

**Study no. 10**

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**The Shadow Economy in Germany,  
Great Britain and Scandinavia**

**A measurement based on  
questionnaire surveys**

**Søren Pedersen**

**The Rockwool Foundation Research Unit**  
**Copenhagen 2003**

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## Contents

List of tables and figures .....	5
Preface .....	9
1. Definition and measurements of black activities .....	11
1.1 Introduction.....	11
1.2 Definition of “shadow economy”, “black economy” and “black activities” used in the Rockwool Foundation Research Unit’s questionnaire surveys.....	13
1.3 Different ways of measuring the shadow economy and black activities.....	19
1.3.1 Direct methods.....	20
1.3.2 Indirect methods .....	21
1.3.2.1 Monetary methods .....	27
1.4 Concluding remarks.....	31
2. Design of the questions, and the response rate and non-response rate in the questionnaire surveys in Denmark, Sweden, Norway, Germany and Great Britain.....	33
2.1 Introduction.....	33
2.2 Design of the questions.....	34
2.2.1 Denmark .....	34
2.2.2 Sweden.....	38
2.2.3 Norway .....	40
2.2.4 Great Britain .....	42
2.2.5 Germany .....	45
2.3 Response rate and non-response rate .....	49
2.4 Concluding remarks.....	52
3. The incidence of black activities in the population and black working hours and wages in Denmark, Norway, Sweden, Germany and Great Britain .....	55
3.1 Introduction.....	55
3.2 Previous questionnaire surveys of black activities .....	55
3.2.1 Norway .....	56
3.2.2 Sweden.....	58
3.2.3 Germany .....	60
3.3 New results for the extent of black activities in Scandinavia, Germany and Great Britain.....	64
3.4 Multivariate analysis of the probability of carrying out black activities in all countries.....	70
3.5 Black working hours.....	80
3.6 Black wages .....	84
3.7 The influence of income from black activities on the income distribution.....	91

## 4 Contents

3.8	Concluding remarks.....	93
4.	Extent of black activities in the five countries.....	103
4.1	Introduction.....	103
4.2	Extent of black activities measured in black and “white” prices.....	104
4.3	Possible explanations for differences in the extent of black activities in Denmark, Norway, Sweden, Germany and Great Britain.....	111
4.4	Black activities by industry.....	119
4.5	Trend in the extent of black activities in Denmark, 1994-2001.....	122
4.6	Regional differences between East and West Germany.....	127
4.7	Concluding remarks.....	130
5.	Summary.....	137
	Appendix: Representativeness of the surveys.....	149
	Denmark.....	149
	Germany.....	151
	Great Britain.....	153
	Sweden.....	155
	Norway.....	157
	Summary.....	158
	References.....	159
	Index.....	169
	Publications from the Rockwool Foundation Research Unit.....	175

## List of tables and figures

Figure 1.1: Definition of the terms “shadow economy”, “black economy” and “black activities” in relation to the formal and informal economy in the Rockwool Foundation Research Unit’s questionnaire surveys, 1980-2001.....	15
Figure 1.2: Trend in the discrepancy as a measure of underdeclaration in Denmark since 1950, percent of GDP.....	24
Table 2.1: Response and non-response rates for Denmark, Norway, Sweden, Germany and Great Britain .....	51
Table 2.2: “Item non-response” to the question about black activities in Denmark, Norway, Sweden, Germany and Great Britain (18-74-year-olds).....	52
Table 3.1: Purchase and sale of black activities in the previous Norwegian questionnaire surveys .....	57
Table 3.2: Proportion of the population in the 18-74 age group who have carried out black activities within the last year in Denmark, Norway, Sweden, Germany and Great Britain.....	64
Table 3.3: Proportion of the population in the 18-74 age group who carry out black activities in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation.....	66
Table 3.4: Logistic regression of the probability of participating in black activities in all five countries. 18-74-year-olds .....	72
Table 3.5: Average time per week spent on black activities in Denmark, Norway, Sweden, Germany and Great Britain for those 18-74-year-olds who have carried out black activities .....	81
Table 3.6: Average black hours worked among those 18-74-year-olds who carry out black activities in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation.....	83
Table 3.7: Average black hourly wage for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain in national currencies (current prices) and 2001 prices (in national currencies and euro) .....	85
Table 3.8: Average black hourly wages (current prices) for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation.....	88
Table 3.9: Average black hourly wages (current prices) for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by form of payment .....	89

6 *List of tables and figures*

Table 3.10: Average black hourly wages for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by industry.....	90
Table 3.11: Proportion of the population in the 18-74 age group who carry out black activities and average monthly income from black activities in Denmark and Germany, by net income in the formal economy.....	92
Appendix table 3.1: Logistic regression of the probability of participating in black activities in Denmark in 2001. 18-74-year-olds .....	98
Appendix table 3.2: Logistic regression of the probability of participating in black activities in Norway in 1998/2002. 18-74-year-olds .....	99
Appendix table 3.3: Logistic regression of the probability of participating in black activities in Sweden in 1998. 18-74-year-olds .....	100
Appendix table 3.4: Logistic regression of participating in black activities in Germany in 2001. 18-74-year-olds .....	101
Appendix table 3.5: Logistic regression of participating in black activities in Great Britain in 2000. 18-74-year-olds .....	102
Table 4.1: Black hours worked as a proportion of “white” working hours in Denmark, Norway, Sweden, Germany and Great Britain.....	105
Table 4.2: Extent of black activities in Denmark, Norway, Sweden, Germany and Great Britain based on actual black prices paid, 18-74-year-olds .....	106
Table 4.3: Extent and incidence of black activities in Great Britain when activities that would be taxable in Denmark are included.....	112
Table 4.4: Average and actual marginal taxes (%) according to whether the respondents have carried out black activities or not in Denmark 2001 .....	113
Figure 4.1: Tax structure and tax burden in the five countries compared with the extent of black activities.....	114
Table 4.5: Perceived risk of tax fines, etc., in Denmark, Norway, Sweden, Germany and Great Britain. 18-74-year-olds. Percent.....	116
Box 1. Question about perceived risk of detection .....	116
Table 4.6: Willingness to carry out black activities if the opportunity arose among persons who have not carried out black activities, in Denmark, Norway, Sweden, Germany and Great Britain. Percent.....	118
Box 2. Question about willingness to carry out black activities .....	118
Table 4.7: Carry out or would carry out black activities if the opportunity arose among all 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain. Percent .....	118
Box 3. Type of black activities in Germany as stated by 40 respondents .....	120
Figure 4.2: Extent of black activities in the five countries by industry. Percent.....	121

Figure 4.3: Extent of black activities in Denmark, 1994-2001. Proportion of GDP .....	123
Figure 4.4: Extent of black activities in Denmark by industry, 1998 and 2001. Percent.....	126
Table 4.8: Proportion of 18-74-year-olds who have carried out black activities in Germany, plus black hours worked in relation to “white” hours worked in East and West Germany .....	129
Table 4.9: Extent of black activities in East and West Germany in actual black prices paid, 18-74-year-olds .....	129
Appendix table 1: Respondents in the Danish omnibus survey and the whole population, by age and sex. Percent .....	149
Appendix table 2: Respondents in the omnibus survey and the whole population, by age and region. Percent .....	150
Appendix table 3: Respondents in the German omnibus surveys and the whole population, by age and sex. %. (Unweighted) .....	151
Appendix table 4: Respondents in the German omnibus survey and the whole population, by age and sex. Percent. (Weighted) .....	152
Appendix table 5: Respondents in the German omnibus surveys and the whole population, by age and geography. %. (Unweighted) .....	152
Appendix table 6: Respondents in the German omnibus surveys and the whole population, by age and geography. Percent. (Weighted).....	153
Appendix table 7: Respondents in the British omnibus survey and the whole population, by age and sex. Percent. (Weighted) .....	154
Appendix table 8: Respondents in the British omnibus survey and the whole population, by region (16-74-year-olds). %. (Weighted) .....	155
Appendix table 9: Respondents in the Swedish omnibus survey and the whole population, by age and sex. Percent .....	156
Appendix table 10: Respondents in the Swedish omnibus survey and the whole population, by region (18-74-year-olds). Percent.....	156
Appendix table 11: Respondents in the Norwegian omnibus surveys and in the whole population, by age and sex. Percent.....	157
Appendix table 12: Respondents in the Norwegian omnibus surveys and in the whole population, by region. Percent.....	158



## Preface

The Rockwool Foundation Research Unit has been carrying out questionnaire surveys of the extent of the black economy in Denmark since the end of the 1980s. In connection with this work, the Unit has also attempted to identify the methodological weaknesses of this way of measuring the black economy, together with the perhaps more obvious weaknesses of the so-called monetary methods, which foreign researchers have now and then also used in surveys of Denmark.

In the mid-1990s, the Unit also began to take an interest in the size of the shadow economy in our neighbouring countries, Norway and Sweden: Was, for example, the black sector bigger or smaller in Denmark than in our neighbouring countries?

This resulted in *The Shadow Economy in Western Europe. Measurement and Results for Selected Countries* (1998), by Søren Pedersen, an economist at the Unit, who has followed the trend in the black economy in Denmark over many years. Thanks partly to his work, this sector of the labour market is now very well documented. Søren Pedersen's book was based primarily on existing knowledge in the form of published national surveys, which in turn were based on several and often essentially different methods.

In many respects, the book has given a new overview of the black economy in a number of West European countries. However, this also increased the need for fully comparable measures for the black economy in selected countries.

This is precisely what this new book by Søren Pedersen, which presents the results of comparable surveys in Denmark, Norway, Sweden, Great Britain and Germany, seeks to achieve.

While the geographical scope of the new book is rather more limited than in 1998, this is the first time that a fully comparable and methodologically fully documented survey of the black economy in North West Europe has been carried out. Moreover, the book will be supplemented in June 2003 by the publication from the Unit of an analysis of do-it-yourself activities in the same countries, entitled *Do-it-yourself work in North-Western Europe. Maintenance and improvement of homes*, by Søren Brodersen, M.Sc. (Econ.), head of department at Statistics Denmark.

Statistics Denmark has been responsible for the data collection in Denmark in recent years, while the various national Statistical Offices have been used to collect data in Norway, Sweden and Great Britain, namely Statistics Norway, Statistics Sweden and National Statistics (Social Survey Division) respectively.

In Germany, Infratest Sozialforschung, a private market research firm with considerable experience in collecting data for social science research, has conducted the interview surveys for the Rockwool Foundation Research Unit. In this connection, Søren Pedersen has been able to draw on the invaluable help of Harald Bielski and Arno Retzlaf from Infratest Sozialforschung and Olwen Rowlands from National Statistics in adapting the Danish questionnaires to German and British conditions, which proved to be the most complicated.

Claus Larsen, a researcher at the Unit, has also participated in many useful discussions on terminology, etc., partly in connection with his own analysis for Denmark, which he wrote as a thesis for the Department of Economics, University of Copenhagen, cf. *Underdeklaration af personlig indkomst målt ved sammenligning af dansk skatte- og nationalregnskabsstatistik* (Underdeclaration of personal income measured by a comparison of Danish tax and national accounting statistics).

Special thanks to Helle Cwarzko Jensen, research assistant at the Research Unit, who has written the appendix about the representativeness of the surveys in each of the countries.

As in the publication of previous working papers in this series, Statistics Denmark's interview section, and its graphical department and library have provided invaluable help. Many thanks both to Statistics Denmark and its director, Jan Plovsing.

The study has naturally been carried out by the Research Unit in full scientific independence of both Statistics Denmark and the national market research institutes we have collaborated with in Norway, Sweden, Great Britain and Germany, and in relation to the Rockwool Foundation.

However, despite the generous financial framework, the analyses would have been difficult to carry out without the enormous helpfulness and interest of the Foundation. I owe the Foundation's staff, including its director Poul Erik Pedersen, and not least the Foundation's Board, headed by President, Chief Executive Tom Kähler, warm thanks for the usual good working relations between the Foundation and the Research Unit.

Copenhagen, April 2003

Gunnar Viby Mogensen

## 1. Definition and measurements of black activities

### 1.1 Introduction

There is no doubt that the existence and size of the black economy attracts a lot of attention among the general public and not least in the media. It is often assumed that the black economy is of a significant size and very widespread in the economy and that official statistics therefore are biased.

There are several reasons why the black economy attracts attention. From a government perspective it is important since taxes are evaded and thus, all other things being equal, leaving a higher tax on the formal part of the economy. There is therefore a risk that it can become a vicious circle resulting in further tax evasion, higher taxes in the formal economy etc.

At a national level the existence of the black economy can result in misleading central economic figures as for example the economic growth, unemployment rate, labour force participation, income statistics etc. if the official statistics do not cover the black economy.

At an international level the black economy attracts more and more attention not least within the EU since a growing part of the EU's finances is covered by member countries' contributions in the form of a tax in relation to gross national product (GNP), cf. below. Those countries which have a small black economy, or which have already included the black economy in the official statistics, are thus eager for other countries to do the same, so that they are not left paying a disproportionate share of the total GNP tax. Hence, measuring the size of the black economy in different European countries is of great importance.

Another problem with the existence of a black economy is that the unlawful activities might spread to other parts of the society including for instance bribery and corruption.

In the conclusion to his book, *Cheating the Government. The Economics of Evasion*, economist Frank A. Cowell observed that the extent of tax evasion is hard to measure empirically. The problem of measurement in itself, he continued, together with measurement uncertainties, has resulted in a tendency to spend more time writing about *how* to measure the extent than in carrying out the actual measurements.

Denmark is probably one of the few countries (together with Norway) where attempts to measure the extent of the black sector have been carried out over a longer period. The Danish surveys, which have mainly been questionnaire sur-

veys, are by now fairly well documented. These surveys show that, while only a small part of Danes' economic activities avoids taxation and is offered more cheaply than the same activities on the "white" market, the proportion increased throughout the 1980s and early 1990s, though fell slightly again in the following years.

Given the knowledge we have today about the structure and extent of the black sector in Denmark, it was only natural to want to compare the level here with that in our neighbouring countries. A first attempt at this, based on existing data in the countries concerned, was made in the book, *The Shadow Economy in Western Europe. Measurements and results for selected countries* (1998). When writing this book, however, it soon became clear that it is extremely difficult to compare the extent of black activities across countries, partly due to the use of different measurement methods and partly to the different definitions of black activities used.

The difficulty of measuring black activities in a given country is partly due to the fact that the nature of these activities is precisely to avoid being registered, because registration is used for purposes of taxation, and partly by the fact that research in the area is still relatively new. It is only about 20 years ago since the first major Norwegian, Danish and Dutch questionnaire surveys on the black economy were carried out. Measurement *between* countries is made more difficult by the fact that the distinction between taxable and tax-exempt activities varies from country to country.

The obvious question, therefore, was how the Danish figures compared with those for other European countries if exactly the same questionnaire design and exactly the same definition of black activities were used. The possibility for cross-border comparison was strengthened in 1997 when Riksrevisionsverket (the Swedish National Audit Office), at the behest of the Swedish government, approached the Rockwool Foundation Research Unit about using the Danish questionnaire method to measure the structure and extent of black activities in Sweden.

Using the same questionnaire design in different countries overcomes some of the difficulties of comparison. A further advantage of the questionnaire method is that the questionnaire can be adapted to the various countries' tax legislation and questions can be added about activities which are taxable in one country but not in another.

The ideal questionnaire survey of the incidence and extent of black activities in Europe would include a large number of countries with differences in both the tax burden and the proportion of direct and indirect taxes. Since, due to lack of funding, manpower, etc., this has not been possible, we have instead chosen to include countries geographically close to Denmark and with different tax bur-

dens.<sup>1</sup> The survey thus includes Sweden, which, like Denmark, has a relatively high tax burden and a relatively high proportion of direct taxation, i.e. on income. Also included are Great Britain and Germany, which, according to OECD (2001a), have a tax burden which is about 10-15% lower than Sweden and Denmark. Finally, Norway, which lies between Denmark and Sweden on the one hand, and Germany and Great Britain on the other, is also included.

This book is thus an attempt, using the questionnaire method, to redress the aforementioned imbalance observed by Frank A. Cowell between writing about the problems of measuring black activities and actually trying to measure the phenomenon.

Before turning to the above-mentioned comparison, however, the rest of chapter 1 defines precisely what is meant by black activities and the shadow economy, and thus what it is we are trying to measure, and briefly discusses other measurement methods than questionnaire surveys.

Chapter 2 presents the questions used and a discussion of the response rate and non-response rate in the questionnaire surveys in the five countries. Chapter 3 presents the results of the incidence of black activities in the respective countries' populations, including black hours worked and black wages. Chapter 4 then discusses the extent of black activities in the individual countries in more detail, including a breakdown of the extent of black activities by industry in each country. The book concludes with a summary in chapter 5.

## **1.2 Definition of “shadow economy”, “black economy” and “black activities” used in the Rockwool Foundation Research Unit’s questionnaire surveys**

As previously noted in Søren Pedersen (1998), and by many other researchers, there are innumerable definitions of the shadow economy, black activities, underground economy, or whatever the phenomenon is termed. This is because there is still no single internationally accepted definition of the phenomenon. This in turn, according to Miodrag Pesut (1992), is because it involves very different social and economic factors, depending on the approach to the problem used and the country concerned.

In his review of the literature, however, Pesut (1992) finds an increasing consensus that an appropriate definition of shadow economy should meet two criteria. Firstly, that the shadow economy is not covered by the usual measures of a society's economic activities, and secondly, that the shadow economy can best be measured in relation to the internationally recognised limitations and definitions

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<sup>1</sup> For a discussion of the calculation of the tax burden and comparisons between countries, see f.i. Skatteministeriet (Ministry of Taxation), 2001.

used in the national accounts. This is also in line with the new publication from OECD: *Measuring the Non-Observed Economy. A Handbook*, which states "...Thus, the scope of the Handbook is economic production as defined by the 1993 SNA. This provides a solid basis but also implies a restriction on the range of issues that are considered", cf. OECD (2002, p. 12).

The advantage of following the latter is that it allows a more useful comparison of the extent of the shadow economy between countries. For example, it would ensure that, among other things, do-it-yourself (DIY) activities and voluntary work (e.g. in the Boy Scouts or relief organisations) were not included under the shadow economy. According to Pesut, this would probably give the most acceptable definition of the shadow economy as "*that part of the domestic product which is not measured by official statistics*" (Pesut, 1992, p. 3).

However, in recent years, statisticians (in EUROSTAT and elsewhere) have switched to using the term "black economy" for that part of total non-declared activities which reflects a productive effort – and thus part of value added, or GDP, in the national accounts. The terminology used in this book is in line with this norm.

The term "shadow economy" is therefore expanded to include, on the one hand, the total sum of "the black economy" (underdeclaration at both full price and less than full price) – which lies within the so-called "production boundary" of the GDP – and, on the other hand, all other ("non-productive") underdeclaration (of, for example, transfer income, interest and tax deductions). In theory, the shadow economy also includes illegal production (e.g. drug-dealing and prostitution, etc.), since it involves a voluntary transaction between both parties, but in practice such activities have not been incorporated up to now, cf. also Esben Dalgaard (1998).

The terminology and definitions used in the rest of the book are shown in figure 1.1.

Basically, the national accounts distinguish between productive economic activities, which are thus included in GDP, and non-productive economic activities, which are not. This distinction has been laid down in international agreements at the UN on the drawing up of national accounts – the so-called System of National Accounts, SNA. Similar guidelines in the EU go under the term ESA. While economists and national accounts statisticians still argue about the exact definition of a productive economic activity, the definition currently used in ESA has been thoroughly debated and accepted.

Here, *the formal, or declared, economy* is defined as productive activities which in themselves are legal, and which are fully declared to the authorities for pur-

poses of paying taxes, VAT, etc. In accordance with national accounting definitions, the formal economy also includes the public sector.

**Figure 1.1: Definition of the terms “shadow economy”, “black economy” and “black activities” in relation to the formal and informal economy in the Rockwool Foundation Research Unit’s questionnaire surveys, 1980-2001**

Formal (declared economy)	Household: Agricultural goods and own production of investment goods		Included in GDP	TOTAL (theoretical) GDP	
	Public goods				
	Declared part of the market economy				
Informal (non-declared economy)	Shadow economy	Non-declared part of the market economy = The black economy	Normal under-declaration (full price) Black activities (less than full price)	Partly included in GDP	“Production boundary” ↙
		Illegal economic activity (e.g. prostitution and drug-dealing)		In practice, not included in GDP	
	Tax evasion, e.g. transfer income <sup>1)</sup> , interests received and deductions, etc. <sup>2)</sup>		Not included in GDP		
	Households: Services				

Note: The relative size of the various boxes in the figure should not be attributed any significance. Households’ production of agricultural and investment goods in the productive sector follows national accounting principles in the SNA for 1993, which are more consistent than in the older version (SNA, 1968).

<sup>1)</sup> Tax evasion with transfer income is practically impossible today in Denmark.

<sup>2)</sup> Involves the redistribution of income derived from GDP.

As mentioned above, in the national accounts, it is not important whether a productive activity is legal or not.

In principle, certain kinds of illegal activities, e.g. drug-dealing, illicit distilling, prostitution, etc., should be included in the national accounts, inasmuch as they involve the production of goods/services which are sold in a market through voluntary transactions between buyer and seller, cf. Derek Blades (1982) and Åke Tengblad (1994). Illegal transactions such as theft, robbery, etc., should not be included in the national accounts, on the other hand, since the transaction is not voluntary in the sense that it is accepted by both parties – more a case of “redistribution”. In practice, however, illegal activities which should be included in the national accounts are left out due to the difficulty in obtaining valid data.

DIY activities are deliberately excluded from the national accounts, unless they result in investments in buildings and machines or the production of agricultural products. The same applies to production in households, such as cooking, cleaning, childcare, etc., which is carried out by members of the household themselves.

In figure 1.1, *the informal or non-declared economy* consists partly of productive economic activities which in themselves are legal, but on which tax, VAT, etc., are not paid. It is this part which is also called the black economy, and which meets the criteria for inclusion in the national accounts definitions. Apart from this, the informal economy also consists of those illegal transactions which, in principle, are productive economic activities in a national accounting sense, but which in practice are not included in GDP due to lack of information.

Similarly, tax evasion regarding transfer income, interests received and tax deductions, though included in the definition of the informal economy, lie outside the national accounts' "production boundary" (see figure 1.1). The informal economy also includes DIY activities and production in households (except agriculture), which are not included in the national accounts either.

While DIY activities, household production and illegal activities are deliberately left out of the national accounts, it is a different matter with economic activities in the black economy. As mentioned above, the economic activities in *the black economy* in figure 1.1 meet all the criteria for inclusion in the formal economy, inasmuch as they involve the production of goods/services that are either sold or bartered. They are not included in the formal economy in practice, however, because the purpose of these activities is precisely to avoid taxation and thus registration. The term "black economy" used here in this book is the same as "underground production" in the earlier mentioned publication from OECD (2002).

Some of the activities in the black economy are included in the national accounts, however, because of the way in which they are estimated, namely by means of price-times-volume calculations. For example, the value of car repairs was included in the previous version of the Danish national accounts by multiplying the number of cars in various categories by an average price for the repair of cars in these categories obtained from FDM (Forenede Danske Motorejere – corresponds to the English Automobile Association), cf. Karsten Stetkær (1983) and Gunnar Viby Mogensen (1985). In other words, as far as the previous national accounts were concerned, whether car repairs were carried out at full price, and thus taxed, or whether they were carried out as black activities, is irrelevant.

In the new, thoroughly revised version of the Danish national accounts, which follows the guidelines set out in the new European national accounting system,

ENS95, the production value of building starts is included by multiplying the number of square metres (obtained from the Building and Housing Register, BBR) by an average price, cf. Statistics Denmark (1999) and Bent Thage (2000). Thus, the value of building starts is included in the national accounts irrespective of whether the activity is declared to the Inland Revenue, or whether it is carried out as a DIY activity.

The production value in agriculture is also included in the national accounts, by means of a price-times-volume calculation, without distinguishing whether these activities are declared to the tax authorities or not, cf. Statistics Denmark (2002a). The production value is thus calculated as the product of the volumes sold and the average prices obtained. These prices and volumes come from a number of different sources, including sample surveys of various farms and market gardens. Such calculations are thus insensitive to the fact that farm income may or may not be declared to the tax authorities.

To take another example, the expenditure on hairdressers in the national accounts comes from annual consumer surveys, so GDP and private consumption is unaffected by any underdeclaration in this trade (Bent Thage, 2000).

Since 1988, when it was decided that a significant and increasing proportion of the EU's finances would be covered by member countries' contributions in the form of a tax in relation to gross national product (GNP)<sup>2</sup>, there has been more focus in the EU on the coverage of the black economy in the national accounts. Those countries which have a small black economy, or which have already included the black economy in their national accounts, are thus eager for other countries to do the same, so that they are not left paying a disproportionate share of the total GNP tax.<sup>3</sup>

As one of the first countries in the EU, Denmark has included an *explicit* estimate of the black economy, in a macroeconomic sense, in the new national accounts, in compliance with the aforementioned EU decision in 1988. This only includes selected industries, however, e.g. "housing starts", "building repairs and maintenance", "car repairs", "other retail trade", "repair work", "taxi and tourist carriers", "auditors and bookkeepers", and a number of other trades, cf. Statistics Denmark (2002a). There is no explicit estimate for, for example, agriculture, on the other hand, since, as mentioned above, the implicit estimate captures the black economy.

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<sup>2</sup> GNP is calculated as GDP minus interest, dividends, and salaries paid to other countries (net). According to Claus Larsen (2002), Denmark's contribution to the EU under the new system has risen from 14% of the country's total contributions in 1991 to 43% in 2000.

<sup>3</sup> See Esben Dalgaard (1998) for more about this.

The source for the estimation of the black economy is a survey from Statistics Denmark's Labour Force Survey in 1992, based on the Rockwool Foundation Research Unit's earlier questionnaire design. According to Statistics Denmark (2002a), the inclusion of the black economy has resulted in an upward adjustment of GDP of 0.7%. If we ignore underdeclaration and VAT fraud *without the buyer's knowledge* in Statistics Denmark's figures, thus corresponding to the definition used in this book for "black activities at less than full price", cf. below, we get a value for black activities of DKK 5,893 million ( $7,317 - 3,084 + 1,660$ ), or 0.6% of GDP, in 1995.

As mentioned above, the new national accounts also capture *implicit* non-declared activities in agriculture, building starts and expenditure on hairdressers. They are also able to include parts of the black economy by means of the materials normally bought in the formal market, and which are included as raw materials for work or services that are not declared. Thus, subsequent references to the extent of the black economy or black activities do not mean that the national accounts have been underestimated by the same amount. Such figures for the extent of the black economy in relation to, for example, GDP, are only mentioned to give an idea of the size.

The definition of *shadow economy* also includes, in addition to the black economy, fraud involving transfer income, non-declared interests received, and false tax deductions, e.g. over-declaring the mileage between home and work. This form of tax evasion is not included in GDP, however, since it does not involve production. But these activities are also relevant as regards the extent of total tax evasion, of course.

In principle, the definition of the shadow economy also includes – in line with the national accounts – illegal productive economic activities (e.g. prostitution and drug dealing). In practice, however, these activities have not been measured in questionnaire surveys, and there are no figures for these or similar activities in the national accounts statistics.

In practice, therefore, the shadow economy includes normal underdeclaration at full price, black activities and fraud with tax deductions and interest received. With regard to normal underdeclaration and fraud with tax deductions and interests received, only the one party (the doer) knows that the activity in question is not declared to the authorities.<sup>4</sup> *Black activities in a narrow sense* thus cover those cases where both buyer and seller of the activity concerned are aware of, or suspect, that the activity is not declared to the tax authorities. Here, both buyer and seller share, so to speak, the tax and VAT saved. It should also be

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<sup>4</sup> In the following, the term *tax evasion* covers both "normal underdeclaration" and "evading tax on interest received and deductions" in figure 1.1.

noted that the term “black activities” also covers black transactions, e.g. farmers who sell pigs or eggs at the farm gate. In the following, the term “black activities” will be used rather than “black activities in a narrow sense”.

As figure 1.1 also shows, the definition of the shadow economy does not include tax avoidance as such. Tax avoidance exploits loopholes in the law, right up to the dividing line between legal and illegal. But it does not cross this line, and the tax and/or VAT thereby saved does not contravene the law, though it does perhaps contravene the spirit of the law.

The division of the shadow economy into tax evasion and black activities is based on a labour market interest in the black sector. If interest is centred on the effect of non-declared activities on the total supply of labour, then hidden activities that do not affect the supply of labour will obviously cease to be of interest. These activities can, for example, be tax evasion in the form of declaring an allowance you are not entitled to, or a higher allowance than you are entitled to. These forms of tax evasion will not normally influence the supply of labour.

As pointed out by Gunnar Viby Mogensen (1985), however, it cannot be ruled out that the supply of labour, especially for the self-employed in certain industries, increases in the long term because the possibilities for evading tax in these industries are particularly favourable. On the other hand, this effect can be neutralised if all potential buyers of a firm in the industries concerned perceive the possibilities of evading tax as equally big. Future black incomes will thereby be capitalised, and, other things being equal, the price of these firms will thus be higher – without any effect on the supply of labour.

A black activity is thus characterised by the fact that both buyer and seller of the activity obtain an economic advantage in the form of saved tax and VAT. This results in a particular demand for black activities, because the buyer also derives an advantage from the activity not being declared to the tax authorities. Payment in the black market is higher after tax than if the activity had been declared to the tax authorities, and it is this higher after-tax income that creates the supply of labour in the black market.

From a labour market point of view, therefore, there are good reasons for distinguishing between tax evasion and black activity, as is the practice in Danish research. This does not always seem to apply in the public debate, however, where ordinary tax evasion, e.g. not declaring the income from renting a weekend cottage at full market price, is often called a black activity.

### **1.3 Different ways of measuring the shadow economy and black activities**

Apart from questionnaire surveys, various other methods for measuring the shadow economy and black activities have been developed. These are usually

divided into two main groups, namely direct and indirect methods. The former include questionnaire surveys and the auditing of tax returns. With indirect methods, researchers try to measure the “traces”, so to speak, which the shadow economy leaves in the official statistics. Indirect methods include surveys which look at the differences between income and expenditure at household level, discrepancies in the national accounts, differences between officially measured participation rates and actual participation rates, monetary methods, and the so-called model approach.

These methods will be relatively briefly described in the following, except for monetary methods, which deserve a bit more attention, partly because they are the most widely used, and partly because every time results obtained using these methods have been published, they attract especial attention in the media, and with it the possibility for influencing policy, which makes the quality of the measurements particularly relevant.

### **1.3.1 Direct methods**

Direct methods of measuring the shadow economy are based on contact with or observation of persons and/or firms. Questionnaire surveys are by far the most common method, either in the form of telephone interviews, face-to-face interviews or postal questionnaires. This type of survey has been the most widely used in Denmark in studies of black activities, and in this book has been expanded to also include Norway, Sweden, Germany and Great Britain. These are dealt with in more detail in the following chapters.

As mentioned above, another type of direct method involves the auditing of tax returns. With this method, the observation of persons and/or firms is based on careful audits of taxpayers’ information to the tax authorities. Audits of taxpayers’ own information about income and deductions can, to some extent, reveal whether such information is correct. Based on the errors the tax authorities find in tax returns, it is therefore possible to get an approximate idea of the overall extent of tax evasion.<sup>5</sup>

One advantage of the method is that it gives a precise idea of which industries and income groups in particular avoid paying their rightful tax. This is not possible with the indirect methods based on macro-figures (see below).

A disadvantage of the method, however, is that it is generally not based on random samples of the population, since, due to lack of resources, the Inland Revenue focuses only on those persons and firms who they already suspect of under-

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<sup>5</sup> The method has, for example, been used in the USA by Carl P. Simon and Ann D. Witte (1982), in Sweden by Håkan Malmer and Annika Persson (1994), and in Denmark by Gunnar Viby Mogensen (2003).

declaring income.<sup>6</sup> It is therefore not possible, using this method, to estimate an entirely credible figure for the extent of underdeclaration for the whole economy.

But even were the Inland Revenue to select a representative sample of taxpayers, and examine them carefully, the method is not without problems. As pointed out by Håkan Malmer and Annika Persson (1994), an audit of a representative sample would still not be able to detect so-called “non-filers”, i.e. persons or firms who are unknown to the authorities. The method also has difficulty in identifying black activities, unless it is so blatant as to be reflected in unexplainably high consumption and savings compared with declared income.

### **1.3.2 Indirect methods**

Frank A. Cowell (1990) has described the indirect methods in very expressive terms, saying that these approaches can be compared with counting how many molehills there are in your garden! Indirect methods are based on the assumption that the shadow economy leaves a number of clues on the surface, from which it is possible to form an idea of what is going on below.

By means of consumer surveys, it is possible to compare income and expenditure at the individual level over a certain period. Consumer surveys are detailed surveys of the population’s incomes and consumption. Typically, consumption is measured by asking a random sample of the population to carefully record their consumption over a period of, say, 14 days, and to also disclose their various incomes, taxes paid and savings.

If expenditure on consumption (plus savings plus taxes paid) exceed income, it can be because the household has had other income in addition to those disclosed.<sup>7</sup>

As with the tax authorities’ audits of declared incomes and deductions, the advantage of methods based on consumer surveys is that it is possible to identify those population groups that are especially active in black markets.

The method is not without its problems, however. For example, even if respondents are completely honest and declare all their income – including income from the shadow economy – it will not be measured anyway, since it is assumed

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<sup>6</sup> While the Danish study referred to does, in fact, include all taxpayers in a Danish urban community, the study is retrospective (before 1980), when control was still not selective, cf. Viby Mogensen, 2003.

<sup>7</sup> Dilnot & Morris (1982) have used this method in Great Britain. Pissarides et al. (1986) and Pissarides & Weber (1989) have, also for Great Britain, used consumer surveys to examine tax evasion by the self-employed in particular, while Apel (1994) has used the method on Swedish data.

that people with income from the shadow economy will not disclose it in a consumer survey. It is also assumed that black income is spent, and not, for example, put into a Swiss bank account.

Finally, it can be mentioned that Niels Ussing (1953) and the Det Økonomiske Råd (Danish National Council of Economic Advisors) (1967) have tried to determine the extent of tax evasion for wage-earner households on the basis of consumer surveys in 1948 and 1963 respectively. Both studies strongly warn against uncertainty in the results, which show an “evasion percentage” for wage-earner households of about 10-15% in 1948 and 7% in 1963.

In the national accounts the size of the black economy can be estimated by looking at various discrepancies and residuals. As a rule, this is done by comparing the overall estimate of the national accounts, which contains the main part of the black economy, with estimates based on certain parts of the primary statistics, including data from the tax statistics, which solely reflect the “white” economy.

Both incomes and expenditure are measured in the national accounts, but since they are based on different statistical sources, with consequent discrepancies, it is necessary to balance these in accordance with accepted accounting principles. Since, for tax reasons, the tendency to under-report is assumed to be greater for income than for expenditure, the estimate from the expenditure side is assigned the biggest weight in the estimation of total economic activity.<sup>8</sup>

Det Økonomiske Råd (The Danish National Council of Economic Advisors, 1967, 1977) has attempted – while at the same time emphasising the uncertainty involved – to estimate the extent of tax evasion in Denmark by comparing total personal incomes in 1963 according to tax statistics with total personal net incomes based on the national accounts. This comparison shows that the figure for incomes according to the tax statistics is less than that derived from the national accounts statistics. This difference was estimated at between DKK 5-6 billion in 1963, corresponding to 11-13% of personal net income. In 1977, the Danish National Council of Economic Advisors (NCEA) made a similar estimate for the beginning of the 1970s. Here, the NCEA found a fall in total underdeclaration, from a level of 10.8% of personal net income in 1970/71 to 6.2% in 1974/75.

