6a (distinguishing between business-related and private costs)
5) Other

APPENDIX FIGURES

Appendix figure 1. Process diagram for ratings



Appendix figure 2. Explanatory comments on compliance scale for taxpayers

Level 6 **Snow white**	The compliance check has **not** given rise to an adjustment to taxable income. There were **no** reservations giving rise to annotations. *(The case is shelved after a simple check or after a reassessment that does not result in any adjustment.)*
Level 5 **Off-white**	The compliance check has **not** given rise to an adjustment to taxable income. Some guidance has been given, for example in the form of a recommendation for changes in the future. *(Reassessment does not lead to any change in the taxable amount.)*
Level 4 **Pale green**	The compliance check has given rise to an adjustment to taxable income. The error is evaluated as having been unintentional, purely a mistake. *(An easily discoverable error.)*
Level 3 **Dark green**	The compliance check has given rise to an adjustment to taxable income. The error is evaluated as being the result of deficient knowledge of the law and the regulations. *(An error in understanding and/or a matter of forgotten/missing deductions.)*
Level 2 **Pale yellow**	The compliance check has given rise to an adjustment to taxable income. The error is evaluated as being deliberate or based on an improbable interpretation of the law and regulations. *(An evasive attitude to taxation.)*
Level 1 **Dark yellow**	The compliance check has given rise to an adjustment to taxable income. The error is evaluated as being deliberate or based on an extremely dubious interpretation of the law and regulations – a serious error. *(Tax evasion.)* The case is assessed as not being a prosecutable offence.
Level 0 **Red**	The compliance check has given rise to an adjustment to taxable income. The error is evaluated as having been a deliberate breach of the law – a serious error. The case is sent for assessment of culpability or is treated as a prosecutable offence.

Team player / wishes to cooperate, but may lack the necessary knowledge

Opponent / not willing to cooperate, and may lack the necessary knowledge

Source: The figure is taken from the guidance document produced by the Working Group on Compliance for Individual Taxpayers.

APPENDIX TABLES

Appendix table 1. Population of taxpayers, straightforward and complex, by tax centre and region

Tax centre	Straightforward taxpayers		Complex taxpayers		Taxpayers in total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
8030 Hjørring	76,998	2.8	48,238	3.6	125,236	3.0
8031 Aalborg	124,120	4.4	77,034	5.7	201,154	4.8
8033 Thisted	53,241	1.9	24,037	1.8	77,278	1.9
8034 Skive	66,578	2.4	35,605	2.6	102,183	2.5
Northern Jutland	320,937	11.5	184,914	13.6	505,851	12.2
8035 Struer	45,573	1.6	29,422	2.2	74,995	1.8
8039 Randers	69,612	2.5	29,857	2.2	99,469	2.4
8040 Grenaa	40,918	1.5	21,006	1.5	61,924	1.5
8047 Århus	196,512	7.0	86,067	6.3	282,579	6.8
8048 Herning	84,754	3.0	48,195	3.6	132,949	3.2
8050 Horsens	128,116	4.6	67,644	5.0	195,760	4.7
Central Jutland	565,485	20.2	282,191	20.8	847,676	20.4
8052 Billund	86,013	3.1	40,412	3.0	126,425	3.0
8053 Esbjerg	86,170	3.1	39,865	2.9	126,035	3.0
8054 Haderslev	72,418	2.6	34,672	2.6	107,090	2.6
8055 Tønder	81,103	2.9	56,528	4.2	137,631	3.3
8056 Middelfart	76,927	2.7	40,349	3.0	117,276	2.8
8057 Odense	119,148	4.3	47,626	3.5	166,774	4.0
8058 Svendborg	80,063	2.9	43,215	3.2	123,278	3.0
Southern Denmark	601,842	21.5	302,667	22.3	904,509	21.8
8060 Maribo	62,239	2.2	25,389	1.9	87,628	2.1
8061 Næstved	84,482	3.0	51,296	3.8	135,778	3.3
8062 Korsør	55,789	2.0	23,597	1.7	79,386	1.9
8066 Køge	95,438	3.4	45,485	3.4	140,923	3.4
8068 Roskilde	48,353	1.7	31,278	2.3	79,631	1.9
8069 Holbæk	78,939	2.8	32,629	2.4	111,568	2.7
Central and Southern Zealand	425,240	15.2	209,674	15.5	634,914	15.3
8079 København	399,362	14.3	143,694	10.6	543,056	13.1
Copenhagen	399,362	14.3	143,694	10.6	543,056	13.1
8081 Høje-Taastrup	124,831	4.5	41,561	3.1	166,392	4.0
8082 Ballerup	58,998	2.1	25,514	1.9	84,512	2.0
8083 Nærum	114,032	4.1	64,589	4.8	178,621	4.3
8084 Frederikssund	55,897	2.0	29,803	2.2	85,700	2.1
8085 Fredensborg	108,407	3.9	63,110	4.7	171,517	4.1
8087 Bornholm	23,684	0.8	8,956	0.7	32,640	0.8
Northern Zealand	485,849	17.4	233,533	17.2	719,382	17.3
Total	2,798,715	100.0	1,356,673	100.0	4,155,388	100.0