According to Claus Larsen (2002) the above-mentioned figures from the NCEA, which were subsequently referred to in, for example, Tanzi (1983) and Pesut (1992), were presented as underdeclaration as a percentage of GNP, whereas they are more accurately the proportion of – somewhat smaller – personal incomes according to the national accounts. In fact, Claus Larsen shows that the

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<sup>8</sup> The method has been used in, for example, W. Germany, Great Britain, Sweden, Holland, Italy, France and Austria – see Søren Pedersen (1998) for a more detailed account.

NCEA's figure for underdeclaration in relation to GNP is more rightly 9% in 1970/71 and 4.8% in 1974/75, and not, as the aforementioned sources say, 10.8% in 1970/71 and 6.2% in 1974/75.

As indicated above, however, this method is not foolproof either. As pointed out by the NCEA (1967, 1977), the difference between incomes derived from the tax statistics and incomes derived from the national accounts – also called the discrepancy – is not just a reflection of the size of non-declared incomes. It also reflects differences in definitions of income, the assessment of benefits in kind, consumption of own products, etc. In addition, as pointed out by Stetkær (1983), the Council's figures are based on national accounts figures that have later been revised. Stetkær estimates the difference to be nearer 4% in 1975. It should be noted that this method misses a lot of black activities.

In a new and extremely detailed book about the history of tax evasion in Denmark, Gunnar Viby Mogensen (2003) has made new calculations of the discrepancy based on the national accounts using a slightly improved version of the NCEA's method. These calculations cover the whole period from 1947-76, based on the old version of the national accounts, SNA68. Claus Larsen (2002) has also shown the same calculations for the discrepancy for the period 1981-99, though based on the new version of the national accounts, ENS95. It is thus possible to draw a curve of the trend in the discrepancy as a proportion of GDP for the whole of the period 1947-99, with a break in the data between the curves before and after 1977 and 1980, cf. figure 1.2.

It is worth noting in this connection that Viby Mogensen's analysis of tax evasion actually goes as far back as 1875 – i.e. before there were any national accounts. In order to draw a curve for the whole of the period 1875-1990, Viby Mogensen puts the figures for the discrepancy based on the national accounts in the period 1947-90 in relation to personal incomes, and not to GDP, as is done here in figure 1.2.

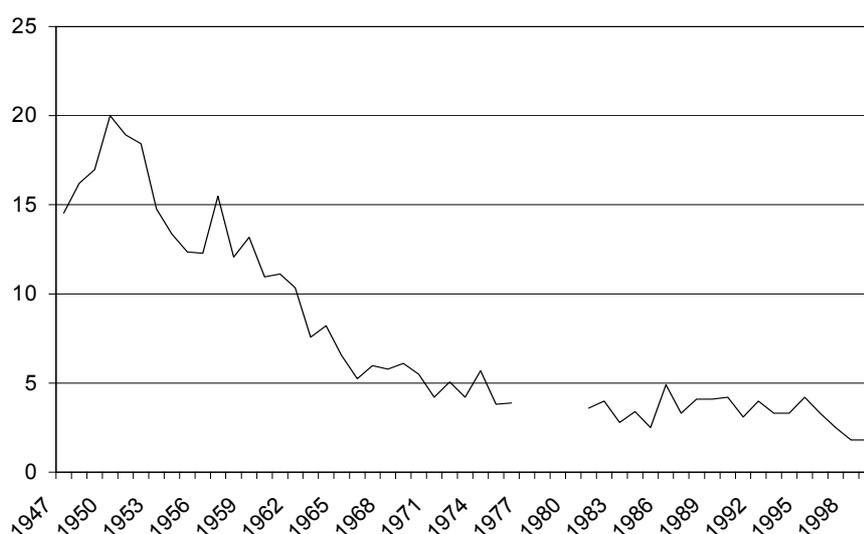
Viby Mogensen also finds that Stetkær's (1983) aforementioned adjustment for differences of definition can hardly be that big, so the discrepancy in 1975 is more likely to be 5.3%, cf. table 6.2 in Viby Mogensen (2003), than Stetkær's 4% and the NCEA's 6.2%.

As mentioned above, figure 1.2 shows the discrepancy in relation to GDP for the period 1947-99. As can be seen, after a rise from 1947 to 1950 there was, according to Viby Mogensen's (2003) and Claus Larsen's (2002) figures, a fall throughout the whole period from around 20% to about 4% of GDP at the end of the 1980s. This fall in underdeclaration as a proportion of GDP occurred at the same time that the tax burden – here measured as direct personal taxes paid to state, county and municipality as a percentage of taxable income – rose from

15.2% in 1947 to 43.4% in 1989, cf. appendix table 2.1 in Viby Mogensen (2003).

Finally, it can be mentioned that the EU is currently making major efforts to determine the accuracy of member countries' national accounts. This also includes determining the extent to which they include activities in the black economy. This will not be discussed further here. See Esben Dalgaard (1998) for a more detailed discussion.

**Figure 1.2: Trend in the discrepancy as a measure of underdeclaration in Denmark since 1950, percent of GDP**



Note: The discrepancy states the difference between personal incomes according to the national accounts and tax statistics respectively. The figures for the period 1947-76 are a new estimate using the same method as the NCEA (1967, 1977), but with a slightly improved estimate of the correction for measurement errors. The figures for the discrepancy in 1947-76 are put in relation to GDP and the calculations are based on SNA68, while the discrepancy and GDP for 1981-99 are based on the national accounts revision, ENS95.

Source: 1947-76: Gunnar Viby Mogensen (2003, table 6.2)  
1981-99: Claus Larsen (2002, table 5.1)

The extent of the shadow economy can also be measured by looking at the difference between the participation rate measured by the official statistics and that measured in other, independent studies. This method has especially been used by Italian researchers, cf. Frey & Pommerehne (1982, 1984) and Pyle (1989).

The method was developed after observations showed that participation rates were significantly lower in Italy in the 1970s than in other western countries, e.g. the USA and France.<sup>9</sup> According to Contini (1981, 1982), the official participation rate in Italy in 1959 was 44%, which was about the same as the other countries at that time. A study carried out by ISTAT (the Italian central bureau of statistics) in 1971, however, showed a participation rate of 42%, while the official participation rate was only about 36%. Another study in 1977 (also carried out by ISTAT) showed that the participation rate was over 41%, against an official rate of under 33%. The difference between the two figures is assumed to be attributable to the shadow economy.

In Italy, the method of using employment participation rates from censuses and labour force surveys, as opposed to registered employment in firms, has proved extremely effective in exposing holes in the statistical coverage of production, and have been crucial for revealing the size of the black economy of 18% of GDP in 1982, cf. Esben Dalgaard (1998).

The so-called model approach has been used for most OECD countries. The main contribution, an article in which the extent of the shadow economy is determined in 17 OECD countries, is published in Frey & Weck-Hanneman (1984). Later, Aigner et al. (1988) used the method on figures for the USA. Briefly, the method assumes that the shadow economy is an unobserved variable which is influenced by various factors, and which can be measured via various indicators. The advantage of the model approach compared with, for example, monetary methods, cf. section 1.3.3, is that it allows more factors than just the tax variable (as, for example, in Tanzi). Another advantage is that there are other indicators than, for example, just the growth of notes and cash in circulation.

According to Frey & Weck-Hanneman (1984), the shadow economy can be explained by four factors. Firstly, taxation and the jungle of laws and regulations imposed by the State. Thus, argue the two authors, an increase in taxation and regulations will lead to an increase in the shadow economy. Secondly, people's tax morality, where it is assumed that declining tax morality will result in an increase in the shadow economy. The third factor is the level of economic development (as measured by real disposable income per capita), and, lastly, unemployment. According to Frey & Weck-Hanneman, it is impossible to predict in advance how unemployment and economic development influence the size of the shadow economy.

Three variables are used as indicators for the shadow economy: The growth in real GDP, the participation rate for men, and the number of hours worked. All

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<sup>9</sup> According to Frey & Pommerehne (1982), which is based on official OECD statistics, the participation rate in Italy in 1975 was 35.5%, against 42.3%, 42.7% and 44.4% respectively in France, W. Germany and the USA – see also Pyle (1989).

three indicators are assumed to have an inverse correlation with the shadow economy. Only men's participation rate is used, since, according to the authors, women's participation rate is due to other factors than activities in the shadow economy.

Based on the data for the causal and indicator variables, a special statistical model is constructed which can be used to determine the growth and size of the shadow economy. However, a major drawback of the method is the difficulty in obtaining reliable data for the causal variables, e.g. the degree of public regulation, which Frey & Weck-Hanneman approximate by looking at the proportion of public employees in relation to total employment. As pointed out by Pyle (1989), however, not all public employment necessarily leads to regulation. For example, it is hard to see how nursing staff in old people's homes and hospitals are supposed to lead to an increased regulation of the population.

Obtaining reliable data for changes in tax morality is even more difficult. For countries where such data is not available, the median for tax morality between the Scandinavian countries, Britain and the German-speaking countries is used. Pyle (1989, p. 80) is particularly critical about this approach, since he feels that the construction of a variable for tax morality for countries where such a variable does not exist is highly suspect. And there is no denying the absurdity of using another country's figures for tax morality.

It is interesting to note that, in his book on the history of Danish tax evasion, Gunnar Viby Mogensen has checked all relevant opinion polls on public attitudes to paying and evading tax back to 1959. Based on this, he has constructed an index (Gunnar Viby Mogensen, 2003, figure 10.8) of the trend in tax morality. However, he himself calls this an "outline", since, of course, any index based on a number of differently formulated questions on people's attitudes to tax laws is bound to be highly uncertain.

According to Viby Mogensen's new figures, the trend in tax morality was fairly stable up to the introduction of the pay-as-you-earn system (PAYE) in 1970, and then seems to have improved slightly up to 1990. Generally, however, tax morality is remarkably constant over the whole period, and this at a time when direct personal taxes paid to state, county and municipality rose as a percentage of taxable income from 17.4% in 1959 to 43.4% in 1989, cf. appendix table 2.1 in Viby Mogensen (2003).

Based on the estimation of an advanced statistical model, Frey & Weck-Hanneman find that the tax burden, degree of public regulation and tax morality are significant causes of the shadow economy. By means of this equation, the authors can determine the relative size of the shadow economies of the 17 OECD countries, where Sweden has the biggest, followed by Belgium and

Denmark respectively, while Japan, according to this method, brings up the rear with the smallest shadow economy.

To determine the extent of the shadow economy in the various OECD countries requires, as a starting point, a figure for the shadow economy in one of them, but measured using another method. Frey & Weck-Hanneman use figures for Norway and Sweden for 1978, which Klovland (1980) estimated using a monetary method (see below), as their basis. But, as Pyle (1989) notes, this approach suffers from the drawback that, in 1984, Klovland's tax variable for Norway was negative, which caused the method to break down (see also below). Thus, the figures for Norway are extremely uncertain, which obviously affects Frey & Weck-Hanneman's estimates.

Due to the considerable problems of obtaining reliable data for the causal variables, the method cannot be regarded as giving a true picture of the size of the shadow economy, so it is not discussed further here. Pyle (1989) also finds that data reliability is the most serious drawback of the method, which Frey & Weck-Hanneman (1984, p. 47) themselves point out (see also Schneider, 1997, note 3).

### **1.3.2.1 Monetary methods**

Monetary methods are probably the most widely used ways of measuring the size of the shadow economy. In principle, monetary methods can trace the trend in the shadow economy over longer periods of time.

The monetary methods are based on the presumption that actors in the shadow economy only want to be paid in cash, since there is a possibility, however remote, that the authorities can trace transactions which have been paid for by cheque or credit card. If transactions in the shadow economy are paid for in cash, one way of determining the size of the shadow economy would be to compare people's actual demand for cash with the demand that could be expected if there were no shadow economy.

The monetary method has been used to determine the size of the shadow economy in Denmark by Friedrich Schneider & Jens Lundager (cf. Schneider (1985, 1986) and Schneider & Lundager (1986)), and later by Friedrich Schneider & Dominik H. Enste (2000) and updated in Schneider (2002), and in Pedersen (1991, 1995).<sup>10</sup>

The monetary methods used for Denmark are based on the work of Vito Tanzi (an American economist) from 1980, and later modified by Jan Tore Klovland (1984).

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<sup>10</sup> See also Schneider & Enste (2000) and Schneider (2002) for estimates of the size of the shadow economy in a large number of countries.

Four conditions must be satisfied, namely that only cash is used in the shadow economy, that, in a given base year, the size of the shadow economy can be set at 0, and that the velocity of circulation for cash is the same in the shadow economy as in the formal economy. Finally, it is assumed that the sole cause of activities in the shadow economy is the trend in the tax burden.

According to Schneider (1985), in 1980 the shadow economy was between 7-13% of GDP in Denmark, while for the period 1978-82 he found it to lie between 7-10% of GDP (Schneider, 1986). The difference is due to different model specifications and different definitions of the tax variable.

By updating Schneider's figures from the mid-1980s, Schneider & Enste (2000) found that the shadow economy was, on average, 18.2% of GDP in 1996/97. Completely new figures in Schneider (2002), which include 2001/2002, put the size of the shadow economy in Denmark in 1999/2000 at 18% of GDP and 17.9% in 2001/2002.<sup>11</sup>

Pedersen (1991) attempted to repeat Schneider's results and update them to 1988.<sup>12</sup> However, despite communication with Schneider in 1991, it was not possible to use the same data set, which meant trying to recreate the data set from the very detailed definitions of the variables in Schneider (1985, p. 39-46). Unfortunately, the attempt failed, because it resulted in the main tax variable being negative, which caused the method to break down.

It is naturally unsatisfactory that an attempt to repeat Schneider's results turns out so differently. One of the likely explanations for this is that it was not possible to fully recreate Schneider's data, as noted in Pedersen (1991). Using a slightly different model specification, Pedersen (1991, 1995) found the shadow economy in 1982 to be just under 3% of GDP, against Schneider's (1985) over 12% of GDP using the same definition of the tax variable. There is thus a considerable difference between the two estimates. For 1990, Pedersen (1995) estimates the size of the shadow economy in Denmark at 1.8% of GDP.

Schneider & Lundager (1986) have also estimated the size of the shadow economy in Sweden and Norway using this method. The results for Norway show that the tax variable explains a significant part of the demand for cash. This is the exact opposite of Klovland's (1984) result, since his tax variable for Norway was negative. Schneider & Lundager (1986) even use the same data<sup>13</sup> as Klovland (1984), albeit with a slightly different model specification.

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<sup>11</sup> Schneider's figures for the size of the shadow economy in the other countries in this survey are 19.0%, 19.1%, 16.3% and 12.5% of GDP for Norway, Sweden, Germany and Great Britain respectively.

<sup>12</sup> In Viby Mogensen et al. (1995), Pedersen's (1991) results are updated to 1990.

<sup>13</sup> Cf. end note 10 in Schneider & Lundager (1986, pp. 30-31)

Apart from this, the monetary methods can be generally criticized for the assumptions they are based on.

One such problem is the assumption that transactions in the shadow economy are solely cash transactions. In Norway, Isachsen & Strøm's (1981) results for 1980 showed that fully 20% of activities in the shadow economy were non-cash transactions. And a more recent study in Norway by Per Arne Tufte (1994) shows that 23% of black activities in Norway are not paid for in cash. The latest data, which are reported later in this book, show that 56.3% of black activities in Norway are not paid in cash, the corresponding figures for Sweden, Germany and Great Britain being 39.5%, 36.8% and 65% respectively. The latest data for Denmark puts this figure at 35% - 57% for Denmark, cf. Viby Mogensen et al. (1995). Cash is not the only form of payment that is hard to trace – trying to trace black activities paid by cheque would require enormous resources, which is why cheques have become a close substitute for cash.

Thus, the monetary methods do not measure black activities where payment is by cheque or in the form of a quid pro quo (also called friendly turns), which the questionnaire surveys indicate constitute up to 50% of black activities.

The assumption of the absence of a shadow economy in a given base year is also unrealistic. This base year is selected more on the basis of how far back in time it is possible to obtain data than on which year or period there is unlikely to have been a shadow economy.

As pointed out by Gunnar Viby Mogensen (2000), about DKK 3 billion came to light after the currency reform in Denmark in summer 1945, which corresponded to about 1/3 of Danes' annual personal income at the end of the second world war. However, as Viby Mogensen rightly points out, these DKK 3 billion cannot be regarded as reflecting underdeclaration in a single year alone, since they consisted of hidden assets that had been accumulated over several years and non-declared interest from older, hidden assets, etc. The figure does show, on the other hand, that the assumption that tax evasion did not exist before 1950 is heroic.

The assumption that the size of the shadow economy is only influenced by the level of taxation is also questionable. As pointed out in the theoretical literature, e.g. Cowell (1990), the risk of detection probably also plays a part in the extent of black activities or tax evasion. This, at any rate, is clear from the Danish questionnaire surveys, which show that women have a significantly greater probability of carrying out black activities where they judge the risk as being small or very small, cf. Pedersen (1998) and Chapter 3 later on.

Tax evasion and black activities are also affected by the size of fines and prevailing tax morality. However, none of these variables is included in the monetary models as explanatory variables.

Finally, the increasing use of cheques, postal giro and credit cards should also be included in the estimations of the demand for cash. In Denmark, for example, the value of payments using Dankort (a type of debit card) was more than 15 times higher in 1995 than in 1987, and, according to Danmarks Nationalbank (The Danish Central Bank, 1996), amounted to over DKK 80 billion in 1995.

A last, and special, problem for monetary estimates in countries such as the USA and Germany is that these countries' currencies also function as parallel currencies in other countries with high inflation.<sup>14</sup> It has been estimated that up to 2/3 of all US dollars issued circulate outside the USA, the corresponding figure for DEM being approximately 40%, cf. Danmarks Nationalbank (The Danish Central Bank, 1996).

As mentioned above, Schneider's (2002) figures for 1999/2000 and 2001/2002 for Denmark show that the shadow economy was about 18% of GDP, or over DKK 240 billion (more precisely, DKK 241.8 bn).<sup>15</sup> This is far higher than, for example, the questionnaire surveys for Denmark indicate. As observed by Viby Mogensen (2000), Schneider's figures also indicate that the size of the shadow economy rose from about 7.5% of GDP in 1963 to 13.7% in 1974/75. In the same period, according to the above-mentioned figures from the NCEA, total underdeclaration fell from 12.4% of personal incomes in 1963 to about 6% in 1974/75.

The increase in Schneider's figures up to the present has occurred in a period where it has become increasingly harder for people to evade tax, namely because practically all income today is automatically reported by employers to the Inland Revenue, as are all deductions, e.g. interest deductions, by the banks and unemployment insurance contributions by the unemployment insurance funds.

Viby Mogensen (2000) has estimated that, based on Schneider & Enste's (2000) figures, the size of the shadow economy in 1996/97 corresponds to 26% of total personal incomes. The figure of over DKK 240 billion in 2001 is in prices in the "white" market before tax and VAT. In other words, it is the value of the work and tax evasion had it been carried out in the formal market (usually with subsequent payment of tax and VAT, etc.). If we assume that the value in the black market is 47% of that in the formal market, namely DKK 16 billion, as opposed to the DKK 34 billion indicated by the Rockwool Foundation Research Unit's

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<sup>14</sup> For Germany, this applies before the introduction of the Euro.

<sup>15</sup> According to Statistics Denmark's (2002b) economic statistics, GDP was DKK 1,343,142 million in 2001 (preliminary figures).

latest survey for 1998 (cf. Søren Pedersen, 1999), the value of DKK 240 billion corresponds to over DKK 113 billion in black prices. According to Statistics Denmark, there were 3,655,827 persons in the 15-66 age group on January 1, 2001. On average, therefore, *every* Dane in this age group would have had to earn about DKK 31,000 in black wages in 2001, which seems unrealistic to say the least.

OECD (2002) is very sceptical about the monetary methods. In the handbook *Measuring the Non-Observed Economy* they write page 187 “Such methods are discussed in this chapter not because they are considered useful in obtaining exhaustive estimates of GDP or in estimating underground production, but because they tend to produce spectacularly high measures, which attract much attention from politicians and newspapers” Later on page 190 OECD (2002) writes “Monetary macro-models are unsuitable for estimating the underground economy primarily because they are based on modelling assumptions that cannot be justified”.

It should also be noted that EU’s statistical office, Eurostat, do not see the monetary models as appropriate in the member countries attempts to include the black economy in the national accounts.

#### **1.4 Concluding remarks**

As can be seen from the above, there are many different definitions of the shadow economy, black economy, underground economy, and the various other terms for the same phenomenon. Moreover, many different methods have been developed to measure the size of the shadow economy, and these vary both in their approach to the problem and in the assumptions on which they are based. There are also big differences in how widely used the methods are in the countries concerned, and in the period measured.

It is therefore extremely difficult to compare the size of the shadow economy in the different countries. The following chapters present results for the structure and extent of black activities in Denmark, Norway, Sweden, Great Britain and Germany based on the same definition and question design in each country, and which are therefore almost 100% comparable.



## **2. Design of the questions, and the response rate and non-response rate in the questionnaire surveys in Denmark, Sweden, Norway, Germany and Great Britain**

### **2.1 Introduction**

As chapter 1 showed, the other methods than questionnaire surveys for measuring the size of the shadow economy are connected with a considerable degree of uncertainty which, for some, is also based on overoptimistic assumptions.

Questionnaire surveys are not 100% foolproof either, of course. The biggest drawback of the method is that you can never be sure that people answer the question about carrying out black activities honestly. And even if they have answered “yes” to this question, it is not certain that they have disclosed the true extent of these activities, i.e. the total number of hours involved and their actual black hourly wage. Moreover, there is always a certain non-response in any questionnaire survey, and this can give a distorted picture of the true extent of black activities.

On the other hand, many of the other methods developed to measure the shadow economy mentioned in chapter 1 are unable to bring out this difference between black activities and tax evasion shown in figure 1.1. Most of these methods measure the whole shadow economy. Questionnaire surveys can get around this problem, however, by informing respondents precisely what is meant by the shadow economy, and, which is more relevant for this survey, black activities. Questionnaire surveys have also been used for the surveys in this book, where respondents have been explicitly informed what is meant by black activities – i.e. both buyer and seller of the activity must derive an advantage from not declaring it to the tax authorities. In other words, they split the saved tax and VAT between them.

Questionnaire surveys are also suitable for measuring those parts of black activities where payment is not in cash but in kind, or in the form of a quid pro quo.

The question design must fulfil two criteria:

- The questions, which are based on the thoroughly tested Danish questions, must be comparable between countries.
- The questions must also take account of the different legislation in the countries concerned, so that they only measure black activities which are

taxable according to these countries' legislation. This means that some activities can be taxable in one country but not in another.

The following section thus presents a brief account of the tax situation in Denmark, Sweden, Norway, Germany and Great Britain, and thus of where the boundary lies between what is taxable and what is not in the five countries. This constitutes an important part of the background of the questions used, which are also presented here.

Finally, the chapter ends with a short discussion of important technical aspects of the various surveys, especially response rates and non-response rates.

## **2.2 Design of the questions**

### **2.2.1 Denmark**

Clear cases of black activities include, for example, a craftsman paid in cash who agrees to do "non-invoiced" work – where the saved tax, VAT and possibly also the master's profit are shared between both parties. Other obvious cases can be cleaning, hairdressing, day-care and black transactions, e.g. selling half a side of pork at the farm gate.

However, black activities do not have to involve money changing hands. In the Danish questionnaire surveys, as in Danish tax legislation, black activities also include the sale of goods/services where payment is in the form of a quid pro quo now or later. This is more popularly called a friendly turn.

It should be emphasised, however, that it must involve a friendly turn, e.g. where a bricklayer builds a garage for his neighbour, who then repairs the bricklayer's car "as payment". This is because tax legislation (Statsskatteloven §§ 4-6) does not distinguish between an income in the form of money or other asset of economic value, cf. also Søren Pedersen (1998).

The tax assessment manual (Ligningsvejledningen) for 1996 mentions an example in which payment for a piece of work is in the form of a quid pro quo that is taxable: "A bricklayer did some work for his brother-in-law, a motor mechanic. In return, the brother-in-law did some work on the bricklayer's car. The mechanic was taxed on the value of the bricklaying, while the bricklayer was taxed on the value of the car repairs. In these situations, the work must be taxed *irrespective* (author's emphasis) of whether it is within the line of work of the person concerned, and *irrespective* (author's emphasis) of whether an asset has been created, inasmuch as a payment has been made for work carried out" (p. 95).

A ruling in Landsskatteretten (Danish National Tax Tribunal) supports this: “Where people who build their own homes – also including non-craftsmen – form a group who *jointly build a number of houses* for their own use, then according to National Tax Tribunal practice, each of them is liable to tax on the value of the work the others have done for him, this being considered as payment for the work he has done for them (LSR 1965-102)”, cf. Hans-Egon Kolding in *Skatten 2001* (p. 182): People who build their own homes are also mentioned in the tax assessment manual for 2000, p. 95, which discusses cases where taxpayers receive payment for work in various forms, e.g. payment in kind, by others doing work for the taxpayer without charge, or by a reduction in the taxpayer’s non-deductible expenses (cf. Landsskatteretten 1952.128 and 1965.102).

In an article on the taxation of the value of own work for craftsmen and others in the construction industry, Susanne Pedersen, a solicitor, refers to a ruling of the National Tax Tribunal on the taxation of a quid pro quo discussed in the journal *Revision og Regnskabsvæsen* (Auditing and Accounting) from 1977. In the case in question, a carpenter was taxed on the value of the bricklaying and concreting of a basement, corresponding to DKK 1,000, which his fiancée had done in their joint home (cf. *Foreningen af Statsautoriserede Revisorer* (The Institute of State Authorised Public Accountants), 1977). His fiancée’s work was regarded as a quid pro quo for the value of the carpenter’s work in their joint home.<sup>16</sup>

Tax legislation is thus quite clear on this. On the other hand, in practice the Inland Revenue will obviously not pursue many of the cases which can be called friendly turns and which, at the same time, involve mutual quid pro quos, since one of the requirements of assessment is that it should be “material”. This means, therefore, that corrections that involve only minor amounts will not be pursued, even though there may be a legal basis for doing so. But since quid pro quos, according to the law, *actually* are taxable, they are also included in the Danish measurements of black activities.

The Danish questionnaire surveys exclude trivial services altogether, e.g. someone who takes their sick neighbour’s dog for a walk, cf. below.

In the Danish questionnaire surveys, the instructions to interviewers include an example of what is regarded as black activity and what is not. The instruction regarding the dividing line between black activities and friendly turns is as follows:

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<sup>16</sup> The published decision says nothing about whether the carpenter’s fiancée was regarded as being taxable on the value of the carpenter’s work from a quid pro quo point of view.

*“The concept is regarded more broadly here. It does not have to involve money. Work or services which are only (now or later) expected to be “paid” in kind, and which some people often just regard as good neighbourliness, friendly turns, etc., are also considered “black activities” in this survey. Such activities give people an economic benefit which should be taxed. Only services within the nuclear family and completely trivial services outside the family fall outside our definition of black activities – e.g. walking a sick neighbour’s dog. However, it is regarded as a “black” activity if, for example, a farmer permanently stables a horse for a neighbour, who, in return, drives the farmer’s children to and from school every day”.*

The definition of a household can also make the distinction between black activities and the household sector more difficult, cf. Viby Mogensen (1985). Work done on the house by a son still living at home will therefore be counted as part of the household sector (DIY activities), and thus not black activity. But how distant does the family connection have to be before it is counted as black activity? The Danish questionnaire surveys follow the practice of the Danish Inland Revenue, i.e. activities carried out by family members outside the nuclear family are counted as black activity (see also the instructions to interviewers above).

It should be emphasised here that leaving the question of definition partly up to the interviewer’s discretion is not without its problems, of course. While the aforementioned instructions – written, and, in the latest surveys, also oral – prior to the interviews try to eliminate as much variation in these judgements as possible, it cannot be eliminated completely.

In addition to this, there is also another problem during the interview itself. Despite the fact that, in the Danish surveys, the Rockwool Foundation Research Unit has always used highly qualified interviewers from both the Danish National Institute of Social Research and Statistics Denmark, it cannot be ruled out that, in the actual interview situation, the interviewer may feel somewhat uncomfortable asking questions about black activities, which, after all, are illegal. The same presumably applies to the interviewers who have carried out the surveys for the Rockwool Foundation Research Unit in Norway, Sweden, Germany and Great Britain.

Since, as can be seen in the following sections, the questionnaire contains very direct questions about black activities, we have chosen to lead up to these by asking whether the respondents have done any DIY work – a completely legal

activity – in the home. The questions about DIY work are thus included to put respondents more at ease before starting on the questions about black activities.<sup>17</sup>

In Denmark, Viby Mogensen et al. (1995) tried to find out whether it was possible to demonstrate a so-called interviewer effect on the questions about black activities, i.e. whether the interviewer could inadvertently influence respondents' answers, not just by virtue of their appearance (sex, age, social status, possibly also skin colour, etc), but also through their own expectations and attitudes. However, in order to properly assess this, it also involved looking at other questions which could be assumed to be sensitive, e.g. questions about gross earnings, whether the respondent had smoked marijuana or taken sleeping pills, etc.

The results of these investigations showed that an interviewer effect on questions about black activities could be demonstrated. But an interviewer effect was also demonstrated on other sensitive questions of the kind mentioned above. While the biggest effect was indeed found for questions about black activities, it was not much higher than for the other questions. Furthermore, there also proved to be an interviewer effect on a question which was expected to be less sensitive – whether the respondent had a higher preparatory examination or A levels.

It has not been possible to determine whether this interviewer effect pulls the frequency of black activities in one direction or the other. However, the mere presence of such an effect means that the results are subject to greater uncertainty.

However, this uncertainty is probably far less than the effect produced by changes in the questions themselves, cf. Viby Mogensen et al. (1995).

In addition to the omnibus surveys carried out by the Danish National Institute of Social Research and Statistics Denmark, the questions about black activities have also been used in two major surveys, in 1993/94 and 1996 respectively, about incentives in the labour market. All the surveys have asked whether respondents have carried out black activities themselves. The questions begin with the following text, which is read aloud to the respondent:

*“The next questions are about what are popularly called  
“black activities”.*

*There is considerable evidence to show that a large part of  
the population accepts “black activities” and “black trans-  
actions” – i.e. activities which circumvent the Inland Reve-*

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<sup>17</sup> A separate analysis of do-it-yourself (DIY) activities will be published in 2003 in Søren Brodersen, *Do-it-yourself work in North-Western Europe. Maintenance and improvement of homes.*

*nue, where all parties benefit because they do not pay tax or VAT, etc.*

*This can involve “black activities” which you pay for in cash, but can also include reciprocal favours between friends, acquaintances and family members”.*

This is followed by the question itself:

*“Have you carried out activities of this kind during the past year?”*

The interviewers are thus careful to ask about activities where both buyer and seller of the activity are clear about, or assume, that nothing is declared to the tax authorities. As can be seen, we are now in the “box” in figure 1.1 called “black activities (at less than full price)”. From the above question, it can also be seen that the interviewer asks about the foregoing year.

These questions have been followed by others over the years, e.g. about the kind of black activity, how long they have been carried out, black hourly wages, etc.

### **2.2.2 Sweden**

In 1997, the Swedish government gave Riksrevisionsverket (the National Audit Office) the task of trying to determine the extent of black activities and tax evasion in Sweden. Riksrevisionsverket then contacted the Rockwool Foundation Research Unit and proposed using the Danish questionnaire method in one of the Swedish surveys, on tax evasion in Sweden.

In the Swedish survey, Riksrevisionsverket (1998a, p. 16) defines black activities as follows:

*“By black activities is meant work done by a wage earner for compensation which, despite being taxable, is not declared to the tax authorities.*

*By black activities regarding the self-employed is meant earned income from a firm which goes to the owner and which, despite being taxable, is not declared to the tax authorities.*

*In principle, this involves both work paid for in cash and work paid for in kind, or through various kinds of benefits and tax deductions”.*

As can be seen, as in Denmark it is immaterial whether payment is in cash, or in the form of payment in kind or quid pro quos.

Riksrevisionsverket has then used the Danish questions, adapted to Swedish conditions, to investigate the extent of black activities as defined in figure 1.1. As mentioned by Riksrevisionsverket (1998a, p. 37), the Rockwool Foundation Research Unit has been responsible for the content and framework of the questions, while Riksrevisionsverket was responsible for adapting them to Swedish conditions.

The introductory text in the Swedish survey was as follows:

*“The following questions are about work done for payment which is not declared to the tax authorities, i.e. “black activities”. All the indications are that large parts of the population accept “black activities” and non-invoiced transactions.*

*The questions concern work paid for in cash, but also the exchange of services or goods between friends, acquaintances or family members outside the household. It can also include the sale of goods without a receipt, e.g. market trade or other “black” transactions.*

*Have you carried out such work or sold goods without a receipt within the last 12 months?”*

Due to a technical error, the phrase “where all parties benefit because they do not pay tax and VAT, etc.” was accidentally left out of the introductory text. In isolation, this means that the proportion of Swedes who carry out black activities will be slightly higher than it otherwise would, because it is not made clear from the start that both buyer and seller must derive an economic benefit in the form of saved tax, VAT, etc. It cannot be ruled out, therefore, that some cases involving only tax evasion are included, cf. the discussion in chapter 1.

However, the written instructions to the interviewers stress that it only involves cases where “All parties derive an economic benefit from the activity (through avoiding tax, VAT, etc.)”. In cases of doubt, the interviewers can inform the respondent of this orally.

An analysis of answers to the question about which black activities the respondents have carried out gives no indication that pure tax evasion as defined in chapter 1 has been included in the survey to any great extent. On the whole, therefore, the missing sentence in the introductory text is judged not to have had

any great influence on the results of this survey, and they can therefore be compared with those from other surveys reported on later in the book.

### 2.2.3 Norway

After the survey in Sweden had been successfully carried out in winter 1997/98, it was decided to try to repeat it in Norway, Great Britain and Germany.

The question design and introductory text for the Norwegian survey were as follows:

*“The following questions concern paid work which is not disclosed to the authorities – so-called black activities. There is considerable evidence to show that large parts of the population accept black activities and non-invoiced transactions, i.e. activities which are kept outside the tax system, where all parties benefit because they save on tax and VAT, etc. The questions include work carried out for payment in cash, but also the exchange of services or goods between friends, acquaintances, neighbours or family members outside the household.*

*Have you carried out activities of this kind during the last 12 months?”*

As can be seen, apart from some minor differences, the question is basically identical to that in the Danish surveys.

However, it is more difficult in Norway than in Denmark to say precisely which kinds of friendly turns – which also include quid pro quos – are taxable in Norway. According to Thorbjørn Gjølstad, head of the tax department at the Ministry of Finance, there is, in principle, a triviality limit of NOK 1,000. But, according to Thorbjørn Gjølstad, this does not mean that all friendly turns valued at over NOK 1,000 are taxable – in practice, there is a grey area where it is difficult to say whether a friendly turn is taxable or not. However, it cannot be ruled out that the Norwegian Inland Revenue would consider an income of, for example, NOK 1,001 as taxable if the activity was carried with the express purpose of avoiding tax.

It is thus more of a matter of opinion than, for example, in the Danish surveys. After discussion with Thorbjørn Gjølstad, the following examples were used in the interviewer instructions to help interviewers decide which activities should be considered as taxable in this survey and which should not.

Taxable activities:

- A bricklayer does some bricklaying for his brother-in-law, a car mechanic. As payment for the bricklaying, the mechanic repairs the bricklayer's car. In this case, the mechanic should be taxed on the value of the bricklaying, and the bricklayer on the value of the car repairs. This case is clearly taxable in the Norwegian survey, since the work concerned lies within the occupation of the person concerned.
- If a farmer stables a horse for his neighbour, and the neighbour, as payment, often does work on the farm, the neighbour is taxed on the value of stabling the horse, since this is considered as payment for work done on the farm. The farmer is also taxed on the value of the work the neighbour does for him, since this is payment for stabling the horse. This is a regular activity which has considerable economic value, and is therefore taxable.
- If people form a group and jointly build a number of houses for their own use, each of these is liable to tax on the value of the work the others have done for him, since this must be considered as payment for the work he has done for them. This applies irrespective of whether the people are craftsmen or not. This is a case of work of considerable value, which has also been systematized.