Appendix table 2. Actual and weighted numbers of taxpayers in the random sample, straightforward and complex, by tax centre and by region

Tax centre	Straightforward taxpayers		Complex taxpayers		Taxpayers in total	
	Actual	*Weighted*	*Actual*	*Weighted*	*Actual*	*Weighted*
8030 Hjørring	91	75	267	285	358	323
8031 Aalborg	91	121	267	455	358	519
8033 Thisted	89	52	267	142	356	200
8034 Skive	91	65	267	210	358	264
Northern Jutland	362	312	1,068	1,092	1,430	1,306
8035 Struer	91	44	267	174	358	194
8039 Randers	91	68	267	176	358	257
8040 Grenaa	91	40	267	124	358	160
8047 Århus	91	191	267	508	358	730
8048 Herning	91	82	267	285	358	343
8050 Horsens	90	124	267	399	357	505
Central Jutland	545	549	1,602	1,666	2,147	2,189
8052 Billund	91	84	267	239	358	326
8053 Esbjerg	91	84	267	235	358	325
8054 Haderslev	91	70	267	205	358	277
8055 Tønder	89	79	267	334	356	355
8056 Middelfart	91	75	267	238	358	303
8057 Odense	90	116	267	281	357	431
8058 Svendborg	91	78	267	255	358	318
Southern Denmark	634	585	1,869	1,787	2,503	2,335
8060 Maribo	91	60	267	150	358	226
8061 Næstved	91	82	267	303	358	351
8062 Korsør	91	54	267	139	358	205
8066 Køge	91	93	267	269	358	364
8068 Roskilde	91	47	267	185	358	206
8069 Holbæk	90	77	267	193	357	288
Central and Southern Zealand	545	413	1,602	1,238	2,147	1,639
8079 København	89	388	267	848	356	1,402
Copenhagen	89	388	267	848	356	1,402
8081 Høje-Taastrup	91	121	267	245	358	430
8082 Ballerup	90	57	267	151	357	218
8083 Nærum	91	111	267	381	358	461
8084 Frederikssund	91	54	267	176	358	221
8085 Fredensborg	90	105	267	373	357	443
8087 Bornholm	91	23	267	53	358	84
Northern Zealand	544	472	1,602	1,379	2,146	1,857
Total	2,719	2,719	8,010	8,010	10,729	10,729

Appendix table 3. Error percentages, numerical adjustment amounts and compliance ratings for complex taxpayers, by tax centre

Tax centre	No errors	Errors	Confidence interval	Adj. DKK '000	Rating	Checks
	— Percent —		Pct. point +/–	—— Average ——		Number
8030 Hjørring	90.3	9.7	3.5	12	5.7	285
8031 Aalborg	90.6	9.4	3.5	18	5.6	455
8033 Thisted	89.1	10.9	3.7	33	5.7	142
8034 Skive	91.4	8.6	3.4	9	5.7	210
8035 Struer	91.8	8.2	3.3	26	5.7	174
8039 Randers	85.8	14.2	4.2	7	5.6	176
8040 Grenaa	92.1	7.9	3.2	9	5.7	124
8047 Århus	83.9	16.1	4.4	21	5.6	508
8048 Herning	86.9	13.1	4.0	10	5.5	285
8050 Horsens	82.0	18.0	4.6	24	5.3	399
8052 Billund	86.1	13.9	4.1	10	5.6	239
8053 Esbjerg	87.3	12.7	4.0	14	5.5	235
8054 Haderslev	82.8	17.2	4.5	23	5.4	205
8055 Tønder	90.3	9.7	3.5	8	5.7	334
8056 Middelfart	90.3	9.7	3.5	14	5.7	238
8057 Odense	90.6	9.4	3.5	14	5.7	281
8058 Svendborg	86.5	13.5	4.1	16	5.5	255
8060 Maribo	86.5	13.5	4.1	18	5.6	150
8061 Næstved	84.3	15.7	4.4	27	5.6	303
8062 Korsør	83.9	16.1	4.4	15	5.5	139
8066 Køge	87.3	12.7	4.0	12	5.6	269
8068 Roskilde	76.8	23.2	5.1	20	5.2	185
8069 Holbæk	89.9	10.1	3.6	40	5.6	193
8079 København	81.6	18.4	4.7	19	5.4	848
8081 Høje-Taastrup	84.3	15.7	4.4	22	5.4	245
8082 Ballerup	82.4	17.6	4.6	16	5.4	151
8083 Nærum	84.6	15.4	4.3	15	5.5	381
8084 Frederikssund	86.1	13.9	4.1	14	5.5	176
8085 Fredensborg	86.5	13.5	4.1	12	5.6	373
8087 Bornholm	82.8	17.2	4.5	11	5.5	53
Total	86.2	13.8	0.9	18	5.5	8,010

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated only for the cases where an adjustment was made.