Non-taxable activities:

- Friendly turns, e.g. helping each other to move, are not considered as taxable. Nor is walking an elderly neighbour's dog and perhaps being given a bottle of wine or packet of cigarettes in return, even though it is done regularly.
- Keeping an eye on your neighbour's house and garden while they are on holiday against them doing the same in return is not considered as taxable either.
- If an elderly widow lends her garage to a neighbour, who looks after the garden – mows the lawn, etc. – as payment, it is not considered as taxable. The Inland Revenue is not likely to be interested in this, even though the activity occurs regularly and has a certain economic value.
- Two neighbours who help each other to replace a couple of roof tiles on each other's houses is not considered as taxable. However, if they replace the whole of each other's roofs, then it should be considered as taxable.

As the above examples show, there is no great difference between Denmark and Norway with regard to what is considered as taxable. It is probably only in the case of the elderly widow who rents her garage to a neighbour where, in princi-

ple, the activity would be taxed in Denmark, but not in Norway, if it came to the tax authorities' attention.

#### **2.2.4 Great Britain**

As can be seen from the above, there are no great differences in the definition of what are considered black activities in Norway, Sweden and Denmark. Adapting the question to conditions in Great Britain proved considerably more difficult, however, since tax legislation there differs a lot. These differences concern especially those activities where payment is not in cash, but in the form of a quid pro quo or payment in kind.

In Great Britain, one of the main criteria for liability to pay tax is that an activity can be regarded as being carried out for business purposes. A business activity is characterised by the following factors:

- a) *Motive*: If the activity is of a kind that is normally carried out as a hobby or for pleasure, it is not taxable. If it is not a hobby/for pleasure, on the other hand, it is more likely to be taxed.
- b) *Time*: If someone has owned something for a short time and then sells it for a profit, the activity is more likely to be regarded as being carried out for business purposes, and is therefore taxable.
- c) *Frequency*: The more often the activity is carried out, the greater the likelihood of it being regarded as being for business purposes, and thus taxable.
- d) *Processing*: A taxpayer who buys an asset, and who makes some kind of improvement to this asset and then sells it, is more likely to be regarded as carrying out a business activity which should be taxed.
- e) *Reason for sale*: If a person sells an asset primarily because he suddenly needs the money, it will most likely not be regarded as a business activity, and thus not taxed.

All the above factors are involved in determining whether an activity is taxable or not. If an activity is judged to be carried out for business purposes, on the other hand, there is no triviality limit, and the form of payment is thus immaterial.

The examples from the Norwegian survey were also used in Great Britain to make respondents aware of those activities which, under tax legislation, and thus also in this survey, were taxable.

Taxable activities:

- The bricklayer's and car mechanic's activities are both taxable in Great Britain, since both are carrying out activities within their own occupations. The value of what they are taxed on is based on what they would normally have been able to earn with an ordinary customer.
- The farmer who stables his neighbour's horse and the neighbour who pays for this by working on the farm are both taxed in Great Britain. Again, based on the value of the activities in the market.

Non-taxable activities:

- The group of house builders are not taxable in Great Britain, on the other hand, since the houses are for their own use only, and not for resale, and there is also no profit motive involved.
- Helping each other to move is not taxable in Great Britain either, nor is walking an elderly neighbour's dog and perhaps getting a bottle of wine or packet of cigarettes in return, since neither activity can be said to be carried out for business purposes.
- Nor is keeping an eye on your neighbour's house while they are on holiday, against them returning the favour, considered as taxable. Again, the activity cannot be said to be carried out for business purposes.
- The example of the elderly widow, who rents her garage to a neighbour in return for help in the garden is not regarded as taxable, since it is not a business activity.
- The neighbours who replace tiles on each other's roofs are not taxable either – not even if they replace all the tiles on each other's roofs, since it is not professional work.

The above examples were included in the written instructions to the interviewers and to the respondents in the face-to-face interview if they were in doubt.<sup>18</sup>

Thus, compared with Norway, Sweden and Denmark, more activities are non-taxable in Great Britain.

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<sup>18</sup> In practice, the interviewer showed the respondent a card on which the examples (taxable and non-taxable) were written.

The introductory text also has to take into account that the activities must be carried out as part of a business activity, of course, which has made the formulation somewhat more complicated than in the other countries:

*“The next few questions are about how people get paid for jobs and services they do for other people where the income ought to be - but is not - taxed.*

*As we know, a large number of people take part in the “shadow economy”. Some people get paid in cash for carrying out jobs or services for people such as friends, colleagues, neighbours, members of their family outside their household, or others, and don't declare their earnings for tax purposes.*

*Other people carry out jobs or services which could be seen as performing a trade but aren't paid in cash. Instead something is done for them in return. Here the “income” should also be taxed if the tax authorities would see the person as performing a trade.*

*Have you done any of these things in the past 12 months?”*

If the respondent hesitated in answering, the interviewers were instructed to stress that all answers were treated in the strictest confidence.

As can be seen, the introductory text does not directly mention the fact that both buyer and seller must derive a benefit. This is quite deliberate, however, since the question was already regarded as being more complicated than in the other countries. As in the Swedish survey it was made clear to the interviewers in the written instructions: “We ask first about “shadow” economic activities and “shadow” economic deals - i.e. activities which are not declared to the authorities, etc., where *all parties* (i.e. both buyer and seller of the activity) benefit because everything happens “un-invoiced” and thus at a lower price than usual on the formal market”.

Also as in Sweden, an analysis of the answers about the kinds of black activities carried out shows no indication that actual tax evasion, as defined in figure 1.1, presents any great problem.

Since there is such a big difference between taxable activities in Great Britain compared with Denmark, Norway and Sweden, it was decided to supplement the questions in Great Britain with one designed to identify the extent of activities which can be said to lie in a “grey area”, namely activities which are non-taxable in Great Britain but taxable in the Scandinavian countries.

The question used for this was as follows:

*“Some activities, like the ones mentioned, are not taxable because they might not be seen as a trade - for instance, because they are performed very infrequently or because they are performed with no profit motive - but might over a year have amounted to more than say £100 in total if charged to a customer.*

*Within the last 12 months did you perform any such activity, which was not taxable, but still might have a total value, if charged to a customer, of over £100 a year?”*

This makes it possible to examine what the level would be in Great Britain if it had the same tax rules as Denmark, Norway and Sweden. For purposes of comparability, therefore, in the following chapters, in addition to figures for the extent of black activities in Great Britain, figures including the “grey area” will also be presented.

### 2.2.5 Germany

In Germany, there is actually a law against black activities: “Gesetz zur Bekämpfung der Schwarzarbeit”. However, the term “Schwarzarbeit”, or black activities, in this law means something else than the definition used in this book. Under this law, it is an offence to carry out work or services of any great extent without first informing the “Bundesanstalt für Arbeit” or the relevant social security funds (regarding illness, industrial injury, pensions). It is also an offence under the law for a firm to perform work or services without the necessary permits. Violation of the law is punishable by a fine up to DEM 200,000.<sup>19 20</sup>

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<sup>19</sup> It should be noted that buyers of black activities as defined in the law can also be fined up to DEM 200,000.

<sup>20</sup> On June 27, 2002, the Federal Council passed the law “Gesetzes zur Erleichterung der Bekämpfung von illegaler Beschäftigung und Schwarzarbeit”. Briefly, under this law, in the construction industry it is the main contractor who is liable for the social security contributions of subcontractors if they have not paid these for their employees. The liability to pay damages depends on how much is paid. A contractor who is given a prison sentence of more than 3 months, or day fines for more than 90 days, or a fine of at least € 2,500 (DKK 18,900), is excluded from public works for up to 4 years. The law also contains stipulations regarding better information-swapping between the authorities concerned, and heavier fines for the employment of illegal labour and black activities of up to € 300,000. The employment of illegal labour involving more than 3 persons for 14 days is regarded as a criminal offence. Since the law was first passed in 2002, it does not affect the results for Germany presented in this book, which are for 2001.

This law only deals with formal requirements concerning registration. It says nothing, on the other hand, about registered firms having to pay tax on their incomes. Thus, a firm registered under the law which carries out activities without paying tax – i.e. black activities according to the definition in this book – is not covered by the law.

There is no clear definition of black activities in German tax legislation. But all “facts of importance for the tax authorities” must be reported. By this is first and foremost meant income from, for example, wages and fees. The form of payment is immaterial, and can thus be in cash, payment in kind, or the reciprocal exchange of favours (friendly turns). With regard to the latter, in order for it to be considered taxable, there must be a binding agreement between the parties.

For the self-employed, income which comes from carrying on a business for profit must be declared to the tax authorities. For the self-employed too, the form of payment is immaterial. As regards reciprocal friendly turns, there must also be a binding agreement between the parties.

Under German legislation, the following examples, which have also been used in Norway and Great Britain, are taxable and non-taxable respectively.

Taxable activities:

- The bricklayer’s and mechanic’s activities are both taxable in Germany, provided there is a binding agreement between them. They are taxed on the market value of the activity they receive (i.e. the bricklayer is taxed on the market value of the car repairs).
- The farmer and his neighbour are both taxed in Germany. As above, there must be a binding agreement between the parties, and they are both taxed on the market value of the activities.
- If there is a binding agreement, the group of house builders are taxable in Germany, unless they own the houses jointly. In this case, each person is taxed on the value of the work the others do for him, since this is regarded as payment for the work he does for them.

Non-taxable activities:

- Helping each other to move is not taxable in Germany. Walking an elderly neighbour’s dog and perhaps getting a bottle of wine or packet of cigarettes in return is not taxable either. These examples are grouped under ordinary friendly turns, since they would hardly be regarded as payment for helping each other.

- Nor is keeping an eye on your neighbour's house and garden while they are on holiday, etc., taxable either. This can be called "good neighbourliness", and would not be taxed.
- The example of the elderly widow who rents her garage to a neighbour in return for him looking after her garden is not considered taxable.
- Neighbours who help each other replace a few tiles on each other's roofs are not taxable either.
- The latter applies even if they replace all the tiles on each other's roofs. If, however, the activity has such a value that it would normally involve a binding agreement, it would be taxable.

There are no great differences in tax legislation between Germany and the Scandinavian countries regarding what is considered taxable, at least where payment is not in cash. However, more activities are non-taxable in Germany, since there must be a binding agreement between the parties if payment is in the form of a quid pro quo.

Unlike in the other countries, in Germany it was decided to divide the question into two parts, one dealing with payment in cash and the other with payment in the form of a quid pro quo. The following formulation was used for the cash part:

*"Bei den nächsten Fragen geht es um das, was man allgemein "Schwarzarbeit" nennt. Wir erheben diese Fragen im Auftrag einer Gruppe von unabhängigen dänischen Wissenschaftlern, die sich damit im Rahmen einer international vergleichenden Untersuchung befassen.*

*Die dänischen Wissenschaftler verstehen unter "Schwarzarbeit" das Folgende: Man arbeitet für jemanden anderen und ist sich dabei einig, dass das Entgelt nicht versteuert wird, obwohl man das eigentlich müsste. Beide Seiten kommen so etwas günstiger weg, weil dann keine Mehrwertsteuer anfällt und auch keine Einkommensteuer oder Beiträge zur Sozialversicherung zu zahlen sind. So etwas kommt häufig vor, zum Beispiel, wenn man für jemanden putzt oder Gartenarbeiten erledigt, beim Babysitten, beim Kellnern, bei Schreib- oder Programmierarbeiten. Auch beim Hausbau, beim Renovieren oder bei Autoreparaturen ist nicht versteuerte Arbeit weit verbreitet.*

*Wie ist das bei Ihnen: Haben Sie selbst in den letzten 12 Monaten in dieser Form für jemand anderen gearbeitet?"*

As can be seen, the text mentions several times that the question is about black activities and work that has not been taxed. It also emphasises that both parties must derive a benefit from the work not being taxed. Unlike the surveys in Denmark's other neighbouring countries, the German question text states that the survey is being carried out for a team of independent Danish researchers. This statement was included at the start of the question, because the results of the first pilot survey showed an unrealistically low black frequency, which could be due to a greater unwillingness to answer such a direct question about tax evasion.

If the respondent hesitated in answering, the interviewers were instructed to stress that all answers were treated in the strictest confidence. It was also stated that the data was being collected for the Rockwool Foundation Research Unit. The precise formulation was as follows:

*"Falls die Zielperson zögert, weisen Sie bitte nochmals auf die absolute Vertraulichkeit des Interviews hin. Die Angaben werden nur in anonymisierter Form und ausschließlich zu wissenschaftlichen Zwecken ausgewertet.*

*Bei Nachfragen: Bei der dänischen Gruppe von Wissenschaftlern handelt es sich um die Forschungsgesellschaft der Rockwool-Stiftung in Kopenhagen – ein renommiertes unabhängiges Forschungsinstitut, das von dem Wirtschaftswissenschaftler Gunnar Viby Mogensen geleitet wird."*

All respondents were then asked whether they had carried out black activities where payment had been in the form of a quid pro quo:

*"Manchmal erfolgt die Bezahlung nicht bar, sondern in Form einer Gegenleistung. Das heißt, man arbeitet für jemanden und erwartet, dass der andere als Gegenleistung selbst etwas für einen tut.*

*Haben Sie selbst in den letzten 12 Monaten solche Arbeiten durchgeführt, für die Sie von dem anderen eine Gegenleistung bereits bekommen haben oder noch erwarten?"*

As can be seen from the questions, respondents must have received or expected to receive a quid pro quo as payment for the work they did themselves.

It can also be seen from the above that there is no mention of the so-called € 325 (DEM 630) jobs (“Geringfügigen Beschäftigung”). This is quite deliberate, since it is assumed that people with a legal € 325 (DEM 630) job would not answer yes to having evaded tax by carrying out black activities.

People in so-called € 325 jobs – mostly the low-paid with short working hours – do not pay tax on their wages provided they earn no more than € 325 a month and work no more than 15 hours a week.<sup>21</sup> Employers still have to pay health insurance (10% of wages) and pension contributions (12% of wages), however.

This account of legislation and question design in the various countries is followed by a more detailed look at important aspects of the technical quality of the surveys, namely the response rate and non-response rate.

### **2.3 Response rate and non-response rate**

In order to ensure as high a quality in the answers as possible, only highly respected data-collection institutes have been used in the national surveys.

Statistics Denmark has collected data in Denmark in recent years, and in both Norway, Sweden and Great Britain, these countries’ official statistical offices have been used, namely Statistics Norway in Norway, Statistics Sweden in Sweden, and National Statistics (Social Survey Division) in Great Britain. In Germany, a private market research institute, Infratest Sozialforschung, which has extensive experience of collecting data for social science studies, has carried out the interviews. Among other things, Infratest Sozialforschung is responsible for the data collection for the highly respected and, by researchers, much used longitudinal data set “Sozio-oekonomische Panel”.

The preferred interview method was telephone interviews, partly in order to keep costs down and partly because this method proved quite satisfactory in Denmark. However, telephone interviews were not used in Germany, see below, or in Great Britain, where the omnibus surveys carried out by the Office of National Statistics are always face-to-face interview surveys. Similarly, local conditions meant that about 25% of interviews in Norway were also face-to-face interviews.

Before the main surveys started, small-scale pilot surveys were carried out in Germany, Sweden and Great Britain in order to test the question designs. The exception was Norway, because the translation of the questions from Danish to Norwegian went without a hitch. The pilot surveys went more or less smoothly

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<sup>21</sup> If a person has more than one job and earns a total of more than DEM 630 a month, normal tax and social contributions must be paid.

in Sweden and Great Britain, where they resulted in only minor changes to the questions in the main surveys.

In Germany, a pilot survey was carried out first by means of telephone interviews, which gave an unrealistically low frequency of black activities. It was therefore decided to carry out another pilot survey using a new question design, and to try face-to-face instead of telephone interviews. The results of the new pilot survey were at the expected level, and the structure as regards who carried out black activities resembled the observations in the other countries. It was therefore decided to carry out the survey using face-to-face interviews and the question design from section 2.2.5.

The Danish and Swedish surveys were based on a simple random sample of persons from the two countries' population registers. In Norway, the sample unit is also the individual, but here the sample is stratified by geography.

In Germany and Great Britain, the sample unit is the household, though only one person per household was interviewed, even though there might have been more than one person in the household who fulfilled the selection criterion. This ensures that the drawing probability for households is the same, which, however, is not the case at the individual level. To ensure a representative sample at the individual level, Infratest Sozialforschung and National Statistics correct for this in their standard weighting.<sup>22</sup> All the figures presented here for Germany and Great Britain are therefore weighted, as opposed to those for Denmark, Norway and Sweden.

Table 2.1 shows the results of the surveys in the five countries. As can be seen, the average response rate is lowest in Denmark (64.0%) and highest in Sweden (72.8%).

The proportion who refused to participate in the surveys varies rather more, namely from 6.8% in Denmark to 24.7% in Great Britain. It is important to note here that the refusals declined to take part in the surveys *before* they were informed that they would be asked about black activities.

By comparison, the overall response rate in the otherwise excellent Dutch surveys on black activities carried out by Brugt Kazemier and Rob Von Eck (1992) in 1983 and 1984 were a lot lower, namely 47-48%, while a survey in Quebec City, Canada, in 1986, carried out by Thomas Lemieux et al. (1994) reported a response rate of only 51.7%. The response rate in Arne Jon Isachsen and Steiner

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<sup>22</sup> The weighting for Great Britain does not correct for non-response, but only for differences in the drawing probability, while Infratest Sozialforschung's standard weight in Germany also corrects for non-response regarding sex, age and region.

Strøm's (1981) survey in Norway in 1980 was 73%, somewhat above the level in the surveys in this book.

**Table 2.1: Response and non-response rates for Denmark, Norway, Sweden, Germany and Great Britain**

	Gross sample	Completed inter-views		Refusals		Interview method	Popula-tion	Year
	No.	No.	%	No.	%			
DK	2,948	1,887	64.0	200	6.8	Telephone	16-74	2001
N	3,952	2,691	68.1	745	18.9	Telephone/ face-to-face <sup>2)</sup>	16-79	1998/2002
S	2,971	2,181	72.8	220	7.4	Telephone	18-74	1997/1998
D	9,706	6,396	66.3	1,670 <sup>1)</sup>	17.2	Face-to-face	14+	2001
GB	2,724	1,757	64.5	672	24.7	Face-to-face	16+	2000

Notes: <sup>1)</sup> Of the 1,670 refusals, 798 mentioned lack of time as a reason for not participating in the interview.

<sup>2)</sup> 75.7% of the interviews were by telephone and the rest face-to-face.

With regard to response rates and refusals, the respective data-collecting institutes say that the surveys here do not differ from their usual surveys, except for the Swedish one, where there was actually a higher response rate than Statistics Sweden is used to.

As can be seen from the appendix to this book, the distribution of respondents in the questionnaire surveys does not differ greatly from the distribution by sex, age and region in the respective countries' populations. The surveys are thus reasonably representative.

As table 2.1 also shows, the age groups in the five countries' omnibus surveys vary slightly. To ensure comparability between the countries, therefore, the population in the following tables is, with a few exceptions, limited to the 18-74-year-olds.

The non-response, i.e. "don't knows", "refusals" and "not stated", in the various questions on black activities – also called "item non-response" – is particularly low, cf. table 2.2.

The biggest non-response to the question on black activities is found in the German survey (2.8%), while "item non-response" is between 0.4% and 1% in the other countries.

**Table 2.2: “Item non-response” to the question about black activities in Denmark, Norway, Sweden, Germany and Great Britain (18-74-year-olds)**

	”Item non-response” %	Year
DK	0.4	2001
N	0.4	1998/2002
S	0.5	1997/1998
D	2.8	2001
GB	1.0	2000

The high response rate to the question about black activities is even more striking when compared with the question on income. In the surveys here, “item non-response” to the questions on personal income is thus much higher in all countries than that for black activities, namely 11.7% in Denmark, 19.6% in Germany<sup>23</sup>, 3.6% in Norway, 10.6% in Sweden, and 5.8% in Great Britain.

## 2.4 Concluding remarks

The design of the questions in the various countries had to satisfy two conditions:

- The questions, which were based on the Danish question, had to be comparable between the countries.
- They also had to take the countries’ tax legislation into account, so that only black activities which were taxable under the various countries’ tax laws were measured.

On the whole, the discussion on taxable activities in the five countries has shown that there are no great differences between Norway, Sweden and Denmark. In Germany, on the other hand, more activities are regarded as non-taxable, since to be taxable there must exist a binding agreement between the parties if payment is not in cash, but in the form of a quid pro quo.

Great Britain differs more from the other countries, since it is not easy to determine whether an activity should be taxed or not. The decisive criterion for being considered taxable is that an activity must have been carried out for business purposes.

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<sup>23</sup> An attempt was made to reduce the relatively high non-response to the income question in Germany by the interviewers themselves estimating the respondent’s income. This is possible, since these were face-to-face interviews. In this way, the non-response was “reduced” to 0.7%.

Compared with the target group (gross sample), there are no great differences in the proportion of completed interviews for Denmark, Germany, Norway and Great Britain, which lie between 64-68%, while the Swedish survey differs slightly with a response rate of 72.8%. The proportion of refusals – i.e. those who refused *before* the question about black activities was asked – varies rather more, from just under 7% in Denmark to about 25% in Great Britain.

On the whole, therefore, the internationalisation of the analyses has not run up against any insurmountable problems.

The results of the questionnaire surveys in Denmark, Norway, Sweden, Germany and Great Britain regarding the total *extent* of black activities is discussed in chapter 4. The main results concerning the *incidence* in the five countries' populations – i.e. the proportion of the population active in these markets – together with black *working hours* and *wages*, are presented in chapter 3.



### **3. The incidence of black activities in the population and black working hours and wages in Denmark, Norway, Sweden, Germany and Great Britain**

#### **3.1 Introduction**

Following the discussion of taxable activities in the various countries' tax legislation in chapter 2, this chapter looks at the incidence of black activities in the five countries – i.e. figures for the proportion of the populations who are active suppliers of black activities – together with black working hours and wages.

As noted in chapter 1, the term “black activities” is used instead of the more correct term “black activities in a narrow sense”, which also includes non-invoiced transactions, e.g. a farmer who sells a pig or eggs at the farm gate. As mentioned in chapter 1 and 2, in the definition of black activities used in the surveys here, both buyer and seller of a given economic activity must derive a benefit in the form of saved tax and VAT, etc. On the other hand, income from normal wages that is not declared to the tax authorities is called ordinary tax evasion – which thus falls outside the concept of black activities here. An example of tax evasion is a self-employed businessman who declares only part of his income from the firm's normal activities, but without the customer deriving any benefit, i.e. where the customer pays the full price for the product.

In addition to the question on black activities, questions have also been asked about black wages and the number of hours worked on black activities. Before presenting the results of these surveys, section 3.2 takes a brief look at previous questionnaire surveys of black activities.

#### **3.2 Previous questionnaire surveys of black activities**

The attempt in this book to base the comparison between Denmark, Norway, Sweden, Germany and Great Britain solely on the same definition and data collection methods has unfortunately been unable to build on similar research abroad. However, we have been able to draw on the work of foreign researchers who have also used the questionnaire method to collect data. The analysis here will focus on substantive questionnaire surveys outside Denmark, namely in Norway, Sweden and Germany. Good questionnaire surveys have also been carried out in Holland and Spain, but, given the structure of the book, these will only be referred to briefly. Unfortunately, not even tolerably comparable ques-

tionnaire surveys on black activities seem to have been carried out in Great Britain.<sup>24</sup>

Most of these foreign studies have been written by economists, though there are also many contributions from the other social sciences, particularly sociology and anthropology. The two latter typically consist of in-depth case studies within a particular industry or region, which provide a highly detailed picture of the shadow economy in the industry or region concerned. Examples include Laureen Benton (1990) and Piet Renooy (1990). J. J. Thomas (1992, p. 189-94) contains a brief outline of other social science contributions to research on the shadow economy. It is not possible to say anything about the *overall extent* of the shadow economy on the basis of such studies, of course, which is precisely one of the purposes of this book.

### 3.2.1 Norway

Probably one of the most quoted questionnaire surveys on the shadow economy in the international literature is that carried out by Arne Jon Isachsen and Steinar Strøm in Norway in 1980. The results were published in the book *Skattefrit – svart sektor i vekst* (Tax-free – growth in the black sector) in 1981 and in the journal *Review of Income and Wealth* in 1985, plus as contributions in several other books, including Tanzi (1982), Gaertner & Wenig (1985) and Feige (1989). The questions from 1980 were repeated in 1983, but have only been reported in Isachsen & Strøm (1985) in outline form.

Additional questionnaire surveys of the shadow economy in Norway were carried out in 1988/89 and 1993, and published in Harald Goldstein (1990) and Per Arne Tuft (1994) respectively. In 2001 the questions from Isachsen's and Strøm's survey from 1980 were repeated and published in Tone Ognedal, Harald Goldstein, Wiljar G. Hansen and Steinar Strøm (2002). After Denmark, Norway (together with Holland) has the strongest tradition for carrying out questionnaire surveys of the shadow economy.

The interesting thing about the Norwegian surveys is that they have all used more or less comparable question designs, which makes it easier to describe the trend in the shadow economy over time.

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<sup>24</sup> See, for example, *The Informal Economy*, a report written by Lord Grabiner in 2000 for the Chancellor of the Exchequer. According to Lord Grabiner (p. 3): "It would be impractical to arrive at a precise and meaningful figure as to the scale of the problem without a considerable investment of time and resources. For the purposes of this report, I have assumed that the hidden economy is a major problem, involving billions of pounds, and, in view of what I have learned in conducting this review, I am quite sure this assumption is a reasonable one."

What is particularly interesting about the Norwegian analyses is that they have already asked several times about both the purchase and sale of black activities. By comparison, in Denmark the buyer side – i.e. whether the respondents have been active buyers in the black markets – has so far only been examined for 1983, cf. Gunnar Viby Mogensen (1985), in part because it would further complicate the analysis here, and would at the very least expand it quite considerably. This is because, on the buyer side, questionnaires to households would have to be supplemented with questionnaires to those responsible (e.g. for the purchase of cleaning help, entertainment, etc.) in both private firms and the public sector. Since there was no mention of the purchase of black activities in the questionnaire surveys for this book, this will not be discussed further here. Table 3.1 shows the results of the Norwegian questionnaire surveys of black activities.

As can be seen from the table, there is some variation in the frequency of black activities in Norway. Thus, in 1980, 18% of the population (20% in the unweighted figures) had carried out black activities, falling slightly to 16% in 1983. According to Isachsen & Strøm (1985), this fall could be due to the fact that the publication of their first survey in 1981 (with figures for 1980) attracted a lot of attention and media coverage. The intensive media coverage of black activities can have made people less willing to answer the questions in 1983, so that the fall might be less real than it appears. However, there is nothing to indicate such an effect in Danish research, cf. Gunnar Viby Mogensen (1990a, p. 219), nor is there anything in the social science methodological literature to suggest that increased media awareness of sensitive topics should reduce respondents' willingness to answer questions.

**Table 3.1: Purchase and sale of black activities in the previous Norwegian questionnaire surveys**

	1980	1983	1988/89	1994	2001
Carried out black activities during the past 12 months	18% (20% unweighted)	16%	24% <sup>25</sup>	15%	13%
Bought black activities during the past 12 months	26%	25%	-	27%	-
Both carried out and bought black activities	6%	8%	-	8%	-
Participated in the black market, total (net)	38%	33%	-	34%	-
Number	877	not disclosed	820	966	973

Source: Isachsen & Strøm (1981), Isachsen & Strøm (1985), Goldstein (1990), Tufte (1994) and Tone Ognedal et al. (2002).

<sup>25</sup> Calculated from table 1 in Goldstein (1989). In Ognedal et al. (2002) the figure for 1988/89 mentioned is 22%.

Harald Goldstein's (1990) figures for 1988/89 differ from the other results, 24% (22% according to Tone Ognedal et al. (2002)) saying that they have carried out black activities. Ognedal et al. concludes that there has been an increase in the 1980s in the proportion of the Norwegian population who have carried out black activities but it has since then fallen to the level of the 1980s in 2001. This is supported by Per Arne Tufte's (1994) finding for 1994 where 15% had carried out black activities. However, it should be noted that Tufte used a somewhat different method, with no information about the size of the non-response rate.

We return to the actual structure of the black market in the earlier surveys, i.e. those who are active suppliers of labour in the black market, in sections 3.3 and 3.4, which deal with the surveys for this book.

### 3.2.2 Sweden

Until 1998, there had been no large-scale representative questionnaire surveys of black activities in Sweden of the kind carried out in Denmark and Norway. This can be seen from Riksskatteverket's (National Tax Board, 1996) report on household services, for which the Rockwool Foundation Research Unit has supplied tables about the black labour market in Denmark. At that time, therefore, for lack of anything better, Riksskatteverket assumed that the Danish conditions would also apply to Sweden.

As mentioned in chapter 1 and 2, in April 1997, the Swedish government gave Riksrevisionsverket (The Swedish National Audit Office) the job of determining the extent of black activities in Sweden. Former audit director Staffan Ivarsson from Riksrevisionsverket, then approached the Rockwool Foundation Research Unit about using the Research Unit's questionnaire method and questions in a survey of black activities in Sweden (see, for example, Riksrevisionsverket, 1998b). As part of the agreement, the Rockwool Foundation Research Unit was subsequently given access to the data. This is the data on which the analyses for Sweden in this book are based. Riksrevisionsverket's quantitative analyses will not be discussed further here, therefore. It should also be mentioned that Riksrevisionsverket also used the qualitative method for analysing the black market developed by Piet Renooy, cf. above, though this method will not be discussed further here either. The results for Sweden based on Renooy's method are published in Riksrevisionsverket (1998b).

In the Swedish questionnaire surveys carried out before Riksrevisionsverket's survey, there are no measures for the size of the shadow economy in relation to GDP. The same applies to a survey carried out by Riksskatteverket in autumn 1998, which is published in Riksskatteverket (1999). However, Michael Apel (1994) has estimated the size of the shadow economy based on consumer surveys in Sweden. That these surveys are discussed here, despite the lack of estimates of the *extent* of black activities, is because they nevertheless give an inter-

esting picture of the *structure* of the shadow economy. The discussion is based on Urban Laurin (1986), Richard Wahlund (1991) and Riksskatteverket (1999).

At the end of 1981 and beginning of 1982, Urban Laurin asked a representative cross-section of the Swedish population whether they had carried out black activities within the last 12 months, 12% of whom said yes. However, unlike in the Danish surveys, Laurin does not distinguish between income fiddling and black activities. Moreover, the question does not define what is meant by black activities. Respondents' answers are therefore based on what *they* think black activities are.

In 1991, Richard Wahlund carried out an extensive analysis of the effects on tax evasion and saving resulting from the tax reform in Sweden in 1982 (Wahlund, 1991).

By tax evasion, Wahlund means that not all income or taxable income is declared to the tax authorities. He also includes claiming deductions you are not entitled to as tax evasion. Thus, Wahlund – as was shown in chapter 1, in line with many other researchers in the field – ignores tax avoidance. Tax avoidance exploits the law up to the limit, and while the tax saved does not actually break the law, it does perhaps violate the spirit of the law.

Wahlund carried out four interview surveys between the end of 1982 and mid-1984. A serious flaw in his surveys, however, is that they involved only men (in the 20-65 age group). Of those interviewed, 17.1% said they had received black payments within the last year. As mentioned above, this also partly covers what in the Danish survey is called tax evasion.

In autumn 1998, Semo Group Info Data AB, a market research institute, carried out a questionnaire survey for Riksskatteverket involving 1,500 selected persons in the 18-74 age group. The survey, which had a response rate of 68%, was based on a combination of postal questionnaires and telephone interviews. First, postal questionnaires were sent to the primary sample, and telephone interviews conducted among those who had not answered the postal questionnaire.

There is no actual definition of black activities in Riksskatteverket's (1999) survey. It is thus up to the respondents themselves to define what they regard as black activities. The question about whether the respondent had carried out black activities within the last year was ninth in a series of questions of the type "do you happily pay tax", "do you think it is ok that others cheat", etc. The answers were on a scale of 1-5, where 1 is "Strongly disagree" and 5 "Strongly agree".

To the question about black activities, 7% answered 4 or 5, which Riksskatteverket regards as affirmative answers.

### 3.2.3 Germany

Most German research on the shadow economy takes a starting point in macro-economic methods, such as monetary methods, cf. chapter 1.

As regards microeconomic analyses of the shadow economy, a questionnaire survey based on a random sample of the West German population was carried out in 1984. The results of this have been published in, among others, Klaus Wolff (1990, 1991), Joachim Merz & Klaus Wolff (1993), and in Merz (1986).

Several other larger or smaller surveys of the black economy had been carried out up to 1984, but these were either not representative or there was a lot of uncertainty as to whether the questions used actually covered black activities, cf. Wolff (1991) and Andrea Japsen (2000). This applies, for example, to a frequently cited study by “Institut für Demoskopie Allensbach: Freizeitarbeit 1974”, cf. also Smith & Wied- Nebbeling (1986).<sup>26</sup>

For her Master’s dissertation, Andrea Japsen (2000) analysed the correlation between a reduction in normal working hours and the shadow economy, consisting of DIY work and black activities, based on data from *Das sozio-oekonomische Panel* (SOEP). With regard to black activities, however, none of the questions directly mention the word “Schwarzarbeit”. Instead, Japsen *assumes* that part of secondary employment (measured by the question on whether respondents have a second job) is in the form of black activities. She also finds that it is hard to show a correlation between the fall in normal working hours and hours worked in the shadow economy.

There have been several questionnaire-based surveys of black activities in recent years. For example, Annette Mummert & Friedrich Schneider (2001), who had access to a data set based on a questionnaire survey involving 1,000 interviews carried out in 1998 by IFAK for Burda Press, which was first published in *Focus*, a German journal, in April 1998. According to *Focus* and Mummert & Schneider, 22% of the adult German population have carried out black activities. However, there was no specified period in the question: “Arbeiten Sie selber schwarz” (roughly: Have you carried out black activities yourself?), cf. *Focus* (1998). And, as pointed out by Mummert and Schneider, there is no clear definition of the term Schwarzarbeit either. Mummert & Schneider (2001) also report that 26.3% refused to take part in the survey, which is considerably higher than in the new survey for Germany in this book, cf. chapter 2.

In this connection, it should be mentioned that Friedrich Schneider & Jürgen Volkert (2000), from the Institut für Wirtschaftsforschung Tübingen, have also carried out a questionnaire survey of black activities, though only for one of the

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<sup>26</sup> For an overview of the other German microeconomic studies of black activities, see Wolff (1991) and Andrea Japsen (2000).

German Länder (states), namely Baden-Württemberg. This survey was carried out for the Baden-Württemberg Wirtschaftsministerium.

Among other things, this survey asked respondents whether they had ever carried out black activities<sup>27</sup>, to which 95 persons out of the 583 interviewed, or 16.3%, said yes. By comparison, 20.2% of the population of Baden-Württemberg admit to having purchased black activities at one time or another.

In October-December 1997, Siegfried Lamnek, Gaby Olbrich and Wolfgang J. Schäfer (2000) carried out both a qualitative and quantitative study of black activities, together with evading social contributions and tax, in Germany. Even though the study did not ask about the number of black hours worked, which means that it is not possible to extrapolate this to the extent of black activities, it is nevertheless an interesting study, which will be referred to to the extent that the questions can be compared with those in the present survey.

A total of 3,040 face-to-face interviews in East and West Germany were carried out for the quantitative survey, corresponding to an overall response rate of 69.6% out of an overall sample of 4,370 persons. This is slightly higher than the response rate of 66.3% for Germany in this book, cf. chapter 2.