Appendix table 4. Error percentages, numerical adjustment amounts and compliance ratings for straightforward taxpayers, by tax centre

Tax centre	No errors	Errors	Confidence interval	Adj. DKK '000	Rating	Checks
	— Percent —		Pct. point +/–	—— Average ——		Number
8030 Hjørring	91.2	8.8	5.8	10	5.8	75
8031 Aalborg	96.7	3.3	3.7	87	5.9	121
8033 Thisted	97.8	2.2	3.0	4	5.9	52
8034 Skive	96.7	3.3	3.7	6	5.9	65
8035 Struer	93.4	6.6	5.1	3	5.9	44
8039 Randers	96.7	3.3	3.7	8	5.9	68
8040 Grenaa	96.7	3.3	3.7	8	5.9	40
8047 Århus	95.6	4.4	4.2	15	5.8	191
8048 Herning	100.0	.	.	.	6.0	82
8050 Horsens	98.9	1.1	2.2	70	5.9	124
8052 Billund	98.9	1.1	2.2	9	5.9	84
8053 Esbjerg	91.2	8.8	5.8	14	5.8	84
8054 Haderslev	95.6	4.4	4.2	161	5.9	70
8055 Tønder	96.6	3.4	3.7	16	5.9	79
8056 Middelfart	92.3	7.7	5.5	15	5.9	75
8057 Odense	92.2	7.8	5.5	13	5.8	116
8058 Svendborg	95.6	4.4	4.2	5	5.9	78
8060 Maribo	95.6	4.4	4.2	63	5.8	60
8061 Næstved	90.1	9.9	6.2	11	5.8	82
8062 Korsør	92.3	7.7	5.5	19	5.8	54
8066 Køge	92.3	7.7	5.5	36	5.7	93
8068 Roskilde	89.0	11.0	6.5	32	5.7	47
8069 Holbæk	95.6	4.4	4.2	17	5.8	77
8079 København	94.4	5.6	4.7	20	5.8	388
8081 Høje-Taastrup	98.9	1.1	2.2	5	5.9	121
8082 Ballerup	91.1	8.9	5.9	9	5.8	57
8083 Nærum	93.4	6.6	5.1	22	5.8	111
8084 Frederikssund	95.6	4.4	4.2	26	5.8	54
8085 Fredensborg	90.0	10.0	6.2	11	5.7	105
8087 Bornholm	97.8	2.2	3.0	4	5.9	23
Total	94.8	5.2	1.0	23	5.8	2,719

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated only for the cases where an adjustment was made. The calculations of the average adjustment amount ignore a single extremely high adjustment of over DKK 1.7 million, which would otherwise have had a sizeable effect on the average adjustment figure.

Appendix table 5. Error percentages, numerical adjustment amounts and compliance ratings for all taxpayers (straightforward and complex), by tax centre

Tax centre	No errors	Errors	Confidence interval	Adj. DKK '000	Rating	Checks
	– Percent –		Pct. point +/–	—— Average ——		Number
8030 Hjørring	90.8	9.2	3.8	11	5.7	323
8031 Aalborg	94.4	5.6	2.6	43	5.8	519
8033 Thisted	95.1	4.9	2.4	24	5.8	200
8034 Skive	94.9	5.1	2.7	8	5.8	264
8035 Struer	92.8	7.2	3.4	14	5.8	194
8039 Randers	93.4	6.6	2.9	8	5.8	257
8040 Grenaa	95.2	4.8	2.7	8	5.9	160
8047 Århus	92.0	8.0	3.2	19	5.8	730
8048 Herning	95.2	4.8	1.5	10	5.8	343
8050 Horsens	93.1	6.9	2.1	28	5.7	505
8052 Billund	94.8	5.2	2.0	10	5.8	326
8053 Esbjerg	90.0	10.0	4.2	14	5.7	325
8054 Haderslev	91.4	8.6	3.2	71	5.7	277
8055 Tønder	94.0	6.0	2.6	10	5.8	355
8056 Middelfart	91.6	8.4	3.8	15	5.8	303
8057 Odense	91.8	8.2	4.1	13	5.8	431
8058 Svendborg	92.4	7.6	3.1	11	5.8	318
8060 Maribo	93.0	7.0	3.2	38	5.8	226
8061 Næstved	87.9	12.1	4.2	19	5.7	351
8062 Korsør	89.8	10.2	4.1	17	5.7	205
8066 Køge	90.7	9.3	3.9	25	5.7	364
8068 Roskilde	84.2	15.8	4.4	25	5.5	206
8069 Holbæk	93.9	6.1	3.2	28	5.7	288
8079 København	91.0	9.0	3.7	19	5.7	1 402
8081 Høje-Taastrup	95.2	4.8	1.9	19	5.8	430
8082 Ballerup	88.5	11.5	4.3	12	5.7	218
8083 Nærum	90.2	9.8	3.6	18	5.7	461
8084 Frederikssund	92.3	7.7	3.1	19	5.7	221
8085 Fredensborg	88.7	11.3	4.2	11	5.7	443
8087 Bornholm	93.7	6.3	2.5	9	5.8	84
Total	92.0	8.0	0.7	20	5.8	10,729