In this representative survey, Lamnek, Olbrich and Schäfer asked respondents whether they had ever carried out black activities<sup>28</sup>, 75.1% of whom answered “no, never”. This means that, according to this survey, 24.9% of the adult German population over 18 has carried out black activities at some time or other. If they had carried out black activities, they were then asked how much they earned. Here, somewhat more, namely 28.8%, replied that they had earned black wages.<sup>29</sup> In principle, there should be no difference between the two questions in the proportion who carry out black activities. But, as in any questionnaire survey, “control questions” give slightly different answers. Moreover, the differences could always be due to interviewer errors, e.g. writing a code 2 instead of 1, or vice versa. In any event, the difference is not alarming.

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<sup>27</sup> The question and introductory text was as follows: “Nach neuesten Schätzungen ist Schwarzarbeit weit verbreitet. So soll etwa jeder fünfte Arbeitende schwarz arbeiten. Hand aufs Herz: Haben Sie selbst schon einmal schwarz gearbeitet bzw. Schwarz arbeiten lassen?”

<sup>28</sup> The question was as follows: “Haben Sie selbst schon einmal Schwarz gearbeitet?”, with answers on a scale of 1-5, where 1 is “No, never” and 5 “yes, sometimes/often”. Everyone who answered 2, 3, 4 or 5 are thus assumed to have carried out black activities at some time or other.

<sup>29</sup> The question was as follows: “Falls Sie selbst schon einmal schwarz gearbeitet haben: Wie viel Geld haben Sie alles in allem ungefähr damit verdient?” The answer categories here were 1=“Sehr wenig Geld”, 2...5=“Sehr viel Geld” and 6=“Noch nie gemacht”.

For the sake of completeness, it should be mentioned that, in 1998, the German magazine “Geld idee” asked Forsa, a market research institute, to carry out a representative questionnaire survey of the purchase of black activities. To the question “Haben Sie schon einmal jemanden schwarz beschäftigt?”, 11% of the German population replied yes. Since this involves the purchase of black activities, and, moreover, is not an actual research study, this survey will not be discussed further here.

The following is mainly based on Wolff (1990 and 1991) and Merz and Wolff (1993), while Mummert & Schneider’s (2001), Schneider & Volkert’s (2000) and Lamnek et al.’s (2000) analyses will be referred to where relevant. For example, Mummert & Schneider’s analysis is relatively brief, with the main focus on the differences between East and West Germany<sup>30</sup>, while Schneider & Volkert’s study is of Baden-Württemberg only. Lamnek et al., like Mummert & Schneider, do not ask how much time is spent on black activities. Since Andrea Japsen’s study is not based on actual questions about black activities, and, in addition, says nothing about the extent of black activities, it will not be discussed further in the following.

Wolff (1990, 1991) and Merz & Wolff (1993) define “Schwarzarbeit” or “illicit work”<sup>31</sup> as those cases where no tax and/or social contributions are paid on earned income. Their definition of black activities is thus quite close to the Danish definition of black activities in a narrow sense, cf. chapter 1. However, their definition also covers cases where only the one party knows that no tax and/or social contributions are paid, which in Danish terminology is called ordinary tax evasion.

Neither the German nor Danish definitions of black activities include, for example, tax saved by claiming too-high deductions. This is called tax evasion in the Danish definition. In practice, however, this is not measured in the German questionnaire survey either, which asks specifically about secondary employment, cf. below.<sup>32</sup>

The 1984 survey involved a total number of 7,826 interviews (carried out by MARPLAN, Offenbach, a market research institute) among persons aged 14 and over in private households. This corresponds to a response rate of 70%, cf. Helberger, Merz & Schneider (1985). The response rate is thus slightly higher than the survey for Germany in this book, cf. chapter 2.

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<sup>30</sup> See also chapter 4 in this book.

<sup>31</sup> In the following called black activities.

<sup>32</sup> For the sake of completeness, it should be mentioned that Merz & Wolff (1993) also explicitly analyse DIY activities – moreover, using a definition of DIY close to that of Viby Mogensen (1990a) and Brodersen (1995, 1997, 2001).

The data about black activities is obtained indirectly. Given the sensitivity of the issue, it was not considered possible to ask about black activities directly. Information about black activities is therefore obtained by asking whether respondents have had work in addition to their main job within the last three months. Like the Danish surveys, all respondents are asked, i.e. including persons without actual employment, such as students and pensioners. If the respondents answer yes to this question, they are then asked about a number of costs in connection with this other job, including whether they pay tax and social contributions. If they do not pay either tax or social contributions, they are then asked whether, under present rules, they have to. If the interviewee is supposed to pay tax and social contributions, but does not, it is defined as black activity. As can be seen from the above, respondents are asked about paid secondary employment – friendly turns and quid pro quos, i.e. services in kind, are thus excluded.

Wolff (1991) employs both an upper and a lower limit for black activities. The upper limit is defined as cases where a person has a second job, but does not pay tax or social contributions. This ignores the fact that, under present rules, the person might not have to.

The lower limit is defined as cases where the respondent is supposed to pay tax or social contributions, but does not. Measured by the upper limit, more than 8% had carried out black activities, while just over 4% had done so measured by the lower limit.

In 1984, 4.4-8.3% of the adult population over 14 had carried out black activities in the last three months. Wolff's (1991) figures for black activities differ slightly from Wolff's (1990) and Merz & Wolff's (1993), due to differences in the definition of the population.

The 4.4% of the population who, measured by the lower limit, had carried out black activities in Germany in 1984, spent an average of 6.1 hours a week on them, cf. Merz & Wolff (1993). Measured by the upper limit, the black weekly average was 5.4 hours, cf. Wolff (1991).

Before presenting the new results for black activities, it should also be mentioned that Holland is that country which, together with Norway and Denmark, has carried out the most detailed quantitative surveys of black activities using questionnaires. Thus, in 1983 and 1984, no fewer than eight different interview surveys were carried out. For a more detailed discussion of the Dutch methods and results, see Brugt Kazemier & Rob Van Eck (1992) and Rob Van Eck & Brugt Kazemier (1988).

### 3.3 New results for the extent of black activities in Scandinavia, Germany and Great Britain

As mentioned in chapter 1, there have been no previous comparable surveys of the extent and incidence of black activities based on the same definition of the phenomenon, and thus also the same question design. Table 3.2 below thus shows, for the first time, comparable figures for the proportions of the adult population in the 18-74 age group in the five North European countries who have carried out black activities one or more times during the last 12 months.

As can be seen from the table, there is a big difference between the countries in the *proportion who carry out black activities*. It is highest in Denmark, with 20.3%, closely followed by Norway with 17.3%. These are followed by Sweden, Germany and Great Britain at a rather lower level, namely 11.1%, 10.4% and 7.8% respectively.

**Table 3.2: Proportion of the population in the 18-74 age group who have carried out black activities within the last year in Denmark, Norway, Sweden, Germany and Great Britain**

	Yes	No	Don't know/ refusal	Total	No. of persons	Year
	%	%	%	%		
DK	20.3	79.3	0.5	100	1,796	2001
N	17.3	82.3	0.4	100	2,522	1998/2002
S	11.1	88.4	0.5	100	2,181	1997/1998
D	10.4	86.7	2.8	100	5,538	2001
GB	7.8	91.2	1.0	100	1,572	2000

Compared with earlier Danish surveys, the 20.3% here is only slightly below the level of 22.5% in 1998, cf. Pedersen (1999). The figure of 17.3% for Norway lies between the results from the beginning of the 1980s and Tone Ognedal et al.'s (2002) figures from 2001, cf. table 3.1 above.

While the comparability with previous Swedish surveys is a little more difficult, the figure of over 11% in the present survey seems fairly reliable compared with Urban Laurin's 12%, cf. above, though it is a lot higher than the 7% in Riksskatteverket's (1999) survey from autumn 1998. The difference is probably partly due to the fact that Riksskatteverket leaves it entirely to the respondents to define what they mean by black activities, which means that especially black activities in the form of *quid pro quos* are unlikely to be included. Furthermore, as mentioned previously, the question is only ninth in a series of questions of the type "do you happily pay tax", "do you think it is ok for others to cheat", etc. There is therefore no introductory text in Riksskatteverket's survey such as the one used in Riksrevisionsverket's report, cf. above, which explicitly draws respondents' attention to what precisely is meant by black activities. Moreover,

Riksskatteverket itself mentions as a possible reason for the difference that “item non-response”, at 0.5% (cf. table 2.2 in this book), is extremely low compared with the 4% in its report. Thus, Riksskatteverket itself implies that there can be a greater element of uncertainty in the answers in their survey.

As can be seen from the table, the figure of 10.4% for black activities in Germany is slightly higher than that of 4.4-8.3% in Wolff (1991) and Merz & Wolff (1993). However, since they ask about the last three months, the proportion in the new survey, which covers the last year, should also be higher. But the new figures are way *under* the 22% in the survey by Annette Mummert & Friedrich Schneider (2001) published in Focus – though since respondents were not asked about any specific period in their survey, the new figures for Germany seem, on the whole, to be quite credible.<sup>33</sup>

If we take a closer look at *who in particular carries out black activities*, table 3.3 shows a surprisingly identical pattern in the five countries as regards the importance of sex and age.

Men especially are active in the black markets. The biggest difference is between men and women in Denmark, Germany, Norway and Sweden, while it is slightly smaller in Great Britain. With regard to age, the pattern is exactly the same in all the countries, namely that the young are the most active, especially the 18-19-year-olds and 20-29-year-olds.

In all countries, the 30-39-year-olds are also more active than the average for the population in general, albeit not quite as active as the 18-29-year-olds.

The new results presented here for Norway are similar to those from the earlier surveys. In these surveys too, more men than women carry out black activities. For both men and women in the surveys from 1980 and 2001, the young are more active than the elderly, cf. Isachsen & Strøm (1981) and Tone Ognedal et al. (2002). According to Ognedal et al. (2002) 47% of men under 30 years of age have carried out black activities, against 15% of those over 50 in 1980. In 2001 the same figures were 33% and 7% respectively. Tufte (1994) finds a similar pattern in the survey from 1993, where about 20% of the population in the 15-24 age group have carried out black activities (excluding black childcare). This figure falls steadily with age, to only around 4% in the 65-74 age group.

As pointed out in Søren Pedersen (1998), there are considerable interpretation problems in the earlier Swedish survey of tax evasion by Urban Laurin. If we nevertheless take its results at face value, then Laurin’s study also shows that tax evasion is especially prevalent among young men. As previously mentioned,

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<sup>33</sup> As mentioned above, there are unfortunately no previous comparable surveys for Great Britain.

Richard Wahlund, who only asked men about tax evasion, found that 17.1% of men had received black payments within the last year, which is very close to the 15.4% in table 3.3. Wahlund also finds that the likelihood of receiving black payments falls with age. Riksskatteverket (1999) also finds that a high proportion of men carry out black activities, and that this falls with age.

**Table 3.3: Proportion of the population in the 18-74 age group who carry out black activities in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation**

	Denmark		Norway		Sweden		Germany		Great Britain	
	%	No.	%	No.	%	No.	%	No.	%	No.
Men	29.4	882	23.8	1,276	15.4	1,074	14.5	2,714	10.3	753
Women	11.5	914	10.7	1,246	7.0	1,107	6.5	2,824	5.4	819
18-19-year-olds	42.0	50	22.2	108	(24.6)	65	16.6	198	(3.9)	55
20-29-year-olds	26.8	284	23.9	518	17.1	369	19.1	802	13.0	268
30-39-year-olds	24.5	383	20.3	572	17.4	425	13.2	1,243	13.2	340
40-49-year-olds	22.1	358	16.9	508	12.1	462	10.0	1,049	7.8	334
50-59-year-olds	15.9	370	12.8	430	(4.5)	420	7.4	896	(3.9)	272
60-69-year-olds	11.5	252	9.3	269	(3.7)	323	5.6	901	(1.5)	217
70-74-year-olds	(6.1)	99	(6.0)	117	(2.6)	117	(1.0)	449	(0.6)	86
Self-employed/ assisting spouse	27.8	162	33.3	165	17.5	137	12.1	336	(13.5)	122
Salaried employees	18.2	582	13.8	1,242	7.2	559	7.1	1,184	9.5	536
Skilled workers	29.2	308	41.8	184	15.8	462	19.2	826	12.5	161
Unskilled workers	28.6	168	20.3	227	13.4	262	8.2	723	(5.6)	210
Unemployed	(9.9)	81	(21.7)	60	(10.6)	151	20.7	247	(9.2)	40
Pensioners	9.5	326	(5.9)	186	(3.3)	394	4.2	1,281	(1.1)	233
Under education	25.2	135	18.7	112	23.5	162	27.3	256	30.6	26
Other	-	34	12.5	346	(7.8)	51	8.7	685	(3.7)	244
Total	20.3	1,796	17.3	2,522	11.1	2,181	10.4	5,538	7.8	1,572

Note: The figures in brackets mean that there are less than 20 observations in the cell. The figures for Denmark are directly comparable with those in table 5.1 in Søren Pedersen (1998).

Wolff (1991) contains both a descriptive and a statistical analysis of those variables which determine whether a person offers his labour in the black markets in Germany. The descriptive part of the study shows that more men than women carry out black activities, namely 5.7% of men against 3.3% of women. On the other hand, women work more black hours, namely 8.3 hours a week, compared with 4.5 for men.

According to Wolff, 6% of those in the under-20 age group carry out black activities. This rises to 7% for the 21-30 age group, after which it falls with age, e.g. to 4.6% for the 31-40 age group and 3.8% for the 41-50-year-olds.

In the new surveys presented here, table 3.3 shows interesting similarities and differences between the countries with regard to the influence of occupation on the frequency of black activities. Here, three groups are particularly active: the self-employed, skilled workers and those under education. The most active group differs from country to country. In Germany, Sweden and Great Britain, for example, students are the most active, while in Norway and Denmark it is

skilled workers. Students are also relatively highly active in Denmark. The high level of activity of students in the black markets has also been correlated with age, and a multivariate analysis later in the chapter will show whether, among other things, age or occupation is the most decisive.

The self-employed are the next most active in the black markets in Norway, Sweden and Great Britain, and the third most active group in Denmark, with above-average participation in the black markets. In Germany, the self-employed are only slightly more active than the average for the population as a whole.

It is easy to get the impression from the public debate in Denmark that the unemployed are especially active. For example, raids in the restaurant sector carried out by the Customs and Tax Administration, together with the police and Directorate of the Unemployment Insurance System, usually find numerous unemployed persons or cash benefit recipients working illegally. This has also been the topic of several research studies, e.g. Gunnar Viby Mogensen (1985), Raymond E. Pahl (1987) and Linde Pelzmann (1988), and of a major EEC analysis, cf. Philippe Barthelemy et al. (1990).

It has been claimed that the official unemployment statistics can in fact be over-estimated due to the number of unemployed with jobs in the black markets. This argument has, among others, been put forward by Peter M. Gutmann (1979), though without being based on any empirical evidence.

It has been difficult to show empirically that the unemployed are more active in the black markets. Thus, there is nothing in the earlier Danish surveys to indicate this, cf. Gunnar Viby Mogensen (1985) and Søren Pedersen (1997, 1999). Similarly, Barthelemy et al. (1990) showed that there was no correlation between unemployment and black activities. According to these authors, the five researchers who examined this in a number of European countries agreed that the level of black activities carried out by the unemployed is insignificant.

In a qualitative survey of 43 unemployed persons in Südkärnten (Austria), Linde Pelzmann (1988) shows that it is more employment in the formal sector than unemployment that determines whether people carry out black activities. Her study showed that, for the period 1981-84, those unemployed persons who carried out black activities had already built up a network of customers in their formal jobs, while the unemployed without previous black employment worked less in the black markets when they became unemployed.

Interest in the unemployed's black activities can be due to a possible anger against persons on unemployment benefit who also evade tax by carrying out black activities. In Denmark, Jørgen Goul Andersen (1998) and Sanne Lund Clement (2001), both political scientists, have analysed public opinion on this. Interestingly, their studies show that, in general cases – i.e. where the question is

phrased in general terms – the public takes exception to people who “carry out black activities and at the same time receive unemployment benefit”. But in more concrete cases, e.g. “an unemployed potter who earns black money on the side”, there is greater acceptance.

There are two opposite factors which determine whether the unemployed carry out black activities or not. On the one hand, the unemployed have, of course, more time to work in the black markets. On the other hand, however, an unemployed person gradually loses contact with his workplace and thus also potential customers. At the same time, they also lose the opportunity to use the workshop or borrow the master’s van for black activities. Furthermore, it can also be argued that a positive correlation between black activities and unemployment can go the opposite way, in the sense that black activity in itself means that an unemployed person is not actively seeking (“white”) work, and therefore remains unemployed.

It should also be realised that, precisely on this point, the questionnaire method can have a particular weakness – it cannot be ruled out that the unemployed in particular are not totally honest in the questions on black activities despite the assurances about anonymity, since the unemployed cheat twice over, i.e. both with regard to tax and unemployment benefit.

As can be seen from the new figures in table 3.3, there is actually nothing to indicate that the unemployed carry out more black activities than the average for the population as a whole in Scandinavia and Great Britain. For these countries, the figure for the unemployed is around or just under the average for the whole population.<sup>34</sup> In Germany, on the other hand, it is twice as big, namely 20.7% for the unemployed, against 10.4% for the population as a whole.

This result is contrary to that found by Annette Mummert & Friedrich Schneider (2001) in the aforementioned questionnaire survey of 1,000 respondents carried out in Germany in 1998 by IFAK for Burda Press, and published in the German journal *Focus* in April 1998. According to Mummert & Schneider, 22.2% of the unemployed have carried out black activities, which is the average for the German population in this survey. It is hard to give a satisfactory explanation for the differences, but the previously mentioned difference in question design and the imprecise definition of *Schwarzarbeit* in the *Focus* survey can partly explain the differences in the unemployed’s black activities in the two surveys. And, of course, there could also have been a real change from 1998 to 2001.

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<sup>34</sup> In Tone Ognedal et al. (2002) 22% of the unemployed in Norway carried out black activities in 2001 which should be compared with an average for the whole population of 14.5% (for people under 70 years of age). However, it was only 6 persons so the uncertainty on this figure is rather high.

As mentioned in chapter 2, five omnibus surveys were carried out in Germany for the present study, involving a total of 5,538 completed interviews among the 18-74-year-olds. In all five omnibuses, a higher proportion of the unemployed carry out black activities than the population as a whole. Thus, there is little doubt that, in 2001, a higher proportion of the unemployed do carry out black activities compared with the general population.

The economist Hans Hansen (2002) has shown that, in 1999, there were considerable differences in the five countries' eligibility rules for unemployment benefit, and thus also for the level of unemployment benefit. For example, unemployment benefit in relation to income from full-time employment was only 15% in Great Britain, against 52%, 67% and 60% in Denmark, Sweden and Germany respectively.<sup>35</sup> Similarly, the maximum period for receiving unemployment benefit also differs appreciably, from six months in Great Britain to four years in Denmark.

The difference between the unemployed's black activities in Denmark, Norway, Sweden and Great Britain on the one side, and Germany on the other, cannot be explained by differences in the various countries' unemployment benefit rules, since these would imply a far higher proportion in Great Britain, which has the relatively most restrictive rules for the unemployed.

In all the countries except Norway, the unemployed were asked how long they had been unemployed. However, these figures do not explain the differences either, since the unemployed in all countries who have also carried out black activities have been unemployed for 12-16 months on average.<sup>36</sup>

Thus, it is not possible, based on eligibility rules for unemployment benefit in the various countries, to give a satisfactory explanation of why the unemployed in Germany are more active in the black markets than in the other countries. However it could, of course, simply be due to the aforementioned positive correlation between black activities and unemployment, in the sense that the unemployed in Germany are not interested in looking for "white" work because they earn a comfortable income from black work and being on unemployment benefit.

With regard to pensioners, in all countries a clearly smaller proportion carry out black activities compared with the population in general, cf. table 3.3.

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<sup>35</sup> The figures concern the compensation rate after one year's unemployment for the so-called "Average Production Worker", APW. Norway is not included in Hans Hansen's study.

<sup>36</sup> Great Britain is excluded here, since there are too few observations to estimate the average unemployment rate for the unemployed who carry out black activities.

### **3.4 Multivariate analysis of the probability of carrying out black activities in all countries**

The previous section showed that the variables sex, age and occupation were, to a greater or lesser extent, important determinants of black activities in the five countries. This section analyses the incidence of black activities in more detail, and thus makes it possible to isolate and quantify the different factors underlying the probability of carrying out black activities.

In the following, we analyse for each country whether respondents have or have not carried out black activities, and the multivariate analysis method used is therefore a logistic regression analysis, where the dependent variable has two values, namely that the respondent has or has not carried out black activities. The models include a number of explanatory variables which can a priori be expected, or which from earlier surveys are known, to be important determinants of whether a person is active in the black market, cf. Gunnar Viby Mogensen (1985, 1995), Peder J. Pedersen & Nina Smith (1995), and Joachim Merz & Klaus G. Wolff (1993).

The analyses thus include variables for sex, age, marital status and children under 6 in order to find out which, if any, demographic factors determine the probability of carrying out black activities. Sex is included to see whether there is also a difference in men's and women's participation rate in the black market, as there is in the formal market. Marital status and children under 6 are included because these variables especially influence women's occupational and participation rates in the formal market.

Also included are variables for occupation and education. The assumption here is that skilled workers or craftsmen carry out black activities to a greater degree, since it seems to be especially craftsmen's services that are in demand in the black markets, e.g. home repairs and maintenance.

Unfortunately, no variable for actual or expected marginal tax has been included, since it was not considered likely that the respondent would be able to answer these questions anyway. Income from "white" employment is included instead. Income, of course, is correlated with marginal tax, i.e. the higher the income, the higher the marginal tax. Based on this, therefore, rising income will result in an increased probability of black activities. Moreover, as pointed out in Pedersen & Smith (1998), personal income also captures a traditional income effect which must be expected to have a reverse effect, namely the increasing probability of black activities with *falling* income. Overall, it is thus not possible, a priori, to say how income from "white" work is correlated with the probability of black activities.

With regard to the length of unemployment, as mentioned above there are two opposite effects on the probability of black activities. On the one hand, the un-

employed gradually lose contact with both the workplace and thus also potential customers. At the same time, they also lose the opportunity to use the workshop or borrow the master's van for black activities. On the other hand, however, unemployment implies that there is more time to work in the black markets. Furthermore, it can also be argued that black activity in itself means that an unemployed person is not actively seeking ("white") work, and therefore remains unemployed.

For lack of an actual variable for the degree of urbanisation, a variable for residence by region in the respective countries is used instead. The assumption here is that black activities are more likely in regions with few large cities, based on the expectation that social networks are more extensive in the country than in cities, which in turn means a larger customer base.

The perceived risk of discovery is also included, and this factor is discussed in more detail in chapter 4. Briefly, the greater the perceived risk of discovery, the smaller the probability of black activities.

Finally, a variable which shows whether the respondent is an owner-occupier or tenant is also included. The assumption here is that, other things being equal, tenants probably have more spare time to carry out black activities, since they do not spend as much time on DIY activities in their own home, cf. Søren Brodersen's (1998, 2001) analyses of DIY in Denmark and Sweden. This correlation can be somewhat blurred, however, since home ownership is connected with income, owner-occupiers having a higher income than tenants. This means that it is difficult to assess beforehand whether owner-occupiers carry out more black activities.

Table 3.4 presents a summary of the results of the logistic regression analyses for each country. More detailed results can be found in appendix tables 3.1-3.5. Since, as in the formal labour markets, there is a statistically significant difference between the results for men and women in Denmark, Norway, Sweden and Germany, separate analyses have been carried out for the two sexes in these countries, while the analysis for Great Britain includes both sexes.

In *Denmark*, the probability of black activities falls with age for both men and women. The correlation between age and black activities is significant at the 1% level for men and at the 5% level for women.

Marital status has an influence for men but not for women on whether they carry out black activities. The interpretation being that single men have a higher probability of working in the black economy. It could perhaps be expected, also for women, that more single persons would carry out black activities, but this is not the case. This variable was not significant for women in any of the surveys from 1994 to 1997 either, cf. Søren Pedersen (1998).

As mentioned above, a variable for the importance of children under 6 for black activities has also been included. On the one hand, it could be expected that small children in the family would leave less time for black activities. On the other hand, however, the extra cost of small children could mean that there is a greater need to earn a bit of extra money in the black market. Jean Kimmel and Karen Smith Conway (2001) have found that, for the USA, the presence of children under 6 means that Americans are significantly less likely to have a (black or white) second job. However, as table 3.4 and appendix table 3.1 shows, this variable has only a marginal effect for men being only just significant at the 10% level and no effect on the probability of black activities for Danish women.

**Table 3.4: Logistic regression of the probability of participating in black activities in all five countries. 18-74-year-olds<sup>1)</sup>**

	Denmark		Norway		Sweden		Germany		Great Britain
	Men	Women	Men	Women	Men	Women	Men	Women	All
Sex	•	•	•	•	•	•	•	•	ns
Age	***	**	***	***	***	**	***	ns	***
Marital status	**	ns	ns	ns	ns	ns	ns	***	ns
Children under 6 <sup>2)</sup>	*	ns	ns	ns	ns	ns	ns	ns	***
Occupation	ns	*	***	***	***	ns	***	**	***
Education	***	*	ns	ns	**	ns	ns	ns	ns
Income <sup>3)</sup>	ns	ns	ns	ns	***	ns	***	***	***
Length of unemployment <sup>4)</sup>	ns	ns			ns	ns	*	ns	ns
Region	*	ns	ns	ns	ns	ns	ns	ns	ns
Risk	*	ns	***	ns	***	*	***	***	ns
Owner-occupier/tenant	ns	ns	ns	ns	**	ns	ns	ns	ns

Notes:

- There is, of course, no value for this variable
- 1) The dependent variable has the value 1 if the respondent has carried out black activities within the last 12 months, and the value 0 otherwise.
- 2) Children under 20 in Sweden and under 4 in Great Britain.
- 3) The German survey also includes the interviewer's estimate of the respondent's income if the respondent has not disclosed personal income, which reduces the non-response on the income question to just 0.7%, cf. also chapter 2.
- 4) Length of unemployment in months. If the respondent has not been unemployed, the value is set to 0. There was no question about length of unemployment in the Norwegian survey.
- \*\*\* Means that the variable is significant at the 1% level
- \*\* Means that the variable is significant at the 5% level
- \* Means that the variable is significant at the 10% level
- ns Means that the variable is not significant

The table summarises the results from appendix tables 3.1-3.5.

Occupation has no importance for men in the Danish survey either. In earlier surveys, however, occupation has had a statistically significant importance, cf. Søren Pedersen & Nina Smith (1998). But in the data for 1998, occupation did not have any significant importance either, cf. Søren Pedersen (1999). The likely explanation is partly that the occupation variable is correlated with education, and partly that the categories used, where wage earners are divided into salaried, skilled and unskilled workers, are becoming increasingly irrelevant, since many

traditional skilled workers are now more and more employed on terms similar to salaried employees, cf. Dansk Arbejdsgiverforening (The Danish Employer's Confederation, 1998).

Occupation is only just significant at the 10% level for women. Here, it is the self-employed who have a greater likelihood of carrying out black activities than unskilled workers.

As in the 1998 survey, education is of great importance for men's black activities in Denmark. Thus, the latest data show that men with no or a vocational education are much more likely to carry out black activities than men with a higher education, which is the excluded category, cf. appendix table 3.1. For women education is only significant at the 10% level.

The Danish data regarding income from the formal economy has been based on register data from Statistics Denmark. Due to the central personal registration system (cpr-number) in Denmark it has been possible to make an exact merge between the answers from the omnibus surveys and data from the income statistics register at Statistics Denmark which includes reported income to the tax authorities.<sup>37</sup> This means that there is only one missing observation regarding gross income. This should be compared with 12.6 pct. if the analysis had been made on the respondent's own answers about gross income.

Annual personal gross income is far from significant, for men or women. In most of the earlier Danish surveys, except those from 1988/89 and 1997, income has not been important either. In the older surveys, rising income, and with it rising marginal tax, meant a smaller likelihood of carrying out black activities, cf. Søren Pedersen (1991, 1997). In these surveys, therefore, it looks as though it is the above-mentioned income effect that dominates. That income is not significant in the new survey here and in most of the older Danish surveys is possibly due to the fact that the variable is correlated with both occupation and education.

As appendix table 3.1 shows, unemployment has no significant effect on black activities. The same applies, as in most of the earlier Danish surveys, to the length of unemployment. The only exception is a survey carried out in 1993/94, cf. Peder J. Pedersen & Nina Smith (1995), where long-term unemployment resulted in a greater probability of black activities. That length of unemployment has a statistically significant effect in precisely this survey can perhaps be due to the fact that, at the time, the Danish economy had been in recession for several years.

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<sup>37</sup> The data was of course made anonymous by Statistics Denmark before it was possible to analyse them. The data has been analysed under the special arrangement for researchers at Statistics Denmark.

In earlier surveys, regional differences in Denmark have shown that black activities were more likely in Funen and Jutland than in the rest of the country. As can be seen from table 3.4, there are no significant regional differences for women in the 2001 survey and the variable is only just significant at the 10% level for men. This result is in line with recent years' surveys in Denmark, which have shown a decline in regional variation in the extent of black activities. Thus, the assumption that black activities are more common in rural areas than in urban areas cannot be confirmed for Denmark.

The perceived risk of discovery by the authorities is almost significant at the 5% level for men, but not for women. The interpretation of the variable is as expected, namely that respondents who perceive the risk of discovery as high or very high are less likely to carry out black activities.

Finally, home ownership, as mentioned above, is also included. As can be seen, this variable has no influence on whether men or women carry out black activities. This applies to all countries, except for men in Sweden.

As can be seen in the *Norwegian* survey, the logistic regression analysis confirms that the probability of carrying out black activities falls with age for both sexes. On the other hand, neither marital status nor small children have any significant importance for either men or women. Occupation has, however. Thus, for men, the self-employed and skilled workers are more likely to carry out black activities than students, which is the excluded group. Conversely, pensioners are less likely to carry out black activities, though the variable is only significant at the 10% level.

Occupation is also statistically significant for women. Like men, women who are self-employed are significantly more likely to carry out black activities than students. Skilled women workers are also more likely to carry out black activities, though the correlation is only statistically significant at the 10% level. Unemployed women have a significantly greater likelihood at the 5% level of carrying out black activities.

Education and income have no importance for black activities in Norway, on the other hand, either for men or women. As mentioned above, education and occupation are correlated, and this probably also explains why Per Arne Tufte (1994) found that education was significant but occupation was not in the survey from 1993. Tufte (1994) also found that, as in this study, income has no statistically significant importance.<sup>38</sup>

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<sup>38</sup> It is not so easy to compare with Tone Ognedal et al.'s (2002) results since they do not include the same set of explanatory variables.

For both sexes, there is no significant regional variation in the extent of black activities. A cross tabulation between black activities and the various regions does show a tendency – albeit slight – for more black activities in northern Norway, namely around 20%, against 14.5% in Akershus and Oslo. But by correcting for differences between sex, age, occupation, education, etc., as is done in the regression analysis here, the differences which show up in a cross tabulation can be explained by a different structure in the significant variable, i.e. especially age, sex, occupation and education. Isachsen and Strøm actually obtain the same results – though with no indication of whether they expect regional variations to have a positive or negative effect on black activities – in their original survey from 1981, finding no difference in the extent of black activities between urban and rural areas, cf. Isachsen & Strøm (1985). Tufte has not included a variable for regional variation in his analyses at all.

As expected, however, men are significantly less likely to carry out black activities if they perceive the risk of discovery by the authorities to be high or very high, while perception of risk has no influence on women's black activities.

The perceived risk of discovery also has significant importance for black activities in the earlier Norwegian surveys. The higher the perceived risk, the lower the probability of black activities. This result is reported in Ognedal et al. (2002), Tufte (1994) and Isachsen & Strøm (1981).

It is interesting to see that in 2001 Ognedal et al. also included 7 questions about peoples attitudes towards black activities and tax evasion. In their further analysis they included the answers from one question, namely the question “It is understandable that people are willing to carry out jobs against tax free payment” (my translation) with the answer categories “yes”, “no”. The answers from this question were used as a means of tax moral and included in the logistic regression analysis. It showed that the lower tax moral the higher was the possibility that people carry out black activities.

As in Denmark and Norway, the probability of black activities also falls with age in *Sweden*, for both men and women. Again as in Norway, children and marital status have no importance for either men or women. For men (but not women), both occupation, education and income have a statistically significant importance for black activities. The self-employed, skilled workers and students are thus significantly more likely to carry out black activities. With regard to education, persons with a university degree in particular are less likely to carry out black activities. With regard to income, all income groups except those in the SEK 200-300,000 income group are more likely to carry out black activities than those who earn up to SEK 100,000 a year. The tendency is, therefore, for the probability of black activities to rise with income. For Swedish men, this could imply a positive correlation between rising marginal tax and the probability of black activities, since rising income also results in higher marginal tax. If, as the

results here indicate, marginal taxes have a tendency to increase the probability of black activities for Swedish men, then it more than offsets any negative effect on black activities from an income effect.

In Sweden, as in Denmark, unemployment has no significant importance for black activities.

There are no regional differences in the probability of black activities either. Thus, the assumption that black activities were more prevalent in rural than in urban areas cannot be confirmed. Riksrevisionsverket, which, as previously mentioned, has also carried out a qualitative survey of black activities (Riksrevisionsverket, 1998b, 1998c), has a possible explanation for this, however. The qualitative survey showed that, though there was a more extensive social network in rural areas, and with it greater possibilities for black activities, there was also a not inconsiderable degree of self-control in the small rural communities, which indicates that large-scale black activities were not acceptable. For example, Riksrevisionsverket found examples showing that persons who carried out black activities on a large scale, and who were also on unemployment benefit, were boycotted by local suppliers of building materials.

Riksskatteverket points out that, in the larger cities, the correlation between social networks and self-control is the opposite. Thus, the networks are perhaps not as extensive, with correspondingly fewer opportunities for black activities, but on the other hand, large-scale black activities are less visible, which means fewer possibilities for "self-control".

These opposite factors thus seem to be present to a very high degree in Sweden, which probably explains why regional variation has no statistically significant effect on black activities.

On the other hand, men, and to some extent women, are, as expected, less likely to carry out black activities if they think there is a high or very high risk of discovery by the authorities.

Alone among the surveyed countries, Swedish men (but not women) who own their own homes are more likely to carry out black activities than tenants. However, this fits well with the tendency for income, and with its marginal tax, to increase the likelihood of black activities for Swedish men.

In the *German* survey, men are also less likely to carry out black activities with age. However, alone among the surveyed countries, age has no significant importance for women.

Marital status in Germany also has a different effect for men and women. Thus, it is unimportant for men, but has a clear statistically significant importance for

women, single women being significantly more likely to carry out black activities than married women.

Children under 6 has no importance for either men's or women's black activities in Germany. Occupation has, on the other hand. Thus, skilled men are significantly more likely to carry out black activities than male salaried employees, while the same applies to skilled and unskilled women and female students.

As can be seen in appendix table 3.4, the unemployed (men and women) are not significantly more likely to carry out black activities if a variable for length of unemployment is also included. However, men who have been unemployed for a long time are more likely to carry out black activities, while length of unemployment is not statistically significant for women. For men, length of unemployment is only significant at the 10% level, however. These variables are correlated, of course. If the variable for length of unemployment is omitted from the model, then both unemployed men and women are significantly more likely to carry out black activities. This confirms the impression from table 3.3 above, which shows that the unemployed are especially active in the black markets in Germany.

In Germany, the correlation between occupation and education means that education is not significant for men or women. Personal monthly net income is, on the other hand. Thus, the higher the income for men and women, the less likely they are to carry out black activities, which is the reverse of the tendency for Swedish men, cf. above.

There is no difference in the probability of carrying out black activities between East and West Germany. Chapter 4 takes a closer look at the difference between the two regions, which is, after all, a reunification of two very different political, economic and social systems. Black hours worked are also included in the analysis in chapter 4.

As in the Swedish survey, men and women in Germany are less likely to carry out black activities if they think there is a high or very high risk of discovery by the authorities.

The detailed statistical analysis of factors of importance for black activities in Wolff (1990, 1991) more or less confirms the results referred to above for the variables sex, age and occupation. However, it is worth noting that, in Merz & Wolff (1993), the unemployed are not significantly more likely to carry out black activities than others, which, according to the new analyses here, no longer applies in 2001.

Wolff (1990, 1991) and Merz & Wolff (1993) have also looked at the extent to which activities in unpaid social networks influence whether a person carries out

black activities. Such activities could be expected to mean less time for black activities, but in fact their analyses show that the variables *help to neighbours*, *help to family/friends*, and *unpaid positions of trust* are all significant. According to the authors, this is because activities in these social networks are a way of coming into contact with people who want to buy black activities.

As mentioned previously, *Great Britain* is the only country among those surveyed where there is no significant difference in the probability of black activities between men and women. As in all the other countries, the probability of carrying out black activities falls with age.

In line with most of the countries, marital status has no importance in Great Britain. Children under 4 have, on the other hand. A person with children under 4 is less likely to carry out black activities. This is in line with the finding by Jean Kimmel and Karen Smith Conway (2001) of the general likelihood of having a second job in the USA.

Occupation also has significant importance for carrying out black activities in Great Britain. Thus, young people under education are significantly more likely to carry out black activities than others. This clearly confirms the impression from table 3.3.

As in most of the other countries, the unemployed are not more likely to carry out black activities than others, and length of unemployment has no significant importance for black activities either. Even though the latter variable is omitted from the model, it does not mean that unemployment is significant for black activities.

When occupation is significant, the correlation with education means, as in Norway, that education becomes insignificant. As in Germany (and for Swedish men), income is significant, though it is interesting to note that the correlation is positive, as for Swedish men, i.e. the probability of black activities increases with income in Great Britain.

Regional variations in the probability of black activities are clearly insignificant in Great Britain, even at the 10% level.

Unlike in most of the other countries in this study, the risk of discovery by the authorities has no importance for black activities whatsoever. In the Danish survey, this variable is only significant for men at the 10% level, and not at all for women. In Denmark's case, this can be explained by the generally low perceived risk of discovery among both those who carry out black activities and those who do not. In Great Britain, on the other hand, the perceived risk of discovery is the highest of all the countries in the survey, cf. table 4.5 in chapter 4, and is shared almost equally by those who carry out black activities and those who do not.

*In summary*, in the countries (except for Great Britain) surveyed here, men are more likely to carry out black activities than women. Age is clearly significant, the young being more active than the elderly. Conversely, neither marital status nor children under 6 seems to have any great importance.

In those countries where occupation is important, i.e. Norway, Sweden, Germany and Great Britain, the general impression is that it is especially the self-employed, skilled workers and students who are significantly more likely to carry out black activities. In those cases where education is statistically significant, vocational training is typically associated with a greater probability of carrying out black activities, or black activities are negatively correlated with educational level. The assumption that skilled workers or people with a vocational education carry out more black activities than others is thus confirmed in the analyses here.

In general, the analyses show that the unemployed are not more likely to carry out black activities. The exception here is Germany, where the unemployed are clearly more likely to be active in the black markets.

In these analyses, income from “white” work has been used as an approximate variable for marginal tax, since marginal tax rises with income. However, as mentioned in the introduction to this section, it is not possible to determine beforehand whether income from “white” work will result in a higher or lower probability of black activities. On the one hand, rising income, and with it rising marginal tax, points to a higher probability of black activities, but there is also an income effect, which works in the opposite direction. The empirical results also confirm that it is not possible to show a clear correlation. In Denmark and Norway, and for Swedish women, the variable is not significant at all. In Great Britain and for Swedish men, the probability of black activities rises with income. But the opposite is true in Germany, for both men and women, where lower incomes result in a higher probability of black activities. Here, therefore, the income effect seems to dominate. This also fits in well with the fact that, in Germany, the unemployed are significantly more likely to carry out black activities.

With regard to regional variation, the main impression is that this does not play any great role. The assumption that there are more black activities in rural than in urban areas cannot be confirmed, therefore. For Sweden, and perhaps also Norway and Denmark, a possible explanation is the existence of wider social networks in rural areas, with a correspondingly greater opportunity for black activities, compared with towns and cities. However, in rural areas there is also a greater degree of “self-control”, which makes large-scale black activities more difficult. The opposite is true in the cities, on the other hand. On the whole, therefore, it is difficult to determine the effect of regional variation on black activities, which the analyses here also show. We return to the regional variation

between East and West Germany in chapter 4, where conditions are unlike those in the other countries due to the former communist regime in East Germany.

The perceived risk of discovery by the authorities plays a statistically significant role, on the other hand. Thus, as expected, a high or very high perceived risk of discovery significantly reduces the probability of black activities.

### **3.5 Black working hours**

In all countries, those respondents who answered yes to having carried out black activities were also asked how many hours a week they spent on them.

The aim of this section is first and foremost to describe the extent of black activities in time, which is interesting in itself, since such a comparison between five different countries using comparable question designs has not previously been attempted. In addition to the average time spent on black activities in the various countries, time spent is also distributed by sex, age and occupation. Here, it is especially interesting to examine whether men work more black hours than women, as they do in the formal market.

The uncertainty in the answers to this question can be expected to be slightly higher than for the other questions, since, as pointed out by Gunnar Viby Mogensen (1989), much black activity is periodical. For many people, it might only be once a year. That respondents are asked to specify an average weekly figure – and not, for example, total black hours worked last year – is, as pointed out by Gunnar Viby Mogensen (1985), due to the problem familiar from, for example, consumer surveys, namely that respondents find it difficult to remember back in time. By asking respondents to give an (approximate and average) number of hours worked per week, it is hoped to make them sure to include all activities in their estimate of time spent on black activities.

As table 3.5 shows, black hours worked vary quite a lot from country to country, from a low of over 3½ hours in Great Britain to a high of over 8 hours in Germany. The figures for Scandinavia are around the same level at 4½-5 hours per week.

Respondents' difficulty in specifying a weekly figure because they do not often carry out black activities can also be seen from the big variation between the countries in the proportion of persons who are able to specify time spent, ranging from about 78% in Norway to about 45% in Sweden, cf. table 3.5. This was also the case in the earlier Danish surveys, where the proportion who can specify a weekly figure for black hours worked varies from 45% in 1995 to about 70% in 1997 and 1998.

The overall extent of black activities is extrapolated in chapter 4, where, in line with Gunnar Viby Mogensen (1989), the figures for black hours from those who *have* answered the question are assumed to represent all respondents in the survey who carry out black activities. This avoids any serious errors, since more detailed analyses show that the proportion of those who carry out black activities, but who cannot specify a figure for hours worked, is distributed fairly evenly between the two sexes and across the age and occupation groups, which, as was seen above, are important variables for black activities. Thus, there are many examples among those who have said yes to carrying out black activities, but who have not specified the number of hours worked, with both a typically low time use (e.g. on black transactions) and a typically high time use, e.g. craftsmen.

**Table 3.5: Average time per week spent on black activities in Denmark, Norway, Sweden, Germany and Great Britain for those 18-74-year-olds who have carried out black activities**

	Average time per week on black activities	Proportion who specify time spent
Denmark	5 hrs.: 10 min.	59.9%
Norway	4 hrs.: 21 min.	77.8%
Sweden	4 hrs.: 43 min.	44.9%
Germany	8 hrs.: 14 min.	56.6%
Great Britain	3 hrs.: 48 min.	63.6%

Some of the older Norwegian surveys asked how many hours had been spent on black activities within the last 12 months. But any answer to such a question must be expected to be on the low side, since many respondents are unlikely to be able to remember all – especially the less time-consuming – black activities. The Norwegian survey for 1980 showed that time spent on black activities averaged 110 hours a year, or just over 2 hours a week on average.

Neither Goldstein (1990) nor Ognedal et al. (2002) have reported the average time spent on black activities in the 1988/89 and 2001 surveys for Norway, for men or women, but only the marginal distributions. However, these can be used to estimate the average time spent, cf. Goldstein (1990), tables 2 and 5 and table 4.2 and 4.7 in Ognedal et al. (2002). These showed that about 132 hours a year in 1988/89 had been spent on black activities, corresponding to over 2½ hours a week. If true, this represents an increase on Isachsen & Strøm's figure for 1980. In 2001 the average time spent on black activities fell to 85 hours per year or 1.6 hours per week. The fall in hours worked in the black economy from 1988/89 to 2001 is mainly due to a fall among women.

The new figures for Norway for 1998/2002 presented here (of 4 hours and 21 minutes) are thus a lot higher than the average black hours worked in the 1980s

and 2001. The difference is probably due to the fact that, as mentioned above, the other figures are presumably somewhat understated.

As previously mentioned, based on the oldest German figures, Wolff (1993) finds that an average of 6.1 hours a week were spent on black activities according to the lower limit for black activities, against 5.4 black hours a week according to the upper limit. Compared with the new figures for 2001 (8 hours and 14 minutes), therefore, there has been a fairly big increase in the number of black hours worked in Germany. Part of the explanation for this increase is probably the differences in the questions, since the older German survey used an indirect approach to the subject without directly mentioning that the questions were about black activities. This is hardly the whole explanation, however, and, as in Norway, there has undoubtedly been an increase in black hours worked.

Interestingly, the new surveys in this book also find that more time is spent on black activities in Germany compared with Norway, as in the surveys from the 1980s.<sup>39</sup>

Table 3.6 shows the number of black hours worked by sex, age and occupation. As can be seen, men tend to work more black hours than women in both Denmark, Sweden, Germany and Great Britain, though the differences are not that great.

In these countries, the distribution of black hours between the sexes thus resembles that in the formal labour markets. Norway is the exception, however, women here working more black hours than men. An earlier Danish survey from 1988 also found the same for Danish women, cf. Gunnar Viby Mogensen (1989).

It is hard to say anything with certainty about the correlation between age and black hours in the various countries. However, apart from Germany, there is a tendency for those over 60 to work more black hours than the average. The under-29s are also over the average in Denmark, Sweden and Germany.

There seems to be more of a pattern in weekly black hours worked for the various occupational groups. In all countries except Denmark and Norway, the self-employed spend the most time on black activities, especially in Germany, where they work about 5 black hours a week more than the average for all Germans. In Sweden, too, the self-employed work relatively more black hours compared with the average for the whole population.

The opposite is true for salaried workers, who, in all countries except Denmark, work on average fewer black hours than the population as a whole. In Germany,

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<sup>39</sup> There are no comparable figures for black hours worked for Sweden and Great Britain.

for example, salaried workers work only half the number of black hours as the general population. The difference between salaried workers and the general population is not as big in the other countries, however.

**Table 3.6: Average black hours worked among those 18-74-year-olds who carry out black activities in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation**

	Denmark		Norway		Sweden		Germany		Great Britain	
	Hours	No.	Hours	No.	Hours	No.	Hours	No.	Hours	No.
Men	5.6	171	4.1	235	4.9	74	8.5	220	4.0	55
Women	3.4	47	4.9	105	4.3	35	7.8	124	3.4	23
18-29-year-olds	6.4	54	4.0	120	4.9	39	7.6	119	4.0	24
30-39-year-olds	4.3	56	4.4	90	3.2	33	7.7	99	2.7	36
40-49-year-olds	3.2	51	4.6	63	6.6	21	9.0	61	(4.1)	15
50-59-year-olds	6.6	40	4.3	45	(4.6)	8	10.8	38	(30.0)	1
60-74-year-olds	(6.8)	17	5.3	22	(5.3)	8	7.3	27	(6.7)	2
Self-employed/ assisting spouse	4.2	42	4.9	42	(6.7)	9	13.2	26	(5.7)	7
Salaried workers	5.5	131	3.7	128	2.9	21	4.0	40	2.6	32
Skilled workers	4.1	97	3.8	64	4.6	29	7.5	92	(5.2)	15
Unskilled work- ers	4.6	62	5.2	34	(5.5)	15	8.6	35	(3.5)	8
Unemployed	(13.4)	5	(8.9)	11	(4.2)	10	10.7	31	(1.9)	3
Pensioners	(7.0)	18	(3.1)	7	(5.3)	7	8.9	26	(5.0)	1
Under education	(5.5)	15	2.8	20	(5.6)	17	8.7	54	(1.0)	2
Other	-	2	5.6	34	(3.0)	1	7.6	39	(7.8)	6
Total	5.2	218	4.3	340	4.7	109	8.2	344	3.8	78

Note: Figure in brackets mean that the average is calculated on less than 20 observations.

In most countries, both skilled and unskilled workers tend to work more black hours than the average, though for both groups the average lies close to that for the general population.

With regard to the unemployed, it is only possible to say anything with reasonable statistical certainty in Germany. Older Danish surveys indicate that the unemployed spend less time on black activities than the population as a whole, cf. Søren Pedersen (1999). In Germany, on the other hand, the unemployed work about 2½ hours more than the average for all those active in the black markets. In Germany, therefore, not only do a higher proportion of the unemployed carry out black activities, but they also work more black hours.

As can be seen from the above, the proportion of pensioners who carry out black activities is not big in any of the countries. However, those who are active in Denmark and Germany spend, on average, more time on black activities than the

population as a whole. Here, there is little doubt that those pensioners who are able to carry out black activities also have the time to do so.

The number of black hours worked compared with the general population varies somewhat more from country to country for persons under education, on the other hand. Thus, in Norway, students spend less time than the average, while students in Great Britain, Sweden and Germany spend more. Apart from Norway, average black hours worked by students fluctuates around the average for the whole population, however.

### **3.6 Black wages**

This section discusses average black wages in the five countries – including whether the wage level in the formal market is also reflected in the black market – and the wage differential between men and women.

Respondents who carry out black activities are also asked about their hourly wages. Persons who answered yes to having carried out black activities, and where payment was in the form of cash or both cash and quid pro quos/friendly turns, were asked about black wages directly:

*“Approximately what have you earned per hour in the past 12 months by doing this work in the black economy?”*

Persons who only received payment in the form of quid pro quos/friendly turns were asked:

*“If you had been paid in cash for the work you did in the black economy in the past 12 months, how much per hour would you have received?”*

The question about black hourly wages in the Danish surveys was first asked in 1996. That it had not been asked before was due to the assumption that information about black wages could be expected to be less reliable. Partly because black wages are naturally not reported to the authorities, and partly because (at least in Denmark) the parties often agree a fixed price for a given piece of work, not an actual hourly wage. Another problem is that there is not always any agreement about cash payment, but quid pro quos or return favours.

In the Danish surveys from 1996 to 1998, however, there is nothing to indicate that respondents had any great difficulty in answering the above questions, and the answers were often highly plausible. The questions on black wages are therefore included in the surveys here.

In Denmark and Norway, 75-80% of all respondents who have carried out black activities were also able to state a black hourly wage, while the proportion was a bit lower in Sweden, Germany and Great Britain, namely 65-70%. In order to compare black wages between the countries from different survey years, they were first converted to 2001 levels, by adjusting with the consumer price index in each country. The 2001 black wages were then converted to €. As table 3.7 shows, average black wages are highest in Norway (€16.5), closely followed by Denmark (€15.7). They are a bit lower again in Great Britain and Sweden (over €14 and €12.5 respectively), while they are lowest in Germany (€10.3).

By comparison, the average gross earnings for an average industrial worker<sup>40</sup> in the formal market – i.e. before tax and social security contributions, etc. – were €29,498 a year in Denmark in 1999, the highest of the five countries, followed by €28,544 in Germany. These were followed by Norway, Great Britain and Sweden, where average gross earnings were €26,136, €24,894 and €21,316 respectively. However, things look rather different if we instead look at net earnings – what the OECD calls “Take-home pay” – for an APW. Now, Great Britain is the highest, with €18,828 in take-home pay a year, followed by Norway, Germany, Denmark and Sweden, with €18,345, €16,575, €16,458 and €14,038 a year respectively.<sup>41</sup>

**Table 3.7: Average black hourly wage for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain in national currencies (current prices) and 2001 prices (in national currencies and euro)**

	Average black hourly wage			No.
	National currency	National currency, 2001 prices <sup>2)</sup>	Euro, 2001 prices <sup>3)</sup>	
Denmark	DKK 117	DKK 117	15.7	510
Norway	NOK 132 <sup>1)</sup>	NOK 137	16.5	326
Sweden	SEK 112	SEK 116	12.5	166
Germany	DEM 20	DEM 20	10.3	346
Great Britain	GBP 9	GBP 9	14.4	80

Notes: 1) Simple average of the 1998 and 2002 surveys.  
 2) The national currency in current prices is converted to 2001 prices by correcting for the trend in consumer prices in each country.  
 3) The 2001 wage rates in national currencies are converted using each country's average exchange rate for the euro in 2001.

Thus, there is no clear correlation when comparing wage levels between the five countries in the formal and black markets. What we can say, however, is that, in

<sup>40</sup> Called “Average Production Worker”, or just APW, by the OECD, cf. OECD (2001b).

<sup>41</sup> The OECD states wages in \$. The conversion to € is based on the average dollar exchange rate for 1999, which, according to the European Central Bank, was €1.066, cf. ECB (2000, p. 60).

Norway, gross and net wages in the formal market are relatively high, and the same applies to black hourly wages. Similarly, in Sweden, wage rates are relatively low in both the formal and black markets, while they vary more between Denmark, Germany and Great Britain.

One reason why the average black hourly wages are relatively low in Germany could be import of cheap labour from f.i. Poland working in the black economy in the building and agricultural sector. Even though this form of black activities, i.e. illegal immigrants working in the black economy, probably can not be successfully covered in the survey here, this form of black activities might keep average black hourly wages low for the Germans working in the black economy.

To compare with the older Norwegian surveys, the average black hourly wage for all respondents in Isachsen & Strøm's (1981) survey was NOK 34. Isachsen & Strøm used interval mid-points in their estimates of average hourly wages, since respondents were asked to state their hourly wages in intervals. For those persons who said that they had done black work free for friends, the authors have set the black hourly wage at NOK 2. And for persons who have been paid in the form of a quid pro quo, the hourly wage was set at NOK 10, cf. Sporastøyl (1982, p. 46 and 62).

Goldstein (1990) and Ognedal et al. (2002) have not reported average black hourly wages in the 1988/89 and 2001 surveys for Norway, though these can be calculated from tables 2 and 5 in Goldstein (1990) and table 4.3 and 4.7 in Ognedal et al. (2002). The average hourly wage for both men and women was NOK 78 in 1988/89 and NOK 149 in 2001. This doubling of black wages from 1980 to 1988/89 probably covers not only a real change in wages. Part of the increase is possibly due to the fact that Goldstein has not set black wages so low in those cases where the work has been done for friends and acquaintances, as Isachsen & Strøm (1981) used, cf. above. Even though Tufte (1984) asked about average black wages in his survey, he has unfortunately not reported this.

If the NOK 78 in Goldstein (1990) is projected to 2001 using the change in consumer prices (consumer price index), it would correspond to NOK 105 in 2001, which is rather lower than the average of NOK 132 in 1998/2002. Tone Ognedal et al. argues to use the nominal increase in wages instead of the consumer price index. Using the nominal wage increase means that the 78 NOK in 1988/89 is projected to 133 NOK in 2001 (using a factor 1.7 according to Ognedal et al.), which is actually at the same level as the new figures for 1998/2002 presented here. The hourly wage rate in 2001 can be calculated to NOK 149 in 2001, which is not far from the NOK 132 in the new 1998/2002 survey presented here. Part of this (minor) difference can be due to the fact that it will produce slightly different figures when you ask respondents to give a precise figure instead of asking them (as in Ognedal et al.) to give an answer in an interval.

Measured by the upper limit, the black hourly wage of DEM 17.33 in the earlier German surveys was relatively high, and was actually slightly higher than the average “white” hourly wage for an industrial worker in 1984 (DEM 16.28). And measured by the lower limit, the black hourly wage of DEM 25.41 in 1984 was quite a bit higher, cf. Klaus Wolff (1991). Projecting the two measures for black hourly wages using the change in consumer prices to 2001 would give a black hourly wage of DEM 24.25 according to the upper limit measure and DEM 35.56 according to the lower limit measure. Thus, according to the upper limit measure, the black hourly wage in 1984 (in 2001 prices) was over DEM 4 more than in the new survey in this book, which, considering the different question designs, seems reasonable. On the other hand, according to the lower limit measure, the black hourly wage in 1984 (in 2001 prices) was over DEM 35, which is much more than the DEM 20 in the present survey, cf. table 3.7.

The new Danish figures for average black wages of an average of DKK 117, cf. table 3.7, are rather higher than the DKK 102 in the 1998 survey, cf. Søren Pedersen (1999), corresponding to an increase of 14.7%. By comparison, the consumer price index rose 8% in the same period. Thus, wages in the black market have increased at nearly double the rate of the general trend in prices.

On the whole, despite the difference in one of the two measures for black wages in the older German survey, the new average black wages in table 3.7 seem reasonable compared with the earlier Danish, Norwegian and German surveys.

Table 3.8 shows average black wages by sex, age and occupation. As can be seen, men earn more than women in all countries. Thus, as in the formal markets, there are fairly large differences between the sexes with regard to payment for black activities. The biggest difference between the sexes is in Germany, where men earn on average DEM 22 against DEM 16 for women.

As with black hours worked, there is no uniform pattern regarding the importance of age for black wages in the five countries. Thus, the 50-59-year-olds have the highest black wages in Norway and Sweden, and the 40-49-year-olds in Denmark and Germany. In Denmark, the 18-29-year-olds earn least, while the 60-74-year-olds earn least in Sweden and Germany.

In both Denmark, Norway and Germany, there are no great differences in black wages between the self-employed and salaried workers, the groups which earn the highest black wages per hour – DKK 132-133 in Denmark, NOK 146-147 in Norway, and DEM 29-30 in Germany. The self-employed earn by far the most in Sweden and Great Britain – SEK 218 and GBP 13 an hour respectively. In Germany, therefore, not only do the self-employed earn the most, but they are also the group which spends the most time on black activities, cf. above.

Skilled workers earn the second most in Sweden, but only the third most in Norway and Denmark, at NOK 132 and DKK 116 respectively, around the average for the whole population in the two countries (NOK 132 and DKK 117). Skilled workers also earn the third most in Germany, at DEM 22 an hour, which is slightly higher than for the German population as a whole in 2001, namely DEM 20.

**Table 3.8: Average black hourly wages (current prices) for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by sex, age and occupation**

	Denmark		Norway		Sweden		Germany		Great Britain	
	DKK	No.	NOK	No.	SEK	No.	DEM	No.	GBP	No.
Men	121	221	144	239	118	113	22	220	9	56
Women	104	77	98	87	99	53	16	126	7	24
18-29-year-olds	107	85	128	120	98	62	18	113	8	23
30-39-year-olds	116	84	130	85	112	51	22	98	10	33
40-49-year-olds	130	68	121	63	130	35	25	63	(8)	15
50-59-year-olds	119	41	168	38	(143)	9	19	41	(10)	5
60-74-year-olds	111	20	132	20	(96)	9	17	31	(5)	4
Self-employed/ assisting spouse	132	33	146	39	(218)	11	30	21	(13)	10
Salaried workers	133	85	147	117	110	29	29	46	9	30
Skilled workers	116	81	132	63	128	48	22	87	(9)	15
Unskilled workers	100	43	114	38	(94)	19	17	42	(9)	8
Unemployed	(76)	5	(74)	10	(116)	14	16	42	(7)	3
Pensioners	(104)	19	(81)	5	(67)	8	16	29	(3)	2
Under education	95	32	127	21	78	34	16	33	(6)	3
Other	-	0	109	33	(78)	3	16	46	(8)	9
Total	117	298	132	326	12	166	20	346	9	80

Note: Figure in brackets mean that the average is calculated on less than 20 observations.

In none of the countries is there anything to suggest that the unemployed have especially high black hourly wages, and the same applies to pensioners. Black hourly wages for the unemployed are thus around or just below the average.

Black hourly wages could perhaps be expected to be lower where the work is for close friends or members of the family. This was in fact found in a Dutch survey for 1984, which showed that black hourly wages varied for different groups of buyers, being lowest for family and friends. Hourly wages rise, on the other hand, the greater the distance between buyer and seller, cf. Van Eck & Kazemier (1988, 1992).

While the surveys here did not ask directly about who the black work was done for, the question on form of payment can give some indication.

As can be seen in from table 3.9, average black hourly wages in Denmark, Norway and Germany are, perhaps surprisingly, highest where payment is in the form of a quid pro quo/friendly turn. However, the differences can also be due to the fact that it is more difficult to estimate hourly wages for friendly turns in the form of a quid pro quo than for other kinds of black activities where there is an explicit agreement between buyer and seller regarding the price of a piece of work.

**Table 3.9: Average black hourly wages (current prices) for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by form of payment**

	Denmark		Norway		Sweden		Germany		Great Britain	
	DKK	No.	NOK	No.	SEK	No.	DEM	No.	GBP	No.
Cash	116	64	132	98	116	76	19	97	9	28
Quid pro quo	120	166	138	166	102	49	22	112	9	44
Both cash and quid pro quo	109	68	130	62	114	41	20	137	(9)	8
Total	117	298	132	326	112	166	20	346	9	80

Note: Figure in brackets mean that the average is calculated on less than 20 observations.

Table 3.10 shows average black hourly wages by the industry concerned. All respondents who answered yes to carrying out black activities were thus also asked what kind of work they did. The interviewers carefully wrote down these open answers, which were subsequently coded according to the EU's industrial classification (NACE, rev.1), cf. chapter 4 for more about this.

As can be seen from table 3.10, the highest black hourly wages in both Denmark and Norway are in financial intermediation and business activities – DKK 157 and NOK 155 respectively.<sup>42</sup> Black activities in this sector consist especially of cleaning, which pulls black wages downwards, but they also include various consulting work and computer services, configuration, etc., and auditing and accounting help, which pulls it up. In Norway, the second highest black hourly wages are in the construction industry, which only pays the third highest black wages in Denmark, namely DKK 117, the average for all those active in the black markets. The lowest black hourly wages in Denmark are in the hotel and restaurant sector, namely DKK 86, while the lowest in Norway, NOK 107, is in agriculture.

The highest black hourly wages in Sweden, SEK 122-123, are in sales and repairs (especially cars), financial intermediation and business activities, and pub-

<sup>42</sup> For Norway, "Transport and telecommunications", with an average black hourly wage of NOK 174 is ignored, since it is based on only 9 observations.

lic and personal services. As in Denmark, the lowest black hourly wages are in hotels and restaurants (SEK 86, based on only 9 observations, however).

**Table 3.10: Average black hourly wages for 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain, by industry**

	Denmark		Norway		Sweden		Germany		Great Britain	
	DKK	No.	NOK	No.	SEK	No.	DEM	No.	GBP	No.
Agriculture, fishing and quarrying	95	42	107	32	(96)	16	16	37	(3)	2
Manufacturing	(127)	12	(115)	13	(100)	10	(25)	7	(7)	5
Construction	117	120	142	119	105	37	22	110	9	26
Sales and repairs	112	26	111	36	122	22	(21)	18	(12)	10
Hotels and restaurants	86	24	(129)	6	(86)	9	(15)	18	(13)	2
Transport, telecommunications	(108)	15	(174)	9	(111)	10	(15)	16	(8)	6
Financial intermediation and business activities	157	29	155	30	122	25	20	48	(8)	5
Public and personal services	124	26	115	43	123	26	21	55	(13)	14
Total <sup>1)</sup>	117	298	132	326	112	166	20	346	9	80

Notes: Figure in brackets mean that the average is calculated on less than 20 observations. The industrial classification follows the 9-grouping in NACE, rev.1, except that "hotels and restaurants" are split off on their own. Moreover, the "electricity and gas supply" industry is omitted, since there are no black activities in this industry in any of the countries. "Activity not stated" is also left out.

<sup>1)</sup> Including industry not stated for black activities.

The highest black hourly wages in Germany, DEM 21-22, are in the construction industry, sales and repairs, and financial intermediation and business activities (manufacturing is ignored, since the average here is based on only 7 observations). The lowest black hourly wages are in agriculture, and hotels and restaurants.

As can be seen from the table, there are not enough observations in Great Britain to be able to estimate an average for five of the industries with even reasonable statistical certainty. The highest black hourly wages are in public and personal services (GBP 13), while the lowest are in the construction industry (GBP 9).

On the whole, therefore, the highest black hourly wages are in financial intermediation and business activities and in public and personal services, where many black activities consist of childcare, which pulls wages down, but also a lot of well-paid teaching and especially musicians, which pulls average black wages up in this sector. Apart from Germany, hourly wages in the construction industry are, perhaps surprisingly, not especially high relatively speaking. Another characteristic is that hourly wages are, in general, relatively low in the hotel and restaurant sector.

### **3.7 The influence of income from black activities on the income distribution**

It is by now a well documented fact that the Scandinavian countries have a relatively high degree of equality in the income distribution – followed by Germany and Great Britain, cf. i.a. Det Økonomiske Råd (The Danish National Council of Economic Advisors, 1996) and OECD (1995). However, these analyses have not included income from black activities. The following will therefore deal with how income from black activities will affect the income distribution.

There are different measures of income distribution. It has here been chosen to use the Gini coefficient which is probably one of the most used measures, cf. OECD (1995) as well as the maximum equalisation percentage. The Gini coefficient is a measure of the degree of inequality in a distribution (here the income distribution), whereas the maximum equalisation percentage presents the percentage of the total amount of income, which is to be transferred from persons with income above average to persons with income below average to get a completely equal income distribution.

As regards income from the formal "white" market, which has to be added income from the black market, it has here been chosen to analyse income after tax, i.e. the net income, to be able to compare "in the same unit". Alternatively, the black income could be converted into "white" income, but this is not possible as there are no observations of average taxes and marginal taxes.

The analysis being based on income after tax, it has not been possible to calculate the Gini coefficient and maximum equalisation percentage in Norway, Sweden and Great Britain as there are no observations of net income in these countries.

As pointed out in OECD (1995) it is not unimportant if the analyses are made on an individual or a household level. In Germany, women have a markedly lower participation rate than the Danish women. This means that if income distribution is measured on an individual level in Germany, there will – other things being equal – be a more unequal income distribution, as there will here be relatively more persons with a 0 income, because they might work at home taking care of their children. As the women in Denmark have a markedly higher participation rate, this will not have the same importance as in Germany.

The following will be an analysis on an individual level in Denmark and on a household level in Germany. The reason is that the random sampling of the Danish survey is based on individuals, whereas it is based on households in Germany.

The choice of household and individual unit respectively means that it is not possible to compare the measures of income inequality between Germany and Denmark. This is, however, not so important as the interesting thing here is to

investigate what happens to the income distribution in the two countries when black income is included.

The Danish data regarding net income from the formal economy has been based on register data in Statistics Denmark. This is as mentioned earlier (in Section 3.4) possible due to the central personal registration system (cpr-number) in Denmark. This means that there are only 2.2 pct. missing observations. This should be compared with 20.4 pct. if the analysis had been made on the respondent's own answers about net income.

Table 3.11 shows the proportion of the population who carry out black activities as well as the average monthly black income divided by different income from the formal part of the economy in Denmark and Germany.

**Table 3.11: Proportion of the population in the 18-74 age group who carry out black activities and average monthly income from black activities in Denmark and Germany, by net income in the formal economy**

Net income from the formal "white" economy	Proportion who carry out black activities	Average black income per month among those who carry out black activities
Denmark	Percent	National Currency
DKK 0- 49,999 a year	20.1	DKK 1,885
DKK 50,000- 99,999 a year	17.5	DKK 2,445
DKK 100,000-149,999 a year	22.4	DKK 2,095
DKK 150,000 or more a year	21.2	DKK 3,427
Total	20.5	DKK 4,095
Germany		
DEM 0-1,999 per month	11.3	DEM 719
DEM 2,000-2,999 per month	11.0	DEM 562
DEM 3,000-3,999 per month	8.9	DEM 482
DEM 4,000-5,999 per month	9.6	DEM 736
DEM 6,000 and more	7.5	DEM 935
Total	9.7	DEM 670

Note: Average monthly income from black activities has been calculated on basis of the observed hourly black wages and black hours worked per week times 52/12. The proportion of the population has been calculated for those with an observed income from the formal part of the economy and might therefore differ from the other tables. The German data are based on household level and thus not weighted here.

For Denmark it looks as if there is a tendency that the inclusion of black income has an opposite "Robin Hood" effect. In Germany there seems to be an U-shaped curve which makes it very difficult on the basis of table 3.11 to say how

the inclusion of income from black activities has an effect on the income distribution.

The calculations of the Gini coefficient for Denmark show that the coefficient without black income can be calculated to 0.309. The inclusion of black income gives a Gini coefficient of 0.313. The effect is thus not of any great magnitude and is not statistically significant.

The maximum equalisation percentage is for Denmark calculated to 21.7 when income from black activities is left out and to 21.9 when included, thus confirming the impression as also the Gini coefficient showed that inclusion of income from black activities makes the income distribution in Denmark slightly more unequal. The effect, however, is not very big. The same results were found in Denmark on data from 1998, cf. Søren Pedersen (1999).

Turning to Germany it is interesting to see that the inclusion of income from black activities gives a Gini coefficient of 0.2844, and without black income the Gini coefficient can be calculated to 0.2849. It is thus only at the fourth decimal an effect can be observed. It is also hard to see an effect on the maximum equalisation percentage being measured to 20.19 including black incomes and to 20.25 excluding black incomes.

Measured by both the Gini coefficient and the maximum equalisation percentage there seems to be a weak tendency that in Denmark the inclusion of income from black activities has an opposite "Robin Hood" effect making the income distribution slightly more unequal, whereas in Germany the inclusion of income stemming from black activities actually makes the income distribution slightly more equal.

A preliminary conclusion seems to be that income from black activities does not effect the income distribution to any particular degree. To say anything with more certainty requires more analyses over several more years.

### **3.8 Concluding remarks**

There have been no previous comparable questionnaire surveys of the extent and incidence of black activities based on the same definition of the phenomenon. Thus, for the first time, the analyses in this chapter present comparable figures for the proportion of the adult population in the 18-74 age group in the five countries who have carried out black activities one or more times during the last year.

As the above has shown, there are big differences between the countries with regard to the proportion who carry out black activities. It is highest in Denmark, at 20.3%, closely followed by Norway at 17.3%. Thereafter follow Sweden,

Germany and Great Britain at a much lower level, namely 11.1%, 10.4% and 7.8% respectively.

In all the countries except Great Britain, men are more likely to carry out black activities than women. Age is also significant, the young being more active than the old. Conversely, neither marital status nor children under 4 seems to have much importance.

In those countries where occupation is an important variable, the general impression is that the self-employed, skilled workers and students in particular are significantly more likely to carry out black activities. In cases where education is statistically important, vocational training typically increases the probability of black activities, or the likelihood of black activities falls with length of education. The assumption that skilled workers or persons with vocational training carry out black activities to a greater extent than others is thus confirmed in these analyses.

With regard to the unemployed and black activities, there are two opposite effects. On the one hand, unemployment implies that a person has more spare time to carry out black activities. On the other hand, however, the long-term unemployed gradually lose contact with the workplace, and thus also with potential customers. Furthermore, they also lose the opportunity to borrow the workshop or master's van for black activities. Conversely, it could be argued that the correlation between black activities and length of unemployment goes the other way, since the more time spent on black activities, the less time there is to look for normal work, thereby perpetuating unemployment.

In general, the analyses show that the unemployed are not more likely to carry out black activities. The exception is Germany, where the unemployed are clearly more likely to be active. In Germany, then, it could well be that the unemployed are not interested in looking for "white" work because they earn more than enough from black activities in addition to being on unemployment benefit.