Note: Adjustments are to taxable income from earnings and dividends. The average numerical adjustment is calculated only for the cases where an adjustment was made. The calculations of the average adjustment amount ignore a single extremely high adjustment of over DKK 1.7 million, which would otherwise have had a sizeable effect on the average adjustment figure.

Appendix table 6. Adjustment amounts for selected fields on the Danish tax declaration form, showing whether adjustments were upward or downward

	Adjustment Amounts				Adj. up/down
	Numerical	Net	Up	Down	
	—— DKK millions ——				Percent
Personal income	3,338	2,550	2,944	394	88 / 12
11. Salary, fees for board membership, use of company car, etc.	2,175	2,009	2,092	83	96 / 4
12. Honoraria and fees	251	227	239	12	95 / 5
15. Other personal income, e.g. provision of telephone, child care, cleaning, etc.	397	396	396	1	100 / 0
16. Pensions, unemployment pay, etc. and student grants	385	-118	133	252	35 / 65
17. Distributions from foundations etc	95	61	78	17	82 / 18
19. Maintenance payments	13	-13	.	13	0 / 100
20. Other personal income not liable to deduction of labour market contributions, etc.	22	-12	5	17	23 / 77
Deductions, personal income	307	197	252	55	82 / 18
21. Contributions to private pension schemes with regular payments out	194	121	157	36	81 / 19
22. Contributions to private pension schemes with lump sum payment out	42	22	32	10	76 / 24
29. Other deductions, personal income	72	55	63	8	88 / 12
Income from capital	952	415	683	269	72 / 28
31. Interest	172	-63	55	118	32 / 68
34. Investment funds	4	-4	.	4	0 / 100
35. Profit/loss on ship investment schemes	55	49	52	3	94 / 6
36. Profit/loss on completed ship investment schemes	49	49	49	.	100 / 0
37. Rental income from normal residence/holiday home	102	42	72	30	71 / 29
38. Interest on mortgage deeds, etc.	138	67	102	36	74 / 26
39. Other income from capital	431	275	353	78	82 / 18
Deductions, income for capital	332	166	249	83	75 / 25
41. Interest payments for real estate loans and rates losses	72	-4	34	38	47 / 53
42. Interest payments to financial institutions	214	138	176	38	82 / 18
43. Interest payments on student loan	12	10	11	1	92 / 8
44. Interest payments on other debts	34	21	28	6	81 / 19
Assessed deductions	1,167	603	885	282	76 / 24
51. Transport to and from work	688	353	521	167	76 / 24
52. Union fees	107	49	78	29	73 / 27
53. Other employment-related costs	166	125	146	21	88 / 12
54. Standard deduction for child care	50	37	44	7	87 / 13
55. Donations to associations	37	16	26	10	72 / 28
56. Maintenance payments	112	16	64	48	57 / 43
57. Payment to an account for establishing a business	7	7	7	.	100 / 0

	Adjustment Amounts				Adj. up/down
	Numerical	Net	Up	Down	
	—— DKK millions ——				Percent
Income from shares	1,317	1,071	1,194	123	91 / 9
61-65. Income from shares	54	-14	20	34	37 / 63
66-67. Other share income	1,066	891	978	87	92 / 8
68. Transitional ordinance shares	198	194	196	2	99 / 1

Note: The following fields are not shown, since no adjustments were made for them: 14 (Anniversary bonuses and leaving bonuses, etc); 18 (Public service awards); 23 (Repayments of social security payments, starting-out payments, etc); 33 (Payments from reserve funds); and Fields 313, 314, 503 and 504 (Overseas share income).