In these analyses, income from "white" work is used as an approximate variable for marginal tax, since marginal tax increases with income. As mentioned in the introduction to this section, it is not possible to determine beforehand whether the income from "white" work will result in a bigger or smaller probability of black activities. On the one hand, rising income, and with it rising marginal tax, points to the former. But at the same time, there is an income effect which has an opposite effect: People "can't afford not to". The empirical results also confirm that it is not possible to show a clear correlation. In Denmark, Norway, and for Swedish women, the variable is not significant at all, while in Great Britain and for Swedish men, black activities are more likely with increasing income. In Germany, however, the opposite is the case for both men and women, where black activities have a negative correlation with increasing income. Here, the

income effect thus seems to dominate. This fits in well with the fact that, in Germany, the unemployed are significantly more likely to carry out black activities.

Regional variation does not play any great role. The assumption that black activities are more widespread in the country than in cities is thus not confirmed. For Sweden, and perhaps also for Norway and Denmark, this is possibly because even though there are more extensive social networks in the country, with consequent greater opportunities for carrying out black activities compared with cities, there is also a higher degree of “self-control” in rural communities, which makes large-scale black activities difficult. The reverse is true in cities, however. This makes it hard, overall, to determine the effect of regional variations on black activities, which the analyses also show. We return to the regional variation between East and West Germany in chapter 4, where conditions are different due to the effect of the previous communist regime in East Germany.

The risk of discovery by the authorities plays a statistically significant role. As expected, a high or very high perceived risk of discovery significantly reduces the probability of black activities.

As with frequency, average black hours worked also varies from country to country, namely from a low of over 3½ hours in Great Britain to a high of over 8 hours in Germany. The Scandinavian countries lie in between, in the range 4½ – 5 black hours worked a week.

With regard to the number of hours worked, the main impression from most of the countries is that men work more black hours than women. This parallels the pattern in the formal market. The importance of age is less clear, however, though the under-30s and over-60s tend to work more black hours than the other age groups.

In general, the self-employed work by far the most hours in the black sector, while salaried workers only work few black hours. Students, especially in Germany, Denmark and Sweden, also work a large number of black hours compared with the average in the respective countries.

For the most part, the unemployed do not work more black hours than the rest of the population. The exception here is Germany, where the unemployed work about 2½ black hours more a week than the average for the whole population. Thus, not only do a higher proportion of the unemployed in Germany carry out black activities compared with other countries, but they also spend more time on them.

In order to compare black wages between the countries from different survey years, they were first converted to 2001 levels. The 2001 black wages were then

converted to euro. This shows that average black wages are highest in Norway (€16.5), closely followed by Denmark (€15.7). They are a bit lower again in Great Britain and Sweden (over €14 and €12.5 respectively), while they are lowest in Germany (€10.3).

A comparison of the wage level in the black market with the income of an average manufacturing worker (APW) in the formal market in the five countries shows that Norwegians do relatively well in both the formal and black markets. At the other extreme, Swedes do relatively poorly in both markets. In both Denmark, Germany and Great Britain, there is no clear correlation between wage levels in the formal and black markets. For example, “white” German gross earnings are at the same level as in Denmark, while black wages are about 50% higher in Denmark than in Germany.

One reason why the average black hourly wages are relatively low in Germany could be import of cheap labour from f.i. Poland working in the black economy in the building and agricultural sector. Even though this form of black activities, i.e. illegal immigrants working in the black economy, probably can not be successfully covered in the survey here, this form of black activities might keep average black hourly wages low for the Germans working in the black economy.

As in the formal markets, men’s black hourly wages are higher than women’s. On the other hand, nothing clear can be said about the importance of age.

As regards the importance of occupation, the self-employed and salaried workers in particular have high black hourly wages, while skilled workers earn about the average for the population in general.

In all countries, the distribution of black wages by industry shows that the highest hourly wages are in financial intermediation and business activities, together with public and personal services, where typical black activities are childcare. This pulls the level down, but there is also a good deal of well-paid teaching, especially musicians, which pulls average black wages up in this sector. Apart from in Germany, black wages in the construction industry are around the average. In Germany, it is precisely in the construction industry that black hourly wages are highest. Black hourly wages are also typically relatively low in the hotel and restaurant sector.

The credibility of the results presented here is strengthened by the fact that there are no great differences compared with earlier – albeit often rather less extensive – surveys in Denmark, Norway, Sweden and Germany.

Finally it was investigated whether income from black activities has any effect on the income distribution in Denmark and Germany where it was possible to make such an analysis. The conclusion was that it was hard to measure any sig-

nificant effect on the Gini coefficient and the maximum equalisation percentage. Having said that, there seems to be a weak tendency that in Denmark the inclusion of income from black activities has an opposite “Robin Hood” effect making the income distribution slightly more unequal, whereas in Germany the inclusion of income stemming from black activities actually makes the income distribution slightly more equal.

**Appendix table 3.1: Logistic regression of the probability of participating in black activities in Denmark in 2001. 18-74-year-olds <sup>1)</sup>**

	Men		Women	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	0.759	0.466	-0.229	0.649
Age	-0.031***	0.008	-0.030**	0.012
Single (0/1)	-0.403**	0.201	-0.366	0.262
Child under 6 (0/1)	-0.389*	0.231	0.146	0.309
Occupation:				
Self-employed/assisting spouse	-0.068	0.327	0.629	0.490
Salaried worker	-0.118	0.280	-0.375	0.430
Skilled worker	0.068	0.281	0.026	0.468
Pensioner/Early retiree	-0.005	0.596	0.449	0.551
Under education	-0.821*	0.434	0.239	0.521
Unemployed <sup>2)</sup>	-0.963	0.616		
Other <sup>2)</sup>	-0.194	1.302	-0.747	0.680
Unskilled worker	-	-	-	-
Education:				
Vocational training	1.260***	0.202	0.358	0.268
No education/not stated	0.624***	0.230	-0.342	0.304
Further education	-	-	-	-
Gross personal income / 1000	0.0001	0.0005	-0.002	0.001
Length of unemployment <sup>3)</sup>	-0.014	0.021	-0.033	0.023
Regions:				
East of the Great Belt	-0.278*	0.165	0.139	0.220
West of the Great Belt	-	-	-	-
Perceived risk:				
Very big /fairly big	-0.421*	0.224	0.082	0.261
Fairly small /very small	-	-	-	-
Home ownership:				
Not owner-occupied	0.031	0.193	0.011	0.256
Owner-occupied	-	-	-	-
Log likelihood		-479.31		-302.38
Proportion with dependent variable=1		29.4		11.5
No. of observations		881		914

Notes:

- 1) The dependent variable has the value 1 if the respondent has carried out black activities during the last 12 months, and the value 0 otherwise.
- 2) For Danish women, the category "Other" is combined with the category "Unemployed".
- 3) Length of unemployment refers to the number of months the respondent has been out of work. If the respondent is not unemployed, the value is set at 0.

\*\*\* Indicates that the coefficient is significant at the 1% level, \*\* that the coefficient is significant at the 5% level, and \* that the coefficient is significant at the 10% level.

**Appendix table 3.2: Logistic regression of the probability of participating in black activities in Norway in 1998/2002. 18-74-year-olds<sup>1)</sup>**

	Men		Women	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.516	0.561	-2.214**	1.012
Age	-0.019***	0.007	-0.027***	0.009
Married (0/1)	0.042	0.180	0.338	0.228
Child under 6 (0/1)	-0.241	0.198	-0.001	0.257
Occupation:				
Self-employed	0.940**	0.415	2.090***	0.613
Salaried worker	-0.049	0.379	0.482	0.508
Skilled worker	0.876**	0.394	1.690*	0.966
Unskilled worker	0.050	0.414	0.921	0.592
Unemployed	0.226	0.554	1.480**	0.662
Pensioner	-0.950	0.588	1.032	0.731
Other	-0.072	0.452	0.945*	0.533
Under education	-	-	-	-
Education:				
Basic education	-0.126	0.271	-0.148	0.340
Short education	0.058	0.205	-0.115	0.241
Long education <sup>2)</sup>	-0.784*	0.420	-	-
Medium-length education <sup>2)</sup>	-	-	-	-
Annual gross personal income:				
NOK 0-99,000	-0.069	0.340	0.367	0.867
NOK 100,000-199,000	0.139	0.271	0.262	0.793
NOK 200,000-299,000	0.238	0.238	0.260	0.782
NOK 300,000-399,000	-0.069	0.251	-0.177	0.870
NOK 400,000+	-	-	-	-
Regions:				
Agder and Rogaland	0.458*	0.244	0.219	0.350
Akershus and Oslo	0.108	0.244	0.244	0.333
Hedmark and Oppland	0.364	0.308	0.898**	0.364
Northern Norway	0.433	0.271	0.463	0.365
Trøndelag	0.500*	0.280	0.289	0.396
Vestlandet	0.195	0.234	0.403	0.330
Rest of Østlandet	-	-	-	-
Perceived risk:				
Very big /fairly big	-0.911***	0.251	-0.185	0.237
Fairly small /very small	-	-	-	-
Home ownership:				
Not owner-occupied	-0.128	0.151	-0.168	0.201
Owner-occupied	-	-	-	-
Log likelihood		-623.07		-388.31
Proportion with dependent variable=1		24.3		10.9
No. of observations		1,237		1,192

Notes: 1) The dependent variable has the value 1 if the respondent has carried out black activities during the last 12 months, and the value 0 otherwise.  
2) For Norwegian women, medium-length and long education are combined.  
\*\*\* Indicates that the coefficient is significant at the 1% level, \*\* that the coefficient is significant at the 5% level, and \* that the coefficient is significant at the 10% level.

**Appendix table 3.3: Logistic regression of the probability of participating in black activities in Sweden in 1998. 18-74-year-olds <sup>1)</sup>**

	Men		Women	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.679	0.736	-0.332	0.886
Age	-0.042***	0.011	-0.031**	0.015
Married (0/1)	0.093	0.244	-0.460	0.352
child under 20 (0/1)	0.088	0.218	-0.334	0.306
Occupation:				
Self-employed	0.944***	0.364	1.064*	0.603
Skilled worker	0.843***	0.297	0.251	0.407
Unskilled worker	0.609*	0.358	0.600	0.486
Unemployed	-0.334	0.744	-0.058	0.968
Pensioner	0.073	0.531	0.602	0.653
Student	1.509***	0.438	0.853*	0.504
Other	0.520	0.912	-0.819	1.076
Public servant	-	-	-	-
Education:				
Primary and lower secondary school	-0.262	0.299	-0.901*	0.478
Vocational training	0.264	0.254	-0.085	0.363
University	-0.684**	0.320	-0.514	0.399
Upper secondary school	-	-	-	-
Annual gross personal income:				
SEK 100,001-200,000	0.932**	0.463	0.278	0.496
SEK 200,001-300,000	-0.184	0.490	-0.364	0.534
SEK 300,001-400,000	0.564	0.493	-0.409	0.580
SEK 400,001-500,000	0.531	0.537	-0.163	0.645
SEK 500,001+	0.571	0.589	-0.834	0.913
SEK 1-100,000	-	-	-	-
Length of unemployment <sup>2)</sup>	0.027	0.042	0.012	0.055
Regions:				
Mellersta and Övre	-0.061	0.347	-0.612	0.506
Norra Mellansverige	-0.085	0.364	0.115	0.456
Småland med öarna	0.079	0.351	-0.064	0.471
Stockholms län	0.447	0.299	-0.367	0.463
Southern Sweden	-0.278	0.418	0.075	0.435
Western Sweden	0.058	0.307	-0.262	0.413
Östra Mellansverige	-	-	-	-
Perceived risk:				
Very big /fairly big	-1.095***	0.362	-0.596*	0,344
Fairly small /very small	-	-	-	-
Home ownership:				
Not owner-occupied	-0.496*	0.231	-0.232	0,324
Owner-occupied	-	-	-	-
Log likelihood		-368.81		-228.01
Proportion with dependent variable=1		15.8		7.3
No. of observations		991		957

Notes: 1) The dependent variable has the value 1 if the respondent has carried out black activities during the last 12 months, and the value 0 otherwise.  
2) Length of unemployment refers to the number of months the respondent has been out of work. If the respondent is not unemployed, the value is set at 0.  
\*\*\* Indicates that the coefficient is significant at the 1% level, \*\* that the coefficient is significant at the 5% level, and \* that the coefficient is significant at the 10% level.

**Appendix table 3.4: Logistic regression of participating in black activities in Germany in 2001. 18-74-year-olds<sup>1)</sup>**

	Men		Women	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-2.165***	0.314	-4.300***	0.715
Age:				
18-29	0.491**	0.217	-0.387	0.302
30-39	0.409**	0.179	-0.025	0.261
50-59	-0.384*	0.213	-0.320	0.302
60-74	-0.740**	0.351	-0.868*	0.493
40-49	-	-	-	-
Married (0/1)	0.045	0.156	1.118***	0.224
Child under 6 (0/1)	-0.089	0.188	-0.101	0.273
Occupation:				
Self-employed	0.306	0.239	0.518	0.505
Skilled worker	0.726***	0.191	1.328***	0.380
Unskilled worker	-0.022	0.286	0.656**	0.319
Unemployed	0.081	0.434	0.220	0.739
Pensioner	0.176	0.365	0.045	0.548
Student	-0.296	0.382	1.219***	0.457
Other	0.030	0.330	0.539	0.355
Salaried worker	-	-	-	-
Education:				
Keinen beruflichen Abschluss	-0.355	0.248	0.021	0.252
Fachschule, Meister-, Technikerschule	0.340*	0.195	0.318	0.373
Fachhochschulabschluss	-0.239	0.307	0.549	0.393
Hochschulabschluss	-0.126	0.264	0.077	0.453
Anderen beruflichen Abschluss	0.459	0.373	0.267	0.740
Student(in)	0.346	0.360	0.968***	0.374
Beruflich/betriebliche Ausbildung <sup>2)</sup>	-	-	-	-
Monthly net income:				
DEM 0-999	0.931***	0.308	1.433**	0.589
DEM 1,000-1,749	1.030***	0.256	1.393**	0.580
DEM 1,750-2,449	0.524***	0.204	0.626	0.600
DEM 2,500-3,449	0.198	0.179	1.160**	0.587
DEM 3,500 +	-	-	-	-
Length of unemployment <sup>3)</sup>	0.043*	0.025	0.059	0.037
Regions:				
West Germany	0.146	0.153	0.304	0.220
East Germany	-	-	-	-
Perceived risk:				
Very big /fairly big	-0.913***	0.124	-1.060***	0.173
Fairly small /very small	-	-	-	-
Home ownership:				
Not owner-occupied	-0.115	0.128	-0.237	0.179
Owner-occupied	-	-	-	-
Log likelihood		-1018.49		-565.32
Proportion with dependent variable=1		15.2		6.0
No. of observations		2,585		3,064

Notes: 1) The dependent variable has the value 1 if the respondent has carried out black activities during the last 12 months, and the value 0 otherwise. The data are weighted using Infratest Sozialforschung's standard weight to control for differences in the drawing probability for single and married/cohabiting, since the sample is household-based.

2) Also includes apprentices.

3) Length of unemployment refers to the number of months the respondent has been out of work. If the respondent is not unemployed, the value is set at 0.

\*\*\* Indicates that the coefficient is significant at the 1% level, \*\* that the coefficient is significant at the 5% level, and \* that the coefficient is significant at the 10% level.

**Appendix table 3.5: Logistic regression of participating in black activities in Great Britain in 2000. 18-74-year-olds<sup>1)</sup>**

	Coefficient	Std. Error
Constant	-1.825**	0.7205
Sex:		
Woman	-0.282	0.238
Man	-	-
Age	-0.039***	0.012
Married (0/1)	0.035	0.251
Child under 4 (0/1)	-0.956**	0.408
Occupation:		
Self-employed	0.751	0.527
Salaried worker	0.090	0.474
Skilled worker	0.350	0.515
Unskilled worker	-0.199	0.519
Unemployed	0.555	1.481
Pensioner	-0.357	0.789
Under education	2.333***	0.691
Other	-	-
Education:		
A levels or Higher / Onc/BTEC	0.391	0.386
Degree or higher degree <sup>2)</sup>	0.334	0.354
O level or GSCE equivalent <sup>3)</sup>	0.678**	0.319
Other qualification/no formal qualifications	-	-
Income	0.045***	0.017
Length of unemployment <sup>4)</sup>	-0.058	0.110
Regions:		
London and Southeast England	-0.447	0.290
Midlands and East Anglia	-0.150	0.251
Southwest England and Wales	-0.077	0.332
Northern England and Scotland	-	-
Perceived risk:		
Very big /fairly big	-0.135	0.213
Fairly small /very small	-	-
Home ownership:		
Not owner-occupied	-0.302	0.306
Owner-occupied		
Log likelihood		-353.1470
Proportion with dependent variable=1		7.8
No. of observations		1,459

Notes: 1) The dependent variable has the value 1 if the respondent has carried out black activities during the last 12 months, and the value 0 otherwise. The data are weighted using National Statistics, Social Survey Division's standard weight to control for differences in the drawing probability for single and married/cohabiting, since the sample is household-based.

2) Including "Higher educational qualifications below degree".

3) Including GCSE grade D-G or CSE grade 2-5 or Standard Grade level 4 –6.

4) Length of unemployment refers to the number of months the respondent has been out of work. If the respondent is not unemployed, the value is set at 0.

\*\*\* Indicates that the coefficient is significant at the 1% level, \*\* that the coefficient is significant at the 5% level, and \* that the coefficient is significant at the 10% level.

## **4. Extent of black activities in the five countries**

### **4.1 Introduction**

Once we know how many persons carry out black activities and how much time they spend on them, we can estimate the total number of hours spent on black activities in one year.

As yet, there is no completely satisfactory method for extrapolating from this figure to a measure for the size of the black sector in relation to overall economic activities, e.g. as measured by GDP. For want of a better method, therefore, we estimate the extent of black activities in relation to GDP by comparing the number of hours worked in the black sector with those worked in the formal part of the economy, in line with earlier Danish research, cf. Gunnar Viby Mogenssen (1989).

This implicitly assumes that productivity in the black sector is the same as that in the formal sector. One of the problems with this, however, is that we do not know how high productivity – defined as value added per hour worked – actually is in the black sector compared with the rest of the economy.

On the one hand, the higher after-tax payment for black activities, together with the element of choice, and with it perhaps a higher motivation, suggests that productivity is higher in the black economy than in the formal economy. Moreover, black activities are often carried out after normal working hours, in the evening or at the weekend, which indicates that the work is done more quickly than usual in order to preserve at least some leisure time. On the other hand, it cannot be ruled out that productivity is lower in the black sector, since the entire capital equipment normally used in the formal sector can hardly be fully utilised in black activities – even though some relevant parts (workshops, tools, vans, etc.) probably are to some extent. Similarly, a lot of work in the black sector is probably done by persons not trained to do it. Thus, in a study of the buyer side in the black sector in 1983, Gunnar Viby Mogenssen (1985) reports that, in 51% of cases, the person who did the work that the respondent had bought was also trained in that work, whereas in 37% of cases they were not. In the remaining 12% of cases, according to the buyer of black activities, relevant training was not necessary.

Søren Pedersen & Nina Smith (1998) have shown that payment in the formal part of the economy is significantly lower for persons who have carried out black activities, which indicates lower productivity. If, in addition, the black market is not as competitive as the formal market, this also suggests that productivity is modest. However, in light of the opposite determinants and the lack of

clear figures, it is assumed that productivity is the same in both the formal sector and the black economy.

#### **4.2 Extent of black activities measured in black and “white” prices**

For Denmark, the figures on working hours in the formal economy come from special runs of Statistics Denmark’s Labour Force Surveys (AKU) from 2001, which are based on interviews with about 45,000 persons in the 15-66 age group. Similarly, the figures for “white” working hours in Sweden come from the Swedish Labour Force Survey, cf. Riksrevisionsverket (1998a). The figures for Norway, Germany and Great Britain are all taken from the omnibus surveys, which also included questions about black activities.<sup>43</sup> The figures for “white” working hours in the omnibus are used because of the possibility this gives of defining the relevant population groups, which, for the sake of comparability, are the 18-66-year-olds. For all countries, working hours are defined for the calculations here as normal weekly working hours in the main and secondary jobs.<sup>44</sup>

The question about normal working hours in the main and secondary jobs thus reflects the average number of hours worked. Alternatively, the number of hours *actually worked* last week could be used. This figure is always lower than normal working hours because of absence from work due to illness, holidays, further training, etc., cf. Eurostat (1996). However, since the questions about black hours worked ask about average weekly hours and *not* actual hours worked last week, we have chosen to use normal working hours in the formal part of the economy.

Table 4.1 shows black hours worked as a proportion of total “white” working hours. If, as mentioned above, we assume that there are no great differences in productivity between the “white” and black sectors, and transfer black hours as a proportion of total “white” working hours in the five countries to a corresponding proportion of GDP in market prices, it corresponds to a figure, in Denmark, of 3.8% of GDP. The figures for Norway and Sweden are somewhat lower, at

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<sup>43</sup> For Norway, white working hours are, like black hours, an average of 1998 and 2002.

<sup>44</sup> It is reasonably unproblematic to use the omnibus survey figures for working hours in the formal economy in the three countries because these figures are at the same level as Eurostat’s, which all come from comparable labour force surveys. Thus, the figure for white working hours for the employed in the omnibus survey for Norway is 36.5 hours a week, against 35.4, albeit for 2000, cf. Eurostat (2001). The omnibus figure for Germany is 37.1 hours a week, which is exactly the same as the Eurostat figure (also for 2000). There is no great difference in Great Britain either, the respective figures being 37.1 and 37.7 hours (also for 2000) a week.

2.6% and 2.3% of GDP respectively.<sup>45</sup> The figure is lowest for Great Britain, at 1.2% of GDP, and highest for Germany, at 4.1%.

**Table 4.1: Black hours worked as a proportion of “white” working hours in Denmark, Norway, Sweden, Germany and Great Britain**

	Black frequency	Average weekly black hours worked for persons who have carried out black activities	Average weekly black hours worked for the whole population	Normal “white” average weekly working hours for the whole population <sup>1)</sup>	Black hours as a proportion of “white” working hours
	18-66-year-olds	18-66-year-olds	18-66-year-olds	18-66-year-olds	
	1	2	3=1x2	4	5=3/4
	Proportion	Hours per week	Hours per week	Hours per week	Proportion
DK	21.6%	4.89	1.06	27.9	3.8%
N	18.2%	4.23	0.77	29.3	2.6%
S	12.0%	4.75	0.57	25.3	2.3%
D	11.7%	8.31	0.97	23.6	4.1%
GB	8.7%	3.76	0.33	26.5	1.2%

Note: <sup>1)</sup> The figures are based on the respondents’ average normal weekly working hours in their main job. For Sweden, the figures are for the 15-64-year-olds, cf. New Cronos database in Eurostat, and are calculated as the number of hours worked per week for the 15-64-year-olds in 1998 (143,356,500) divided by the population in the 15-64 age group (5,668,204). For Denmark, the figures are taken from a special run of Statistics Denmark’s Labour Force Survey for 2001. For Norway, Germany and Great Britain, the figures are taken from the “white” working hours mentioned in the surveys on black activities.

The above proportions should be regarded as minimum estimates of the extent of black activities only, since not all persons are likely to have given honest answers about whether they have carried out black activities. Furthermore, some respondents probably do not disclose the true extent of their black activities despite assurances of anonymity from the data-collection institute.

As can be seen from table 4.1, and as was also shown in chapter 3, the high GDP figure for Germany is not due to a higher tendency to carry out black activities, but to the fact that those who do carry them out work, on average, twice as much a week as in the other countries.

It should be emphasised that, in calculating the extent of black activities in relation to GDP, it is assumed here that a given piece of work of given quality in reality has the same value, irrespective of whether it has been taxed or not. Thus,

<sup>45</sup> According to Riksrevisionsverket (1998a), the extent of black activities in Sweden using the same method is 2.5% of GDP. The difference is partly due to differences in age groups used, and partly because Riksrevisionsverket’s figures for “white” hours concern the actual number of hours worked (123,800,000), while normal working hours are used in this report.

the extent of black activities mentioned above corresponds to what the work would have been worth had it been invoiced work in the formal market.

Alternatively, valuing the black sectors, as they are measured here, using the actual black prices paid – i.e. using the average black hourly wages in the various countries of DKK 117, NOK 137, SEK 112, DEM 20 and GBP 9 respectively, cf. chapter 3 – would give a figure for the size of the black sector of 1.8% of GDP in Denmark, 1.1% in Norway, 1.0% in Sweden, 1.3% in Germany and 0.6% of GDP in Great Britain. This is shown in table 4.2.

As can be seen, the extent of black activities measured in actual black wages paid is highest in Denmark. The level in Germany is about the same as in Norway and Sweden, which is due to the fact that black wages are relatively low in Germany compared with the other countries, cf. chapter 3.

**Table 4.2: Extent of black activities in Denmark, Norway, Sweden, Germany and Great Britain based on actual black prices paid, 18-74-year-olds**

	No. of black hours worked per year	Average black hourly wage	Black extent in black prices	Extent of black activities in black prices as a proportion of GDP	Year
	Million hours				
Denmark	207	117 DKK	24 bn DKK	1.8 pct.	2001
Norway	121	137 NOK	17 bn NOK	1.1 pct.	1998/2002
Sweden	167	112 SEK	19 bn SEK	1.0 pct.	1998
Germany	2,707	20 DEM	54 bn DEM	1.3 pct.	2001
Great Britain	623	9 GBP	6 bn GBP	0.6 pct.	2000

Note: The figure for GDP (and average black hourly wage) for Norway is for 2001. The figure for GDP in Germany is from Eurostat (2001, p. 60) and is a provisional figure for 2001. According to Eurostat, GDP in Germany is € 2,096,808 million in current prices. This is converted to DEM at an exchange rate of 1.95583, cf. Eurostat (2001b, p. 41).

The 1.8% of GDP for Denmark is three times as high as in Statistics Denmark's explicit estimate of 0.6% for the black economy measured in actual black prices, cf. chapter 1.

However, Statistics Denmark's figure for the size of the black economy is not directly comparable with the Rockwool Foundation Research Unit's figure for several reasons. First, Statistics Denmark only carries out explicit calculations for selected industries. For other industries, e.g. agriculture and forestry, where, according to the Rockwool Foundation Research Unit, a number of black activities are carried out (e.g. "harvest help", "looking after livestock", "felling trees" and "gardening"), Statistics Denmark uses a price-times-volume calculation which implicitly captures black activities. Statistics Denmark uses the same method for housing, which thus captures "black room- and summer house letting" (which in fact is hardly likely to be that extensive).

Statistics Denmark also excludes public administration and services, assuming that there are no black activities in this sector. However, some black activities, in the form of “IT service” and “PC configuration”, etc., are carried out here, which are not included in Statistics Denmark’s explicit projections. By definition, therefore, Statistics Denmark’s figure for the size of the black economy is lower than the Rockwool Foundation Research Unit’s.

Second, Statistics Denmark’s figure is based on a question design that is technically less appropriate, and which was therefore modified in the regular surveys from the Rockwool Foundation Research Unit in 1994, cf. Viby Mogensen et al. (1995). And, as can be seen later in this chapter, since 1996 there has been a substantial increase in the extent of black activities as a proportion of GDP in Denmark, which probably makes the aforementioned basis for the calculations in the official statistics partly outdated.

Isachsen & Strøm (1981) use a number of alternative methods to estimate the extent of black activities in Norway. Based solely on respondents’ own estimate of the number of hours worked and black wages – which were, however, relatively low compared with later Norwegian estimates, cf. chapter 3 – Isachsen & Strøm obtain a figure for black activities in 1979 of 0.85% of GDP.

However, respondents were also asked how much black activities they think others carry out. If a respondent answered yes to carrying out black activities, but was not able to give a figure for the number of hours worked, the figure for how much this respondent thinks others work was used instead – this can be problematic, of course. This estimate arrives at a figure for black activities in Norway of 1.4% of GDP. As another alternative, Isachsen & Strøm have used the highest black hourly wage in the interval concerned. If, for example, a person said that his or her black hourly wage was in the interval NOK 31-40, the latter figure is used in the estimate instead of the interval mid-point (NOK 35), which is the figure used in the estimates mentioned above. By this means, Isachsen & Strøm arrive at a figure for black activities of 2.1% of GDP in actual black prices paid.

Based on the various alternative methods, Isachsen & Strøm have estimated the value of black activities at NOK 5-7 billion, or 2-3% of GDP in 1979. Extrapolating the number of black hours alone to the whole population, Isachsen & Strøm get a figure for black activities of 61 million hours worked, corresponding to about 2% of total hours worked in the declared part of the economy. This can be compared with 2.6% in the new survey for 1998/2002 presented here.

Isachsen & Strøm’s survey (from 1983) which, as mentioned in chapter 3, is only reported in outline form, includes an attempt at a more satisfactory measurement, by asking respondents about overall underdeclaration, i.e. undeclared interest and dividends, in addition to undeclared earned income, etc. Based on

this, Isachsen & Strøm find that undeclared income from black activities constitutes 65% of total undeclared income. The two authors (1985) also revise upwards the aforementioned 2-3% of GDP to take account of presumed underreporting in a questionnaire survey. According to Isachsen & Strøm (1985), the black economy in Norway, cf. figure 1.1 in chapter 1, now constitutes a much bigger proportion of GDP, namely more in the range 4-6%.

Like Isachsen & Strøm for Norway in 1983, Harald Goldstein (1990) and Tone Ognedal et al. (2002) have asked about both omitted earned income (black activities) and total underdeclaration, i.e. the sum of all omitted earned income, interest, dividends or other forms of income. Goldstein finds that, for 1988/89, black activities alone amount to NOK 7.7 billion<sup>46</sup>, and total undeclared income to NOK 11.3 billion. For 2001 Ognedal et al. reports that income from black activities amounts to NOK 6.8 billion and total undeclared income to 11 billion, which means that the relation between black income and total underdeclaration has not changed much since 1983.

For 1988, Goldstein's figures corresponds to a figure for black activities of about 1.3% of GDP and for the black economy of 1.9% of GDP. In 2001 these figures are according to Ognedal et al. (2002) 0,4% and 0,7% of GDP.<sup>47</sup>

It should be noted that Goldstein's (1990) figure for black activities of 1.3% of GDP and Ognedal et al.'s of 0.4% of GDP is based on actual black wages paid. This means that these figures can be compared with the corresponding estimate here in the new analyses for 1998/2002, which arrive at a figure of 1.1% of GDP, cf. the discussion above on the valuation of black activities.

For Germany, Klaus Wolff (1991) has calculated that, measured by the lower limit and based on total black hours multiplied by the average black wage, the black economy was 0.6-1.0% of GDP in 1984. According to the upper limit measure, it would be about 0.9-1.2% of GDP.

This interval of 0.6-1.2% of GDP should be compared with the extent of black activities measured in black prices of 1.3% in 2001 in the new survey here, cf. table 4.2.

Thus, the older German figures from 1984 for the extent of black activities measured in black prices are not far from the new figures for 2001, despite the fact that, as mentioned in chapter 3, for reasons of caution the word "Schwarzarbeit" was not even included in the question design in the older German survey.

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<sup>46</sup> By multiplying the number of black hours worked in one year by the average black hourly wage for each person.

<sup>47</sup> According to SSB ([http://www.ssb.no/emner/09/01/nr/tab\\_1996-2002\\_01.html](http://www.ssb.no/emner/09/01/nr/tab_1996-2002_01.html)) GDP was in 2001 NOK 1,526.6 billion.

Moreover, the older German question was designed to make people to focus on the cash part of black activities, which means that the payment in kind part is not taken into account at all. Finally, the German survey asks only about the last three months' work, while the new surveys ask about black activities within the last 12 months. As mentioned above, this will result in a far lower black frequency than in the new survey.

The difference in question design thus indicates that the extent of black activities measured in black prices would probably have been higher in the older survey if it had used the same question design as the one used for this book. But, given Wolff's interval of 0.6-1.2% of GDP, it can probably be concluded that there has not been an increase in the extent of black activities in Germany measured in black prices.

In the new surveys, the extent of black activities can also be illustrated by converting the number of "black hours worked" to full-time jobs. This calculation is based on the number of hours normally worked per year in a full-time job in the various countries.

According to the Danish Confederation of Industries (DA, 2001), in 1999 normal working hours in a full-time job were 1,680 in Denmark, 1,748 in Norway, 1,780 in Sweden, 1,659 in Germany (average of East and West Germany), and 1,762 in Great Britain. Based on these figures, the black hours worked in table 4.2 would correspond to about 124,000, 69,000, 94,000, 1.63 million and 354,000 full-time jobs in Denmark, Norway, Sweden, Germany and Great Britain respectively, or over 2.2 million jobs in all five north European countries.

However, this is not to say that all it would take to convert these black hours to full-time jobs in the formal ("white") economy is a political decision. As far as Denmark is concerned, the first phase of an interview survey on the buyer side (so far, of a representative sample of 985 Danes), carried out by Statistics Denmark for the Rockwool Foundation Research Unit in January 1999, showed that nearly two thirds of those who had *bought* black work would either have done it themselves or simply not had it done at all if they had not been able to buy it at a low black price.<sup>48</sup> Only about a third of the respondents in this survey would go from the black to the formal ("white") market. Gunnar Viby Mogensen (1985) found exactly the same results for 1983.

If the same applied in all the surveyed countries, then perhaps only just over a third of black activities could be converted to formal "white" work, or about 750.000 jobs in all five countries.

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<sup>48</sup> This survey will be published later, when more data has been collected.

In a national accounts sense, it would be the amounts in table 4.2, namely DKK 24 bn., NOK 17 bn., SEK 19 bn., DEM 54 bn. and GBP 6 bn., that the national accounts in the various countries would give as the extent of black activities, since the national accounts values the work at actual prices paid, which in this case is a black price. This is a national accounts convention. Thus, a painting job done by a professional painter for black payment would be included in the national accounts at its black value, irrespective of the fact that the value of the work in reality is 2-3 times as high in the “white” market.

Apart from black activities, total underdeclaration also includes “ordinary tax evasion”. According to the above-mentioned Norwegian surveys from the beginning to the end of the 1980s and in 2001, cf. Arne Jon Isachsen & Steinar Strøm (1985), Harald Goldstein (1990) and Tone Ognedal et al. (2002), “ordinary tax evasion” in Norway consists of about one third of black activities.

In his aforementioned analysis of the history of tax evasion in Denmark, Gunnar Viby Mogensen has for the first time shown that black activities (measured by a retrospective questionnaire survey) as a proportion of total underdeclaration (measured by the discrepancy between the national accounts and tax statistics) increased from 4% in 1950 to 67% in 1988.<sup>49</sup> The figure for 1988 is more or less the same as in Norway in the 1980s and 2001, cf. above. In figure 5.4, Claus Larsen (2002) has carried out the same calculations for the 1990s as Viby Mogensen, where, according to Claus Larsen, black activities (measured by questionnaire surveys in the 1980s and 1990s in actual black prices paid) as a proportion of total underdeclaration varied from about 50% in 1995 to just over 100% in 1998. A simple average gives a figure for black activities (measured in actual black prices paid) as a proportion of total underdeclaration in the 1990s of 63.9%. On average about 44% of black activities in Denmark in the 1990s consisted of tax evasion.

The value of tax evasion in Denmark in 2001, therefore, assuming that 44% of black activities are tax evasion, is over DKK 22 billion. This puts the shadow economy in Denmark at about DKK 73 billion in 2001 (in market prices), or about 5.5% of GDP in market prices

A similar calculation for the other countries gives a value for tax evasion of NOK 17 billion in Norway, SEK 19 billion in Sweden, DEM 74 billion in Germany, and GBP 4.8 billion in Great Britain. Based on the assumptions here, the overall size of the shadow economy is thus 3.7% of GDP in Norway, 3.3% in Sweden, 5.9% in Germany, and 1.7% of GDP in Great Britain.

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<sup>49</sup> Viby Mogensen has also made the same estimate for 1960, 1970 and 1980, where black activities as a proportion of total underdeclaration was 6%, 24% and 50% respectively, cf. figure 12.8 in Viby Mogensen (2003).

### **4.3 Possible explanations for differences in the extent of black activities in Denmark, Norway, Sweden, Germany and Great Britain**

As can be seen from table 4.1, there is not much difference in black activities as a proportion of GDP between Denmark and Germany when measured in “white” prices, i.e. corresponding to what work in the black market would be worth as invoiced work in the formal market. Nor is there much difference in the figures for Norway and Sweden.

In the case of Great Britain, however, the figure for black activities of 1.2% of GDP differs quite a lot from the other countries.

One obvious explanation for the relatively low figure for Great Britain is that, as mentioned in chapter 2, far more activities are considered as non-taxable in Great Britain compared with the other countries.

As was also mentioned in chapter 2, extra questions were included in the survey for Great Britain in an attempt to capture some of the activities that would be regarded as taxable in the Scandinavian countries but are not in Great Britain. In table 4.3, the same calculation for Great Britain has been carried out as in table 4.1, but this time including activities in the “grey area”. As can be seen, this would increase the size of the black economy in Great Britain to about 2.3% of GDP, i.e. about the same level as in Norway and Sweden.

A calculation, as in table 4.2, of the extent of black activities, including activities in the “grey area” at the actual black prices paid, gives a figure of 1.2% of GDP (1.264 million hours times GBP 9/GBP 913.842 billion). Measured in black prices, the level in Great Britain, if the “grey area” is included, is thus almost the same as in Norway, Sweden and Germany.

If we return to the presumed most relevant measurement in “white” prices, one possible explanation of the differences between the countries could also be the tax burden. However, before discussing this in more detail, it should be noted that, according to economic theory, the correlation between black activities and tax is not as clear as is often thought. Even using quite simple models, it can be difficult to predict whether black activities increase with tax, cf. for example, the first article to deal with this topic, by Michael G. Allingham & Agnar Sandmo (1972). The effect of rising taxes on the extent of black activities depends, among other things, on how willing taxpayers are to risk evading tax. As a rule, the willingness to take a chance could be expected to increase with income (and vice versa), simply because the more a person earns, the more he can afford to pay (a fine) if his black activities are discovered.

**Table 4.3: Extent and incidence of black activities in Great Britain when activities that would be taxable in Scandinavia are included**

	Black frequency, including activities that would be taxable in Scandinavia	Black hours worked per week, including activities that would be taxable in Scandinavia	Black hours worked per week for the whole population, including activities that would be taxable in Scandinavia	Normal "white" weekly working hours for the whole population <sup>1)</sup>	Black hours worked per week, including activities that would be taxable in Scandinavia, as a proportion of "white" hours worked
	18-66-year-olds	18-66-year-olds	18-66-year-olds	18-66-year-olds	
	1	2	3=1x2	4	5=3/4
	Proportion	Hours per week	Hours per week	Hours per week	%:
GB	13.7%	4.39	0.60	26.5	2.3%

Note: <sup>1)</sup> The figure is based on respondents' average weekly working hours in their main job.

Rising taxation has two opposite effects on the extent of black activities. On the one hand, rising taxes make black activities more attractive. On the other hand, however, rising taxes will result in falling income, which, due to the assumption of declining willingness to take a risk, means that a larger part of income will be declared. In other words, it simply becomes too expensive for the taxpayer if his black activities are discovered.

Gunnar Viby Mogensen (2003) has shown that the extent of tax evasion in Denmark fell from around 26-30% of real income at the beginning of the twentieth century to around 5% at the end of the 1980s. In the same period, personal taxation rose from under 4% to 42-43% of taxable income. Here, therefore, there is a direct inverse correlation between the extent of tax evasion and the trend in taxation.

This, says Viby Mogensen, is because tax evasion is obviously also influenced by other factors than taxation. For example, tax assessment has gradually improved in the period, due to better-trained tax inspectors and a gradually more centralised assessment system. Furthermore, migration from country to city, with a resulting smaller degree of payment in kind, has probably also had an effect. In addition, it is not inconceivable that taxpayers have actually felt that they were getting more for their taxes in the form of better education, hospitals, care for the elderly, etc. – or simply because they have gradually got used to the burden of taxes. Viby Mogensen (2003) cites a leading Danish economist as saying in 1930, when the highest personal tax rate – which started at 2.5% - had risen to 25%, that "as the government had grown used to the high tax receipts, so had the public also grown used to the high rates".

In a study of black activities and black wages in Denmark from 1996, Søren Pedersen and Nina Smith (1998) have examined whether those who carry out black activities also pay more in tax and marginal tax than others. There is nothing to indicate this, however. In addition to the tax rate and marginal tax rate, they also included the so-called expanded marginal tax rate as the respondents themselves understood it, which, in addition to marginal tax, also includes any reduction in benefits, e.g. student grants or housing benefit, with earned income. There was no correlation with black activities here, either.<sup>50</sup>

The same analysis from 1996 has been carried out for Denmark in this study on the data from 2001. As mentioned in section 3.7 it has been possible to make an exact merge between the answers from the omnibus surveys containing answers on questions about black activities with data from the income statistics register at Statistics Denmark which includes reported incomes, all deductions etc. and also paid taxes due to the central personal registration system (cpr-number) in Denmark.

As can be seen from table 4.4 people who do not carry out black activities actually have a higher average tax rate and also a higher marginal tax rate than people who are working in the black economy. This result holds for both men and women. In table 4.4 the average and marginal tax has also been shown for skilled workers who are especially active in the black labour market. As can be seen the same result holds for this group.

**Table 4.4: Average and actual marginal taxes (%) according to whether the respondents have carried out black activities or not in Denmark 2001**

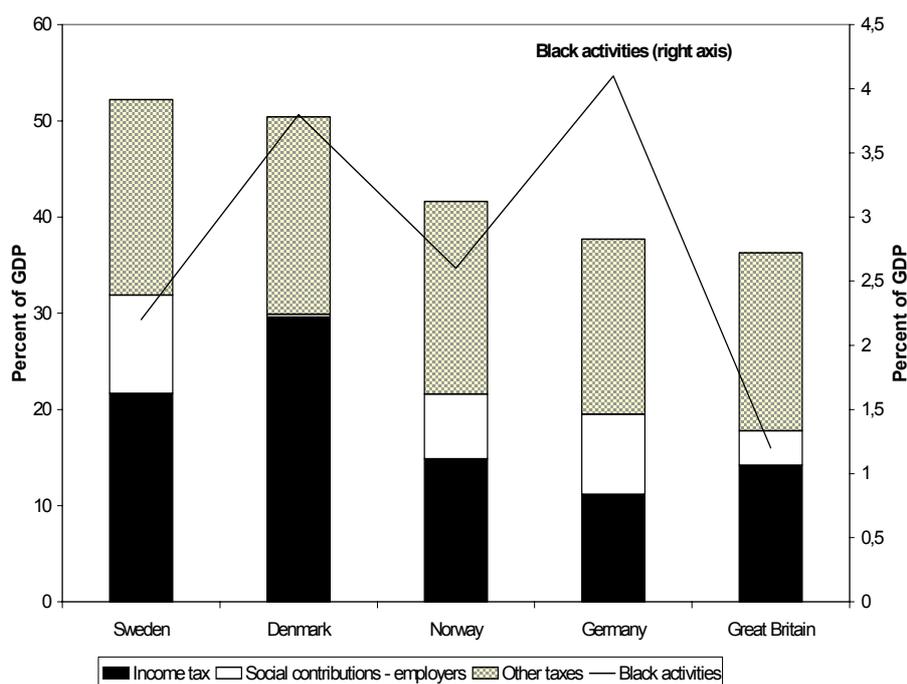
	All occupational groups				Skilled workers	
	Men		Women		Men and women	
	Carried out black activities	No black activities	Carried out black activities	No black activities	Carried out black activities	No black activities
Average tax	36.4	37.6	30.3	33.5	37.0	37.9
Marginal tax	51.4	52.9	46.9	47.5	50.7	51.1

As pointed out by Peder J. Pedersen and Nina Smith (1995), a possible explanation for the lack of expected correlation between taxes and black activities in a cross-section analysis is that it only gives a picture of black activities at one moment in time. Seen over a longer period of, for example, a couple of decades, it might well be that rising income tax and VAT actually have led to more black activities.

<sup>50</sup> In the aforementioned study, all respondents were asked how much they thought they would have left from an extra DKK 1,000 in earnings after tax and a possible reduction in various benefits.

The correlation between black activities, measured in “white” prices, as a proportion of GDP and the tax burden and tax structure in the various countries is shown in figure 4.1. The lower tax burden in Great Britain is one possible reason why the extent of black activities is lowest there – though if there were a clear correlation between tax and the extent of black activities, then we could also expect a lower extent in Germany compared with the other countries, which is obviously not the case.

**Figure 4.1: Tax structure and tax burden in the five countries compared with the extent of black activities**



Source: OECD (2001a) and the Rockwool Foundation Research Unit

If there were a clear correlation, the high tax burden in Denmark would mean that the black sector was biggest here rather than in Germany. One possible reason why it is not might be that there is a high degree of regulation in Denmark. The existence of a civil registration system means that nearly all incomes are automatically reported to the tax authorities by employers. Similarly, practically all deductions, e.g. unemployment insurance fund and trade union subscriptions, are also automatically reported, and banks report deductible interest charges to the Inland Revenue. Thus, it is very difficult for taxpayers to earn income – apart from trivial amounts – without the tax authorities’ knowledge. The degree of regulation, not just as regards taxation, but also, for example, food products, the environment and the working environment, makes it virtually impossible to

carry on a business without the relatively detailed knowledge of the tax authorities.

This degree of control makes it difficult, bordering on the impossible, for a Dane to carry out black activities full time. As Gunnar Viby Mogensen (1994) and the Rockwool Foundation Research Unit show, in Denmark black activities are to a large extent a sideline activity carried out in addition to a normally taxed full-time job.

Conversely, the degree of control can also have the opposite effect on the extent of black activities, namely if the regulation of, for example, the labour market, means that it becomes difficult to dismiss employees, or if minimum wages are higher than the market is willing to pay. This could induce employers to hire black labour instead, in order to ensure a greater degree of flexibility. This view was recently put forward by respected German economists as a possible explanation for the extent of black activities in Germany, cf. *Børsen* (a Danish newspaper), April 17, 2002.

With regard to the tax structure, countries with a relatively high weight on direct income tax might be expected to have a relatively large black sector. But, as can be seen from figure 4.1, this is far from the case: Direct income tax plays a relatively big role in Great Britain, which has a small black sector, and a relatively much smaller role in Germany, where the black sector is relatively large.

If we turn for a moment to the demand side of black activities and the tax structure, it is conceivable that countries with a relatively big weight on employers' social contributions would have a relatively large black sector, since employers would be able to save a lot on payroll costs by employing black labour.

As figure 4.1 shows, this could explain why black activities as a proportion of GDP is highest, at 4.1%, in Germany, a country with relatively high employers' social contributions.

This does not hold for all countries, however, since employers also pay relatively high social contributions in Norway and Sweden, which have much smaller black sectors than Germany.

Thus, there must be other factors than the tax burden that explain the differences between the countries.

As can be seen above, Viby Mogensen mentions tax control as an important factor. And, according to economic theory, the risk of sanctions and the size of fines do have an important effect on black activities. No data on the size of fines and their possible effect on black activities have been collected for this study, but, as mentioned in chapter 3, data has been collected on the perceived risk of

discovery by the tax authorities. All respondents in the surveys were asked this question, the answers to which are shown in table 4.5.

As table 4.5. shows, the perceived risk of discovery and subsequent fine is roughly the same in Norway and Sweden, while it is a lot lower in Denmark. As can be seen, Scandinavians in general do not regard the risk of discovery as particularly high compared with Germans and Englishmen, where especially the latter take the risk seriously. This *could* partly explain the relatively low level of black activities there, but not necessarily. The German population also rates the risk of discovery as high, though without this leading to a lower level of black activities in Germany.

**Table 4.5: Perceived risk of tax fines, etc., in Denmark, Norway, Sweden, Germany and Great Britain. 18-74-year-olds. Percent**

	Very high	Fairly high	Fairly small	Very small	Don't know/refuse to answer	Total	No.
DK	3.4	10.5	36.9	42.6	6.5	100	1,788
N	2.5	15.3	46.4	33.7	2.1	100	2,512
S	2.4	11.8	46.3	30.2	9.2	100	2,170
D	11.0	25.5	30.6	18.3	14.6	100	5,380
GB	15.1	28.4	31.9	14.2	10.4	100	1,556

In addition to taxes and the risk of sanctions, morality might also be expected to have an effect on black activities. The so-called *International Social Survey Programme* (ISSP) carried out in over 30 countries in 1998 asked identical questions about a large number of factors, including questions on morality in relation to tax evasion and social fraud, cf. Jørgen Goul Andersen (2002).

### Box 1. Question about perceived risk of detection

*People who do carry out black activities risk the authorities finding out and issuing supplementary tax bills and perhaps fines etc.*

In your opinion, what level of risk do people who carry out black activities run: is it

1. Very big
2. Quite big
3. Quite small
4. Very small?

Swedes and Danes were the most moral on the question “Do you think it is right or wrong for a taxpayer to conceal part of his income in order to pay less tax?”<sup>51</sup>, 40% of both nationalities answering “very wrong”. Norwegians were slightly

<sup>51</sup> Answer categories were: 1. Not wrong; 2. A bit wrong; 3. Wrong; 4. Very wrong.

less moral, while Englishmen and Germans were at a much lower level, around 20%.

The ranking is about the same to the question about social fraud<sup>52</sup> – Denmark being the most moral, followed by Sweden, with Norway in third place, and Great Britain and Germany at a much lower level.

On an overall scale for social morality regarding tax evasion and social fraud, Denmark came in first place (i.e. the most moral), with an index value of 63. Sweden and Norway came next, with 61 and 55 respectively, while Great Britain and Germany came last, with 47 and 26 respectively.

Thus, if there had been a direct correlation between attitudes to tax evasion and social fraud, Denmark, Norway and Sweden would have the smallest black sectors, while Great Britain and Germany would have had the biggest. As can be seen from the above, however, this only applies to Germany, cf. the surveys here.

The surveys on black activities have not directly attempted to measure morality regarding tax evasion and social fraud. However, persons who have not carried out black activities within the last year were asked whether they would do so if the opportunity arose. This question can thus give an indirect idea of morality regarding black activities.

The answers to this question are shown in table 4.6. As can be seen, over 45% of Danes would carry out black activities if they had the chance. Norwegians come in second place, with 40%, while the proportion is the least in Germany and Great Britain.

If the answers to these questions can be taken as reflecting morality with regard to black activities, and the answers are correlated with the extent of black activities, then the size of the black sector could be expected to be smallest in Germany and biggest in Denmark, which, of course, is not the case.

Thus, the answers to the latter question point in the opposite direction of answers to the questions in the ISSP surveys on tax evasion and social fraud. It is therefore extremely difficult to draw any firm conclusions about the morality or otherwise of the various countries' populations with regard to complying with tax laws. It is thus not surprising that it is so difficult to show a correlation between morality and the extent of black activities.

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<sup>52</sup> The question asked: "Do you think it is right or wrong for a person to give false information about himself in order to receive social benefits he is not entitled to?" Again, the answer categories were: 1. Not wrong; 2. A bit wrong; 3. Wrong; 4. Very wrong.

**Table 4.6: Willingness to carry out black activities if the opportunity arose among persons who have not carried out black activities, in Denmark, Norway, Sweden, Germany and Great Britain. Percent**

	Yes	No	Don't know/refuse to answer	Total	No.
Denmark	45.7	52.2	2.1	100	1,424
Norway	40.5	57.4	2.1	100	2,080
Sweden	36.4	54.8	8.8	100	1,937
Germany	17.3	60.9	21.8	100	4,961
Great Britain	29.2	69.9	0.9	100	1,432

**Box 2. Question about willingness to carry out black activities**

*Would you be willing - if you had the chance - to carry out black activities?*

1. Yes
2. No

If, instead of trying to find out whether there is a correlation between different independent variables for attitudes to tax morality and black activities, we take a starting point in people's actual actions, and on whether they would carry out black activities if they had the opportunity, we get the situation shown in table 4.7.

**Table 4.7: Carry out or would carry out black activities if the opportunity arose among all 18-74-year-olds in Denmark, Norway, Sweden, Germany and Great Britain. Percent**

	Carry out black activities	Do not carry out black activities, but would be willing to	Do not carry out black activities and are not willing to	Don't know/not stated	Total	No.
Denmark	20.3	36.3	41.4	2.1	100	1,796
Norway	17.3	33.3	47.3	2.1	100	2,522
Sweden	11.1	32.1	48.5	8.3	100	2,181
Germany	10.4	15.1	54.2	20.3	100	5,538
Great Britain	7.8	26.6	63.7	1.9	100	1,572

If this is interpreted as an expression of morality, the conclusion is the exact opposite of Jørgen Goul Andersen's from the ISSP surveys. Based on those who say they have carried out black activities within the last year or would be willing to if the opportunity arose, Danes, closely followed by Norwegians, would be the least moral, and Germans the most moral. Thus, the data from the present surveys on black activities, measured by actual and potential activity in the black markets, cannot confirm Jørgen Goul Andersen's conclusion that strong values are a prerequisite for a generous welfare state. Rather, it might be the control

possibilities in the generous welfare states which prevent such states being undermined by black activities.

As can be seen from the above, it has not been possible to show a general and satisfactorily clear correlation between the extent of black activities in the various countries and the explanatory factors normally used in economic theory, namely taxation, the perceived risk of sanctions, and citizens' social morality.

It would require further research on longer time series to be able to say anything with certainty. But all the indications are that there is a complex interplay between tax, morality, and the perceived risk of sanctions in the various countries. In addition to further research, it would also require additional explanatory variables, such as the degree of regulation in each country. There is no doubt, for example, that an important reason why the level of black activities is not higher in Denmark is the high degree of regulation, which ensures that all income and tax deductions are more or less automatically reported to the authorities. This should also be seen in light of the fact that, in Denmark, there are relatively more potential new suppliers of black activities.

However, the degree of regulation can also have the opposite effect on the extent of black activities, namely if regulation of, for example, the labour market makes it more difficult to dismiss employees, or if minimum wages are higher than the market is willing to pay. In such cases, employers might prefer to hire black labour to ensure a higher degree of flexibility – a view that respected German economists recently have put forward as an explanation for the extent of black activities in Germany.

#### **4.4 Black activities by industry**

If respondents answered yes to carrying out black activities, they were also asked which activities they have carried out, something they proved more than willing to tell: Apart from Germany, more than 95% of those who say they have carried out black activities also describe them in detail. In Germany, 91% answered this question. The box below contains 40 examples of these answers from Germany.

The answers to this question have subsequently been coded according to the EU's industrial classification, NACE, rev.1. Even though there is a relatively small proportion who cannot answer the question about what kind of black activities they have carried out, not all answers could be coded after NACE, rev. 1, since answers of the type "various craft work", "swapping favours", and "good with my hands" are obviously not precise enough to give an industrial code.

The proportion of activities which have not been able to be coded varies a lot between the countries, from only 2% in Denmark to 13%, 7% and 11% in Nor-

way, Sweden and Germany respectively, and to no less than 31% in Great Britain.

The same kind of calculation as in section 4.2 has been used to get a more precise impression of the size of black activities in the various industries. In other words, for each industry, the number of black hours worked has been put in relation to the number of hours worked in the formal part of the economy. In order to ensure a sufficient number of observations in the case of black activities, the breakdown by industry is for eight industries only. The figures for white hours worked by industry come from the EU's New Cronos database, which is based on the various countries' "Labour Force Surveys". The results of these calculations are shown in figure 4.2.<sup>53</sup>

### Box 3. Type of black activities in Germany as stated by 40 respondents

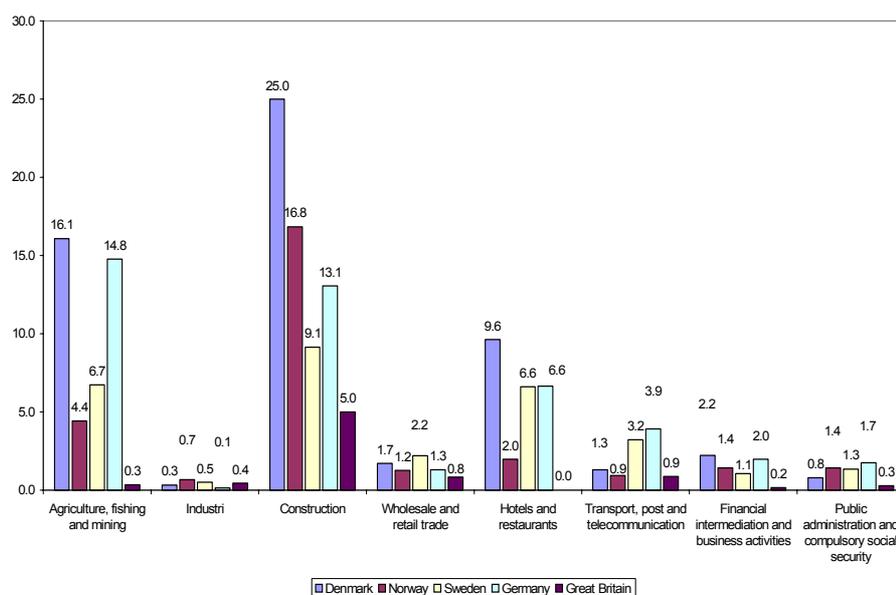
hilfe bei den schularbeiten	habe für die nachbarn rasen gemäht
hecke schneiden	gartenpflege
schreibarbeiten	streichen
kosmetikbehandlung	ich habe einem anderen geholfen bei renovieren
türen streichen	und jetzt hift er mir
wohnung malen	familienhilfe
ich putze in einer wirtschaf teilweise	babysitten
bekommm ich geld teilweise bekomme ich	einkäufe für eine pflegebedürftige erledige
getränke un	malerarbeiten
hausordnung gegen bezahlung für privatperson	malern
beim bau mitgeholfen	kinderbetreuung
hauswirtschaft	malerarbeiten
näharbeiten	mauer verputzen
gartenarbeit	gartenarbeiten
zimmer streichen	arbeiten am haus
holz hacken	auto reparatur
reparaturen	haushaltshilfe
schlepperfahren	bei schwere teile zu heben
maler-und tapezierarbeiten	gartenarbeit
fahrten zum flughafen	bauen
familienhilfe	renovieren und tapizieren
bei opa gartenzaun erneuert	
hilfe für verwandte und nachbarn	

As can be seen from figure 4.2, in all countries except Germany, most black activities are carried out in the "construction industry". Thus, in Denmark, black hours worked are no less than 25% of "white" hours worked. Norway is at a slightly lower level, black hours being almost 17% of white hours. Germany, Sweden and Great Britain come next, black hours as a proportion of white hours being 13%, 9% and 5% respectively.

<sup>53</sup> Since eight industries are included, we have chosen to use the figures for "white" hours worked from the New Cronos database rather than from the omnibus surveys, in order to ensure a sufficient number of observations in each industry.

It is important to remember here that, while black hours worked in, for example, Denmark, are 25% of white hours worked, they are carried out not just by craftsmen, but also by others whose main “white” employment is in another industry, but who also have the skills required to carry out black activities in the construction industry. The same applies to the other countries and industries.

**Figure 4.2: Extent of black activities in the five countries by industry. Percent**



Note: The breakdown by industry follows the 9-grouping in NACE, rev.1, except that “hotels and restaurants” are separated out on their own. “Electricity and gas supply” is omitted, since there are no black activities in this sector in any of the countries. “Activity not stated” is also omitted. The figures for white hours worked by industry are from Eurostat’s New Cronos database, and are for the 15-64-year-olds, while black hours are for the 16-64 year olds, except for Sweden (18-64 year olds).

In Germany, relatively most black activities are carried out in the agriculture, fishing and forestry industry, where black hours worked are just under 15% of white hours. There are also a lot of black activities in this sector in Denmark, where black hours worked are 16% of white hours. While the relatively high proportion in agriculture can seem surprising, it is partly due to the fact that, in addition to normal farm work such as harvest help and looking after livestock, etc., it also includes a lot of tree-felling and, especially, gardening, which, according to the NACE coding, is classified under agriculture.

The construction industry and agriculture are followed by the hotel and restaurant sector, where black hours are about 7% of white hours in Sweden and Ger-

many, and about 10% in Denmark. The proportion is much lower in Norway, namely around 2%. Most black activities in the hotel and restaurant sector are in the form of cooking, but other activities include bartending, waiting and, to a lesser extent, bouncers in discotheques.

For all countries, there is only a very low proportion of black activities in manufacturing, namely under 0.7%, while they vary between 1-4% in the other industries. In all countries, the main black activity in the sales and repairs industry is car repairs, while in the transport, post and telecommunications industry it is removal and transport of goods. Most black activities in financial intermediation and business activities consist of cleaning, but they also include help in configuring PCs, various consulting work and, to a lesser extent, auditing and accounting assistance.

It does seem rather ironic, to say the least, that non-invoiced work is carried out precisely by the auditing and accounting profession.

The most common black activity in the public and personal services sector is childcare and, to a lesser extent, hairdressing and various kinds of instruction, e.g. in sports clubs.

#### **4.5 Trend in the extent of black activities in Denmark, 1994-2001**

While this new European analysis uses, for the first time, an identical questionnaire method in all five countries surveyed, it has the unfortunate consequence, which is always the case with new measurement methods, that it is not possible to compare the results directly with older measurements.

However, this only applies to the four countries where the Danish questionnaire method has been used for the first time. This makes it particularly interesting to take a look at the main results of recent Danish surveys using this method, therefore, where questions about black activities have been asked regularly since 1980.<sup>54</sup> The number of interviews on which these surveys have been based has varied between 1,000 and about 4,500. All surveys have been carried out either by the National Institute of Social Research or Statistics Denmark, using highly experienced interviewers. In the period 1980-94, a relatively cautious, i.e. indirect, approach to the topic was used to avoid scaring off the respondents, since at the start it was assumed that black activities was too sensitive an issue to ask about directly. In 1994, in light of the subsequent debate on the issue, and after a thorough analysis of methodological experiences to date, it was concluded that

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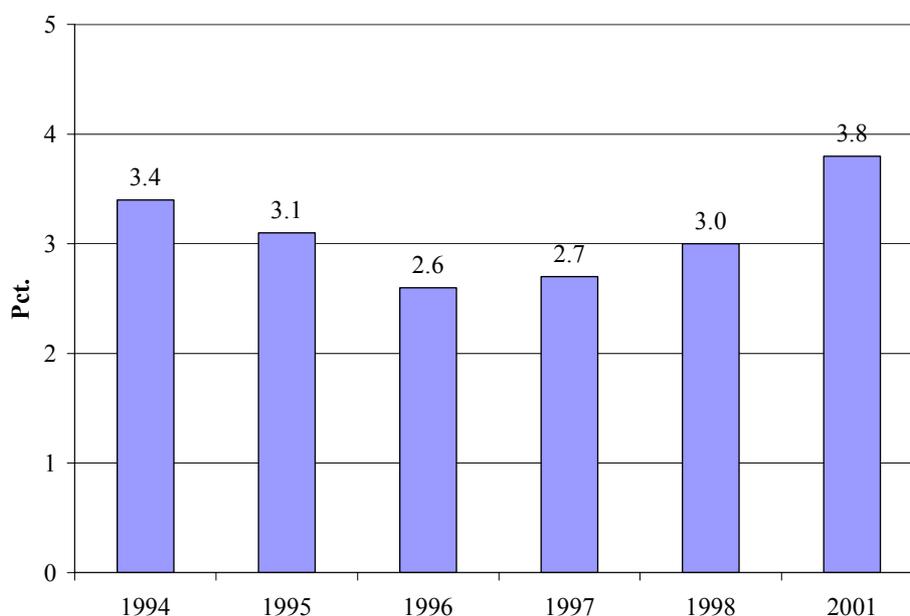
<sup>54</sup> For English-language literature on black activities in Denmark, see Viby Mogensen (1990a, 1990b), Viby Mogensen et al. (1995), Pedersen (1995, 1998), and Pedersen & Smith (1995).

the time was now ripe to use a more direct approach in the question design, cf. Gunnar Viby Mogensen et al. (1995).

These surveys showed strong increases in black activities at the beginning and end of the 1980s, levelling off somewhat around 1988/89. 1991 marked a high point – where the black sector had probably grown to twice its size in 1980, when the first Danish surveys were carried out. This was then followed by a gradual tendency to fall up to around 1996.

Since 1994, when, as mentioned above, an improved questionnaire method was introduced, surveys have been carried out at regular intervals, the results of which are shown in figure 4.3. As can be seen, the decrease in size of the black sector was reversed from 1996, and even more so from 1997. Thus, the level in 1998 is 15% higher than the 1996 level.

**Figure 4.3: Extent of black activities in Denmark, 1994-2001. Proportion of GDP**



Source: The Rockwool Foundation Research Unit's analyses of black activities

This increase continued from 1998 to 2001 when, as mentioned previously, black activities were 3.8% of GDP. In this period, therefore, the size of the black sector increased by over 26%.

As mentioned in, for example, Viby Mogensen et al. (1995) and Søren Pedersen (1998), and in section 4.3 in this book, according to present knowledge – i.e. economic theory regarding tax evasion, etc. – fluctuations in the size of the black sector can depend on the trend in the tax burden, on moral views of black activities, and on people's perceived risk of discovery by the tax authorities, etc., and size of sanctions.

Finally, some of the earlier research results from the Rockwool Foundation Research Unit have indicated effects of the wide media coverage of political initiatives, including raids, and, probably even more, the onset of economic booms: Here, many craftsmen seem to have felt that they had less spare time outside “normal employment”.

The trend in the extent of black activities in the fairly well-documented period from 1994, cf. figure 4.3, cannot be explained by the trend in the tax burden, however, which, on the whole, has been fairly constant (at around 50%). Marginal tax has changed, but in the direction of a modest, but clear, linear fall throughout the period.

The lack of correlation with the growth in size of the black sector is probably due to two things: First, there is still a considerable price differential between the white and black markets in Denmark – even after the reduction in marginal tax, payment in the “white market” is still 2-3 times higher than in the “black market”. Thus, a check on the growth of black activities would probably require sweeping tax cuts.

Second, if tax levels do affect black activities, then in the real world people are less likely to react to changes in the tax burden described in detail in economic reports, etc., than to tax changes as *they* understand them, i.e. “the perceived tax burden”. In a representative interview survey carried out for the Research Unit in 1997 by Gallup, and repeated in 1999, respondents were asked to say whether they *thought* they had more or less after tax, etc., today than they had five years ago. In both studies, the perceived tax burden was appreciably higher than the actual. According to the interviewers, about 76% of respondents with an opinion on the matter said that they had the same or less after tax now than they had five years ago. Thus, the figures indicate that a very large majority of the population see no reason to carry out less black activities on account of changes in tax rates.

The past couple of years' renewed increase in the size of the black sector apparently cannot be explained by the trend in tax morality in Denmark in the period 1994-98 either. Recent research in the area, including an analysis by Gunnar Viby Mogensen in the appendix to Søren Pedersen (1998) and Jørgen Goul Andersen's *Citizens and the law* study (also published by the Rockwool Foundation Research Unit in 1998, together with a follow-up study in 2001, *Citizens and the law II*, cf. Sanne Lund Clement, 2001), seems to confirm that there has been a

certain decline in the direction of a lower tax morality – which also parallels morality in other areas, including economic relations between citizens and the authorities as a whole. An average of the main Danish analyses from 1980 to 1998 shows that the proportion of the adult population who accept tax evasion rose from the mid-1980s to around 1991, after which people seem to have had second thoughts, so that the proportion who accept tax evasion now appears to be a bit lower than in 1991, albeit still 12% higher than in 1980.

The question about the perceived risk of discovery by the authorities and subsequent sanctions has been asked four times in the 1990s, and now again in 2001, cf. above, each time with the main result that Danes are not particularly worried by it.

On the contrary, a big proportion of respondents with an opinion on the matter regard the risk of sanctions as “fairly small” or “very small”, cf. the figures below:

1992	88%
1996	77%
1997	79%
1998	81%
2001	85%

Perhaps helped by a series of well-publicized raids against restaurants and cleaning firms, the tax authorities won back some certain respect between 1992 and 1996. Since 1996, however, the proportion of Danes who are not especially worried about the risk of sanctions has again started to rise.

Thus, the above factors cannot explain the last few years’ renewed increase in the size of the black sector either.

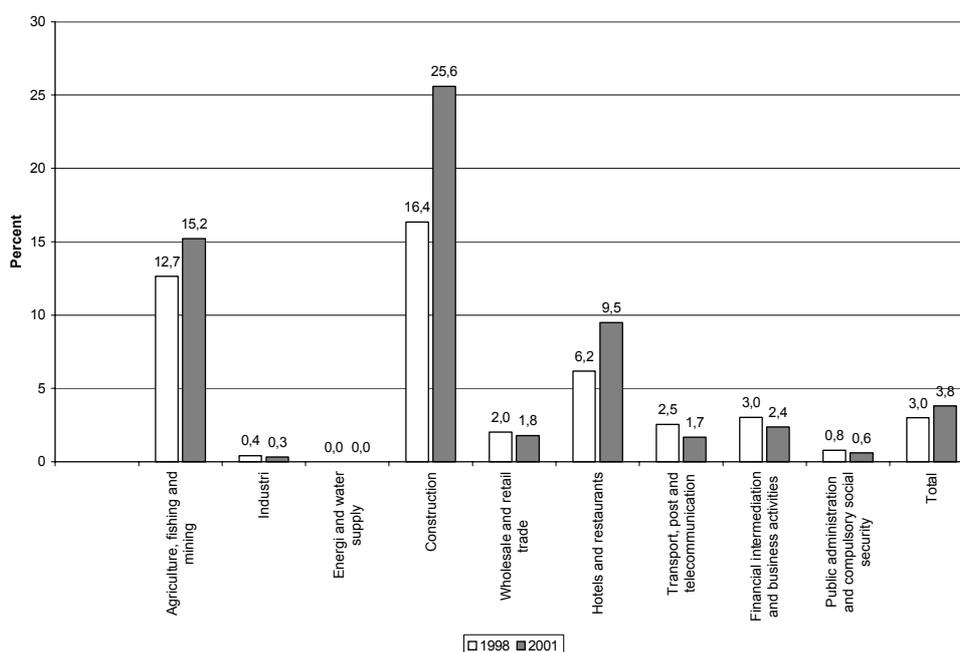
With regard to the possible effect of economic conditions on the size of the black sector, it is possible that an economic boom could have had a moderating effect. Increased building activity in the “white market” could be presumed to lessen the need of many skilled workers for black earnings in addition to their “white” wages, and possibly also reduce the time available for carrying out black activities.

However, according to Søren Pedersen (1999), continued economic growth could also conceivably lead to *more* black activities, simply because demand for house repairs and maintenance in particular, which in recent years has been strongly fuelled by low interest rates, has resulted in capacity problems in the “white market”, with the consequence that people no longer have the patience to wait months for a craftsman.

Since 1998, the Danish economy has continued to grow modestly, with growth rates of 2.1%, 2.9% and 0.9% respectively in 1999-2001.

Without new research using longer time series, nothing can be said with certainty. However, given this qualification, *one* way of supporting this explanation would be to look at those industries where there has been a strong growth in black activities. In order to look at this more closely, figure 4.4 shows black activities by industry for 1998 and 2001. The calculation method is exactly the same as that used for the calculations in section 4.4.

**Figure 4.4: Extent of black activities in Denmark by industry, 1998 and 2001. Percent**



Note: The breakdown by industry follows the 9-grouping in NACE, rev.1, except that “hotels and restaurants” are separated out on their own. “Activity not stated” is omitted, but is included in the total. The figures for white hours worked by industry are taken from special runs in Statistics Denmark’s Labour Force Surveys for both years. The age group is the 18-66-year-olds, as in table 4.1.

As can be seen from figure 4.4, there actually was a significant increase in black activities in the construction industry from 1998 to 2001, from over 16% in 1998 to over 25% in 2001.

From figure 4.4 it can thus be concluded that, even though there have been small increases in agriculture and hotels and restaurants, the rise in the figure for black activities as a proportion of the whole economy from 3% to 3.8% is mainly due to a significant increase in the construction industry.

In his analyses of DIY activities in northern Europe for the Rockwool Foundation Research Unit (using a new, expanded method which combines survey data from large samples with official statistics), Søren Brodersen (2001) has pointed out that, for Denmark, low interest rates have made it cheaper to obtain loans for home repairs and maintenance. This should also be seen in the light of big increases in house prices from 1998-2001, which has increased home-equity quite considerably. The same factors probably also explain the increase in the black economy.

Thus, it cannot be ruled out that the boom, including in the construction industry, has accounted for much of the recent increase in the size of the black sector – but it has not been curbed by people's perception of the tax burden, the huge improvement in tax morality, or by increased concern about the cost of discovery either.

#### **4.6 Regional differences between East and West Germany**

As was pointed out in chapter 3, there are no statistically significant regional differences in the proportion of people who carry out black activities between any of the countries.

This section takes a closer look at Germany, since it is especially interesting to examine the differences and similarities between East and West Germany in this respect, given the effect that the communist regime has had in East Germany up to 1989.

As pointed out by Annette Mummert & Friedrich Schneider (2001), interest in the difference between east and west is also heightened by the fact that there has been a reunification of two entirely different political, economic and social systems.

Furthermore, two previous surveys of Germany have indicated that a bigger proportion of the population carry out black activities in West Germany than in East Germany, whereas the new surveys presented here do not indicate that there is any difference, cf. chapter 3.

As mentioned in chapter 3, Mummert & Schneider (2001) have written a whole article on the difference between East and West Germany, and Siegfried Lamnek et al. (2000) show, as standard, results for both East and West Germany in most of their tables.

In their study from 1998 (based on a data set from a questionnaire survey involving 1,000 interviews carried out in 1998 by IFAK for Burda Press, and first published in *Focus* in April 1998), Mummert & Schneider find that 12.9% of the East German population carry out black activities, against 24.5% in West Germany. The difference is clearly statistically significant. Unfortunately, the survey did not ask about the number of black hours worked, which in theory could mean that the overall figure is the same, e.g. if East Germans spend twice as much time on black activities as West Germans.

Siegfried Lamnek et al. (2000) also find a higher proportion in West Germany – namely 29.2% - than in East Germany – 15.9% - at the end of 1997.<sup>55</sup>

This survey has unfortunately not asked about the number of black hours worked either, so, as mentioned in chapter 3, it is not possible to extrapolate to a figure for the overall extent of black activities.

Table 4.8 looks more closely at the distribution of black activities between East and West Germany. The table shows both the proportions who carry out black activities and the average weekly number of black hours worked. As can be seen, in 2001 there is no great difference between the old and new Bundesländer (federal states) in the proportion of those who have carried out black activities within the last year.

The table also shows that a slightly smaller proportion have been active within the last year in the old Bundesländer (11.4%) than in the new (12.7%). But, as was also pointed out in chapter 3, this difference is not statistically significant when adjusted for differences between sex, age, occupation, education, income, etc.

As can also be seen in table 4.8, of those who say they have carried out black activities, more black hours are worked in West Germany than in East Germany. In the table, a comparison of the number of black hours worked with hours worked in the formal part of the economy shows that black activities as a proportion of white hours – which, as can be seen from the discussion above, can cautiously be regarded as reflecting black activities as a share of GDP – constituted 4.1% in West Germany against 4.2% in East Germany.

Thus, according to the new survey here, there is no real difference between the old and new Bundesländer as regards the incidence of black activities when the number of black hours worked is included in the calculation.

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<sup>55</sup> As mentioned in chapter 3, the quantitative part of Lamnek et al.'s (2000) survey was based on a total of 3,040 face-to-face interviews in East and West Germany.

**Table 4.8: Proportion of 18-74-year-olds who have carried out black activities in Germany, plus black hours worked in relation to “white” hours worked in East and West Germany**

	Black frequency	Average weekly black hours worked for those who have carried out black activities	Average weekly black hours worked for the whole population	Normal average weekly “white” hours worked for the whole population <sup>1)</sup>	Black hours worked as a proportion of “white” hours
	18-66-year-olds	18-66-year-olds	18-66-year-olds	18-66-year-olds	
	1	2	3=1x2	4	5=3/4
	Proportion	Hours per week	Hours per week	Hours per week	Proportion
West	11.4%	8.58	0.98	23.8	4.1%
East	12.7%	7.33	0.93	21.9	4.2%
Total	11.7%	8.31	0.97	23.5	4.1%

Note: 1) The figures are based on respondents’ normal average weekly hours worked in their main job. The figures for “white” hours worked are, as mentioned in section 4.2, from the surveys on black activities.

Table 4.9 shows the same calculations of the extent of black activities based on actual black hourly wages paid, as in table 4.2, only for East and West Germany separately.

**Table 4.9: Extent of black activities in East and West Germany in actual black prices paid, 18-74-year-olds**

	No. of hours worked in the black sector per year	Average black hourly wages	Size of the black sector in black prices	Extent of black activities in black prices as a share of GDP, %
	Million hours			
West Germany	2,214	DEM 21	DEM 46 bn.	1.3
East Germany	492	DEM 17	DEM 8 bn.	1.4
Total	2,706	DEM 20	DEM 54 bn.	1.3

Note: The figure for GDP in Germany is from Eurostat (2001, p. 60) and is a provisional figure for 2001. According to Eurostat, GDP in Germany is € 2,096,808 million in current prices. This is converted to DEM at an exchange rate of 1.95583, cf. Eurostat (2001b, p. 41). The East and West German share of GDP are based on figures from Statistisches Bundesamt for 2000 (2001, p. 673), when West Germany’s share (excluding Berlin) was 85.3% of Germany’s total GDP. The minor differences in relation to table 4.2 are due to rounding off.

As can be seen from the table, the average black hourly wage is slightly higher in the old Bundesländer than in the new, namely DEM 21 and DEM 17 respectively.

Table 4.9 also shows that multiplying the average black hourly wage by the number of black hours worked gives a figure for the black economy measured in actual black prices paid of DEM 46 billion in West Germany and DEM 8 billion in East Germany. In relation to GDP in the two regions, black activities are 1.3% of GDP in West Germany and 1.4% in East Germany. Thus, there is no difference in the extent of black activities between the new and old Bundesländer when measured in actual black wages paid either.

Compared with the 1997 and 1998 surveys, therefore, there is a clear difference in the extent of black activities found between East and West Germany. As mentioned in chapter 3, both the 1997 and 1998 surveys ask respondents whether they have ever carried out black activities. As noted in Lamnek et al. (2000), the figures for these two years should thus be interpreted in an historical light, since there have been big differences in the two regions' possibilities for social fraud, including black activities.

The results of the older surveys cannot be directly compared with the new figures presented here, therefore. However, even though the results from the other countries cannot be extrapolated to German conditions, the conclusion about the lack of regional variation is supported by the fact that no regional differences in the incidence of black activities have been found here either.

#### **4.7 Concluding remarks**

Given the number of persons who carry out black activities and the time spent on them, it is possible to estimate the total number of black hours worked per year.

As yet, there is no completely satisfactory method for extrapolating from this figure to a measure for the size of the black sector in relation to overall economic activities, e.g. as measured by GDP. One of the problems is that we do not know how high productivity – defined as value added per hour worked – actually is in the black sector compared with the rest of the economy. If we assume that there are no great differences in productivity between the two sectors, and transfer black hours as a proportion of total “white” working hours in the five countries to a corresponding proportion of GDP in market prices, it corresponds to a figure, in Denmark, of 3.8% of GDP. The figures for Norway and Sweden are somewhat lower, at 2.6% and 2.3% of GDP respectively. The figure is lowest for Great Britain, at 1.2% of GDP, and highest for Germany, at 4.1%.

It should be emphasised that, in calculating the extent of black activities in relation to GDP, it is assumed here that a given piece of work of given quality in reality has the same value, irrespective of whether it has been taxed or not. Thus, the extent of black activities mentioned above, i.e. 3.8% in Denmark, 2.6% in Norway, 2.3% in Sweden, 4.1% in Germany and 1.2% in Great Britain, corre-

sponds to what the work would have been worth had it been invoiced work in the formal market.

Alternatively, valuing the black sector, as it is measured here, using actual black hourly wages paid would have given a figure of 1.8% of GDP in Denmark, 1.1% in Norway, 1.0% in Sweden, 1.3% in Germany and 0.6% in Great Britain.

Apart from black activities, total underdeclaration also includes “ordinary tax evasion” - and, if previous research in Denmark and Norway can be believed, probably an additional figure for “ordinary tax evasion” of perhaps one third of total underdeclaration in the respective countries, bringing the overall size of the shadow economy to 5.5%, 3.7%, 3.3%, 5.9% and 1.7% in Denmark, Norway, Sweden, Germany and Great Britain respectively.

The figure of 2-6% of GDP measured in questionnaire surveys in the five countries is considerably under the level found by the monetary methods. Friedrich Schneider’s latest results for the five countries indicate that the level should be around 18-19% of GDP in the Scandinavian countries and over 16% in Germany and 12.5% in Great Britain. The questionnaire surveys’ results for Denmark are thus closer to Statistics Denmark’s explicit estimate of black activities of under 1% of GDP.

If we look at what black activities would be worth if carried out as invoiced work in the formal market, which is the most relevant from a socioeconomic point of view, there does not seem to be any great difference in black activities as a proportion of GDP between Denmark and Germany, where the level is around 4%, nor between Norway and Sweden, where it is around 2.5%.

The level of black activities in Great Britain (1.2% of GDP) differs rather more from the other countries, however.

One obvious explanation, which was also mentioned in chapter 2, is that far more activities in Great Britain are considered as non-taxable than in the other countries. As was also mentioned in chapter 2, extra questions were added to the questionnaire for Great Britain in an attempt to capture some of the activities that would be considered taxable in the Scandinavian countries, but not in Great Britain. A calculation such as the one mentioned above, but also including activities in the “grey area”, would give a level for black activities in Great Britain of 2.3% of GDP, which is at the same level as that for Sweden and Norway. Measured by the actual black hourly wages paid, black activities are 1.2% of GDP, which is the level in Norway, Sweden and Germany.

If we return for a moment to the presumed most relevant measurement, i.e. in “white” prices, then the tax burden could also be a possible explanation of the differences between the countries.

The lower tax burden in Great Britain is one possible reason why the extent of black activities is lowest there – though if there were a clear correlation between tax and the extent of black activities, then we could also expect a lower extent in Germany compared with the other countries, which is obviously not the case.

The uncertainty of the correlation between paid taxes and black activities is underlined in new Danish data showing that people who carry out black activities actually have both a lower average tax and also a lower marginal tax compared to people who do not carry out black activities.

Again, if there were a clear correlation, the high tax burden in Denmark would mean that the black sector was biggest here. One possible reason why it is not bigger than it is could be the high degree of regulation in Denmark. The existence of a central personal registration system means that nearly all income and deductible interest and other deductible expenses are automatically reported to the tax authorities. This makes it very difficult for taxpayers to earn income – apart from trivial amounts – without the tax authorities knowing about it. The degree of regulation, not just as regards taxation, but also, for example, food products, the environment and the working environment, makes it virtually impossible to carry on a business without the relatively detailed knowledge of the tax authorities.

This degree of regulation makes it difficult, bordering on the impossible to carry out black activities full time. Not surprisingly, earlier Danish research, together with the present surveys, show that, in Denmark, black activities are more of a sideline activity carried out in addition to a normally taxed full-time job.

Conversely, the degree of control can also have the opposite effect on the extent of black activities, namely if the regulation of, for example, the labour market, means that it becomes difficult to dismiss employees, or if minimum wages are higher than the market is willing to pay. This could induce employers to hire black labour instead, in order to ensure a greater degree of flexibility. This view was recently put forward by respected German economists as a possible explanation for the extent of black activities in Germany.

With regard to the tax structure, countries with a relatively big weight on employers' social contributions might be expected to have a relatively big black sector, since high employers' contributions give employers an extra incentive to hire black labour.

Thus, it is possible that this partly explains why black activities as a share of GDP is the highest, at 4.1%, in Germany, which also has relatively high employers' social contributions.

This does not hold for all countries, however, since employers also pay relatively high social contributions in Norway and Sweden, which have much smaller black sectors than Germany.

The degree of tax control, and especially people's perceived risk of sanctions, are also important factors. And, according to economic theory, the risk of sanctions and the size of fines do have an important effect on black activities. While no data on the size of fines and their possible effect on black activities have been collected for this study, data has been collected on the perceived risk of discovery by the tax authorities. All respondents in the surveys were asked this question, i.e. both those who have carried out black activities and those who have not.

The results show that the perceived risk of discovery and subsequent fine is roughly the same in Norway and Sweden, while it is a lot lower in Denmark. In general, Scandinavians do not regard the risk of discovery as particularly high compared with Germans and Englishmen, where especially the latter take the risk seriously. This *could* partly explain the relatively low level of black activities there, but not necessarily. The German population also rates the risk of discovery as high, though without this leading to a lower level of black activities in Germany.

In addition to taxes and the risk of sanctions, morality might also be expected to have an effect on black activities.

The surveys on black activities have not directly attempted to measure morality regarding tax evasion and social fraud. However, persons who have not carried out black activities within the last year were asked whether they would do so if the opportunity arose. This question can thus give an indirect idea of morality regarding black activities.

The answers showed that 46.8% of Danes would carry out black activities if they had the chance. Slightly fewer Norwegians, namely 40%, would carry out black activities if the opportunity arose, while the proportion is least in Germany and Great Britain, at about 20-30%.

If the answers to these questions can be taken as reflecting morality with regard to black activities, and the answers are correlated with the extent of black activities, then the size of the black sector could be expected to be smallest in Germany and biggest in Denmark, which, of course, is not the case.

As can be seen from the above, it has not been possible to show a general and satisfactorily clear correlation between the extent of black activities in the various countries and the explanatory factors normally used in economic theory, namely taxation, the perceived risk of sanctions, and citizens' social morality.

It would require further research on longer time series to be able to say anything with certainty. But all the indications are that there is a complex interplay between tax, morality, and the perceived risk of sanctions in the various countries. In addition to further research, it would also require additional explanatory variables, such as the degree of regulation in each country. There is no doubt, for example, that an important reason why the level of black activities is not higher in Denmark is the high degree of regulation, which ensures that all income and tax deductions are more or less automatically reported to the authorities. This should also be seen in light of the fact that, in Denmark, there are relatively most potential new suppliers of black activities.

However, the degree of regulation can also have the opposite effect on the extent of black activities, namely if regulation of, for example, the labour market makes it more difficult to sack employees, or if minimum wages are higher than the market is willing to pay. In such cases, employers might prefer to hire black labour to ensure a higher degree of flexibility – a view that respected German economists have put forward as an explanation for the extent of black activities in Germany.

If to this is added the relatively high level of employers' social contributions in Germany, then we have two important explanatory factors for the large extent of black activities in Germany compared with the other surveyed countries: On the demand side, there are big incentives in Germany to hire black labour, which enables employers to both ensure a degree of flexibility lacking in the country's relatively rigid labour market and save on payroll costs.

In order to get a more precise impression of the incidence of black activities in the various industries, the number of black hours worked has been compared with the number of hours worked in the formal part of the economy for each industry.

In all countries except Germany, most black activities are carried out in the "construction industry". Thus, in Denmark, black hours worked are no less than 25% of "white" hours worked. Norway is at a slightly lower level, black hours being almost 17% of white hours. Germany, Sweden and Great Britain come next, black hours as a proportion of white hours being 13%, 9% and 5% respectively. It is important to remember here that, while black hours worked in, for example, Denmark, are 25% of white hours worked, they are carried out not just by craftsmen, but also by others whose main "white" employment is in another industry, but who also have the skills required to carry out black activities in the construction industry. The same applies to the other countries and industries.

In Germany, relatively most black activities are carried out in the agriculture, fishing and forestry industry, where black hours worked are just under 15% of

white hours. There are also a lot of black activities in this sector in Denmark, where black hours worked are 16% of white hours.

While this new European analysis uses, for the first time, an identical questionnaire method in all five countries surveyed, it has the unfortunate consequence, which is always the case with new measurement methods, that it is not possible to compare the results directly with older measurements.

However, this only applies to the four countries where the Danish questionnaire method has been used for the first time. This makes it particularly interesting to take a look at the main results of recent surveys in Denmark using this method, therefore. As mentioned above, black activities were 3.8% of GDP in Denmark in 2001, an increase of no less than 26% over 1998, where a comparable estimate arrived at a figure for black activities of 3.0% of GDP.

This substantial increase was mainly due to a big increase in black activities in the construction industry – together with smaller increases in agriculture and the hotel and restaurant sector. Thus, in 1998, black hours worked were over 16% of white hours, which, as we saw above, had increased to no less than over 25% in 2001.

The explanation probably lies in the demand for black labour, since continued low interest rates have made it cheaper to obtain loans for home repairs and maintenance. This should also be seen in the light of big increases in house prices from 1998-2001, which has increased home-equity quite considerably.

Thus, it cannot be ruled out that the boom, including in the construction industry, has accounted for much of the recent increase in the size of the black sector in Denmark – but it has not been curbed by people's (negative) perception of the tax burden, a huge improvement in tax morality, or by increased concern about the cost of discovery by the tax authorities either.

As was pointed out in chapter 3, there are no statistically significant regional differences in the proportion of people who carry out black activities between any of the countries.

Section 4.6 took a closer look at Germany, since it is especially interesting to examine the differences and similarities between East and West Germany in this respect, given the effect that the communist regime has had in East Germany up to 1989.

The analysis of the new data for 2001 in this book shows that comparing black hours worked with hours worked in the formal part of the economy gives a figure for black activities as a proportion of white hours – which, as mentioned above, can cautiously also be seen as a figure for black activities as a proportion

of GDP – of 4.1% in West Germany, against 4.2% in East Germany. Alternatively, if we calculate the extent of black activities measured in actual black hourly wages paid and compare these figures with GDP in the two regions, we get a figure of 1.3% in West Germany and 1.4% in East Germany. Thus, irrespective of whether we measure the extent of black activities at market price or in actual black hourly wages paid, there is no difference between the new and old Bundesländer in the extent of black activities carried out within the last year.

## 5. Summary

In the conclusion to his book, *Cheating the Government. The Economics of Evasion*, economist Frank A. Cowell observed that the extent of tax evasion is hard to measure empirically. The problem of measurement in itself, he continued, together with measurement uncertainties, has resulted in a tendency to spend more time writing about *how* to measure the extent than in carrying out the actual measurements.

Denmark is probably one of the few countries (together with Norway) where attempts to measure the size of the black sector have been carried out over a longer period. The Danish surveys, which have mainly been questionnaire surveys, are by now fairly well documented. These surveys show that, while only a small part of Danes' economic activities avoids taxation, and is therefore sold more cheaply than the same activities in the "white" market, the proportion increased throughout the 1980s and early 1990s, though fell slightly again in the following years.

The difficulty of measuring black activities in a given country is partly due to the fact that the purpose of these activities is precisely to avoid being registered, because registration is used for purposes of taxation, and partly because research in the area is still relatively new. It is only about 20 years ago that the first major Norwegian, Danish and Dutch questionnaire surveys on the black economy were carried out. Measurement *between* countries is made more difficult by the fact that the distinction between taxable and tax-exempt activity varies from country to country.

The obvious question, therefore, was how the Danish figures compared with those for other European countries if exactly the same questionnaire design and exactly the same definition of black activities were used. The possibility for cross-border comparison was strengthened in 1997 when Riksrevisionsverket (The Swedish National Audit Office), at the behest of the Swedish government, approached the Rockwool Foundation Research Unit about using the Danish questionnaire method to measure the structure and extent of black activities in Sweden.

Using the same question design in different countries overcomes some of the difficulties of comparison. A further advantage of the questionnaire method is that the questionnaire can be adapted to the various countries' tax legislation, e.g. by adding questions about activities which are taxable in one country but not in another.

The ideal questionnaire survey of the incidence and extent of black activities in Europe would include a large number of countries with differences in both the

tax burden and the proportion of direct and indirect taxes. Since this obviously requires great resources and manpower, etc., this has not been possible. We have instead chosen to include countries close to Denmark which have different tax burdens. The survey thus includes Sweden, which, like Denmark, has a relatively high tax burden and a relatively high proportion of direct taxation, i.e. on income. Also included are Great Britain and Germany, which, according to OECD, have a tax burden which is about 10-15% lower than Sweden and Denmark. Finally, Norway, which lies between Denmark and Sweden on the one hand and Germany and Great Britain on the other, is also included.

This book is thus an attempt, using the questionnaire method, to redress the aforementioned imbalance observed by Cowell between writing about the problems of measuring black activities and actually trying to measure the phenomenon in five countries.

## 1.

*Chapter 1* starts with a definition of what precisely is meant by the “black economy”, “black activities” and the “shadow economy” in this book. The *shadow economy*, which is the most encompassing term, consists partly of those productive activities which should be included in the official figures for GDP, but which are only partially included since these activities are precisely carried out to avoid taxation, and with it registration. The other part of the shadow economy as defined here consists of tax evasion involving transfer income, unearned income and deductions, etc., which are not directly included in the figures for GDP.

The *black economy*, which is part of the shadow economy, consists of two parts. The one is called black activities in a narrow sense, and includes productive economic activities which should be taxed, but on which tax is not paid because buyer and seller of the activity agree not to report their activities to the Inland Revenue. Thus, both buyer and seller derive an economic benefit from the Inland Revenue being kept in the dark, since they share the saved tax and VAT between them. Black activities include both “traditional” black activities, such as a mechanic who repairs a car for black payment, and black transactions, such as a farmer who sells a pig at the farm gate for black payment.

The other part of the black economy is called ordinary tax evasion. Here, it is only the one party – the supplier – who knows about it and reaps the benefit of the Inland Revenue not knowing anything about the activity. Such activities include, for example, sales in a flower shop at full normal price not being rung up in the cash register, without the customer benefitting from the tax and VAT saved.

The black economy thus consists of activities which in themselves are legal – except that they violate the tax laws – and which should be included in the estimate of GDP, but which are only partly included because they are not taxed, and thus not registered.

In principle, the shadow economy also includes productive illegal activities, e.g. prostitution and drug-dealing, but in practice these activities are not measured in the Danish questionnaire surveys.

In addition to this, the shadow economy also consists of another type of tax evasion, e.g. claiming higher deductions in your tax return than you are entitled to. It can also include interest not declared to the tax authorities or fraud with transfer income – activities which have gradually become practically impossible in Denmark. These activities are not directly included in the estimate of GDP, but are included in the definition of the shadow economy here.

It is solely black activities in a narrow sense – or, simply, black activities – which in practice are measured by means of questionnaires in this book.

## 2.

Questionnaire surveys are well suited to distinguish between black activities and tax evasion, because respondents can be informed precisely what is meant by the shadow economy and, more relevant for this study, black activities. Thus, in the questionnaire surveys carried out for this book, respondents have been explicitly informed what is meant by black activities – i.e. both buyer and seller of the activity must derive an economic benefit from not reporting anything to the tax authorities by sharing the saved tax and VAT between them.

The question design used in the various countries are presented in *chapter 2*, which also contains a brief discussion of important technical aspects of the survey quality in the five countries, especially response rates and non-response rates.

The question design had to meet two criteria:

- The questions, which are based on the thoroughly tested Danish questions, must be comparable between countries.
- The questions must also take account of the different legislation in the countries concerned, so that they only measure black activities which are taxable according to these countries' legislation.

Overall, the discussion of taxable activities in the five countries showed that there are no great differences between Norway, Sweden and Denmark. In Ger-

many, on the other hand, more activities are considered non-taxable, since to be taxable there must be a binding agreement between the parties if payment is not in cash, but in the form of a *quid pro quo*.

Great Britain differs more from the other countries in that it is not so easy to determine when an activity should be taxed or not. Crucially, to be taxable, the activity must be considered as having been carried out for business purposes.

In all the surveyed countries, only highly respected data collection institutes have been used, in order to ensure the highest quality possible in the answers.

In recent years, Statistics Denmark has been responsible for data collection in Denmark. Similarly, the national statistics offices have been used in both Norway, Sweden and Great Britain, namely Statistics Norway, Statistics Sweden and National Statistics (Social Survey Division) respectively. In Germany, the interviews have been carried out by Infratest Sozialforschung, a private market research institute with wide experience of collecting data for social science research.

There are no great differences in response rates between Denmark, Germany, Norway and Great Britain, which lie between 64-68%, while the Swedish survey achieved a somewhat higher response rate of 72.8%. The proportion of refusals – i.e. who refused *before* they were asked questions about black activities – varies much more, from a low of under 7% in Denmark to a high of under 25% in Great Britain.

On the whole, therefore, the internationalisation of the measurements has not run into any insuperable problems.

### 3.

The discussion of what constitutes taxable income in the five countries was followed in *chapter 3* by an analysis of the incidence of black activities – i.e. figures for the proportions of the various populations who are active suppliers of black activities – together with black hours worked and black wages.

As previously mentioned, there have been no previous comparable questionnaire surveys of the extent and incidence of black activities based on the same definition of the phenomenon. Thus, for the first time, the analyses in chapter 3 present comparable figures for the proportions of the adult population in the 18-74 age group in the five countries who have carried out black activities one or more times during the last year. The surveys for Denmark and Germany were carried out in 2001, and in 1998 for Sweden, while two surveys were carried out in Norway, namely in 1998 and 2001, and then combined. The survey in Great Britain was carried out in 2000. In all, 1,796, 2,522, 2,181, 5,538 and 1,572 in-

interviews were carried out among the 18-74-year-olds, the age group covered by all the surveys, in Denmark, Norway, Sweden, Germany and Great Britain respectively.

As the above has shown, there are big differences between the countries with regard to the proportion who carries out black activities. It is highest in Denmark, at 20.3%, closely followed by Norway at 17.3%. Thereafter follow Sweden, Germany and Great Britain at a much lower level, namely 11.1%, 10.4% and 7.8% respectively.

In all the countries except Great Britain, men are more likely to carry out black activities than women. Age is also significant, the young being more active than the old. Conversely, neither marital status nor children under 6 seems to have much importance.

In those countries where occupation is an important variable, the general impression is that the self-employed, skilled workers and students in particular are significantly more likely to carry out black activities. In cases where education is statistically important, vocational training typically increases the probability of black activities, or the likelihood of black activities falls with length of education. The assumption that skilled workers or persons with vocational training carry out black activities to a greater extent than others is thus confirmed in these analyses.

With regard to the unemployed and black activities, there are two opposite effects. On the one hand, unemployment implies that a person has more spare time to carry out black activities. On the other hand, however, the long-term unemployed gradually lose contact with the workplace, and thus also with potential customers. Furthermore, they also lose the opportunity to borrow the workshop or master's van for black activities. Conversely, it could be argued that the correlation between black activities and length of unemployment goes the other way, since the more time spent on black activities, the less time there is to look for normal work, thereby perpetuating unemployment.

In general, the analyses show that the unemployed are not more likely to carry out black activities. The exception is Germany, where the unemployed are clearly more likely to be active. In Germany, then, it could well be that the unemployed are not interested in looking for "white" work because they earn more than enough from black activities in addition to being on unemployment benefit.

In these analyses, income from "white" work is used as an approximate variable for marginal tax, since marginal tax increases with income.

It is not possible to determine beforehand whether the income from "white" work will result in a bigger or smaller probability of black activities. On the one

hand, rising income, and with it rising marginal tax, points to the former. But at the same time, there is an income effect which has an opposite effect: People “can’t afford not to”. The empirical results also confirm that it is not possible to show a clear correlation. In Denmark, Norway, and for Swedish women, the variable is not significant at all, while in Great Britain and for Swedish men, black activities are more likely with rising income. In Germany, however, the opposite is the case for both men and women, where black activities have a negative correlation with income. Here, the income effect thus seems to dominate. This fits in well with the fact that, in Germany, the unemployed are significantly more likely to carry out black activities.

Regional variation does not play any great role. The assumption that black activities are more widespread in the country than in cities is thus not confirmed. For Sweden, and perhaps also for Norway and Denmark, this is possibly because even though there are more extensive social networks outside the cities, with consequent greater opportunities for carrying out black activities compared with cities, there is also a higher degree of “self-control” in rural communities, which makes large-scale black activities difficult. The reverse is true in cities, however. This makes it hard, overall, to determine the effect of regional variations on black activities, which the analyses also show.

The risk of discovery by the authorities plays a statistically significant role. As expected, a high or very high perceived risk of discovery significantly reduces the probability of black activities.

As with frequency, average black hours worked also varies from country to country, namely from a low of over 3½ hours in Great Britain to a high of over 8 hours in Germany. The Scandinavian countries lie in between, in the range 4½ – 5 black hours worked a week.

With regard to the number of hours worked, the main impression from most of the countries is that men work more black hours than women. This parallels the pattern in the formal market. The importance of age is less clear, however, though the under-30s and over-60s tend to work more black hours than the other age groups.

In general, the self-employed work by far the most hours in the black sector, while salaried workers only work few black hours. Students, especially in Germany, Denmark and Sweden, also work a large number of black hours compared with the average in the respective countries.

For the most part, the unemployed do not work more black hours than the rest of the population. The exception here is Germany, where the unemployed work about 2½ black hours more a week than the average for the whole population. Thus, not only do a higher proportion of the unemployed in Germany carry out

black activities compared with other countries, but they also spend more time on them.

In order to compare black wages between the countries from different survey years, they were first converted to 2001 levels. The 2001 black wages were then converted to Euro. This shows that average black wages are highest in Norway (€16.5), closely followed by Denmark (€15.7). They are a bit lower again in Great Britain and Sweden (over €14 and €12.5 respectively), while they are lowest in Germany (€10.3).

A comparison of the wage level in the black market with the income of an average production worker (APW) in the formal market in the five countries shows that Norwegians do relatively well in both the formal and black markets. At the other extreme, Swedes do relatively poorly in both markets. In both Denmark, Germany and Great Britain, there is no clear correlation between wage levels in the formal and black markets. For example, “white” German gross earnings are at the same level as in Denmark, while black wages are about 50% higher in Denmark than in Germany.

One reason why the average black hourly wages are relatively low in Germany could be import of cheap labour from f.i. Poland working in the black economy in the building and agricultural sector. Even though this form of black activities, i.e. illegal immigrants working in the black economy, probably can not be successfully covered in the survey here, this form of black activities might keep average black hourly wages low for the Germans working in the black economy.

As in the formal markets, men’s black hourly wages are higher than women’s. On the other hand, nothing clear can be said about the importance of age here.

As regards the importance of occupation, the self-employed and salaried workers in particular have high black hourly wages, while skilled workers earn about the average for the population in general.

In all countries, the distribution of black wages by industry shows that the highest hourly wages are in financial intermediation and business activities, together with public and personal services, where typical black activities are childcare. This pulls the level down, but there is also a good deal of well-paid teaching, and especially musicians, which pulls average black wages up in this sector. Apart from in Germany, black wages in the construction industry are around the average. In Germany, it is precisely in the construction industry that black hourly wages are highest. Black hourly wages are also typically relatively low in the hotel and restaurant sector.

The credibility of the results presented in chapter three is strengthened by the fact that there are no great differences compared with earlier – albeit often rather less extensive – surveys in Denmark, Norway, Sweden and Germany.

Finally it was investigated whether income from black activities have any effect on the income distribution in Denmark and Germany where it was possible to make such an analysis. The conclusion was that it was hard to measure any significant effect on the Gini coefficient and the maximum equalisation percentage. Having said that there seems to be a very weak tendency that in Denmark the inclusion of incomes from black activities has an opposite “Robin Hood” effect making the income distribution slightly more unequal whereas in Germany the inclusion of incomes stemming from black activities actually makes the income distribution slightly more equal.

#### 4.

Given how many persons carry out black activities and how much time they spend on them, *chapter 4* estimates the total number of hours spent on black activities in one year.

As yet, there is no completely satisfactory method for extrapolating from this figure to a measure for the size of the black sector in relation to overall economic activities, e.g. as measured by GDP. For want of a better method, therefore, we estimate the extent of black activities in relation to GDP by comparing the number of hours worked in the black sector with those worked in the formal part of the economy. This implicitly assumes that productivity in the black sector is the same as that in the formal sector.

One of the problems here, however, is that we do not know how high productivity – defined as value added per hour worked – actually is in the black sector compared with the rest of the economy. If we assume that there are no great differences in productivity between the two sectors, and transfer black hours as a proportion of total “white” working hours in the five countries to a corresponding proportion of GDP in market prices, it corresponds to a figure, in Denmark, of 3.8% of GDP. The figures for Norway and Sweden are somewhat lower, at 2.6% and 2.3% of GDP respectively. The figure is lowest for Great Britain, at 1.2% of GDP, and highest for Germany, at 4.1%.

The above proportions should be regarded as minimum estimates of the extent of black activities only, since not all persons are likely to have given honest answers about whether they have carried out black activities. Furthermore, some respondents probably do not disclose the true extent of their black activities despite assurances of anonymity from the data-collection institute.

It should be emphasised that, in calculating the extent of black activities in relation to GDP, it is assumed here that a given piece of work of given quality in reality has the same value, irrespective of whether it has been taxed or not. Thus, the above-mentioned figures for black activities of 3.8% of GDP in Denmark, 2.6% in Norway, 2.3% in Sweden, 4.1% in Germany and 1.2% in Great Britain correspond to what the work would have been worth in the formal market.

Alternatively, valuing the black sector, as it is measured here, using actual black hourly wages paid would have given a figure of 1.8% of GDP in Denmark, 1.1% in Norway, 1.0% in Sweden, 1.3% in Germany and 0.6% in Great Britain.

Apart from black activities, total underdeclaration also includes “ordinary tax evasion” – and, if previous research in Denmark and Norway can be believed, probably an additional figure for “ordinary tax evasion” of perhaps one third of total underdeclaration in the respective countries, bringing the overall size of the shadow economy to 5.5%, 3.7%, 3.3%, 5.9% and 1.7% in Denmark, Norway, Sweden, Germany and Great Britain respectively.

The figure of 2-6% of GDP measured in questionnaire surveys in the five countries is considerably under the level found by the monetary methods. Friedrich Schneider’s latest results for the five countries indicate that the level should be around 18-19% of GDP in the Scandinavian countries and over 16% in Germany and 12.5% in Great Britain. The questionnaire surveys’ results for Denmark are thus closer to Statistics Denmark’s explicit estimate of black activities of under 1% of GDP.

If we look at what black activities would be worth if carried out as invoiced work in the formal market, which is the most relevant from a socioeconomic point of view, there does not seem to be any great difference in black activities as a proportion of GDP between Denmark and Germany, where the level is around 4%, nor between Norway and Sweden, where it is around 2.5%.

The level of black activities in Great Britain (of 1.2% of GDP) differs rather more from the other countries, however.

One obvious explanation, which was also mentioned in chapter 2, is that far more activities in Great Britain are considered as non-taxable than in the other countries. As was also mentioned in chapter 2, extra questions were added to the questionnaire for Great Britain in an attempt to capture some of the activities that would be considered taxable in the Scandinavian countries, but not in Great Britain. A calculation such as the one mentioned above, but also including activities in the “grey area”, would give a level for black activities in Great Britain of 2.3% of GDP, which is the same as that for Sweden and Norway. Measured by the actual black hourly wages paid, black activities are 1.2% of GDP, which is the level in Norway, Sweden and Germany.

If we return a moment to the presumed most relevant measurement, i.e. in “white prices”, as shown in chapter 4 it has not been possible to establish a general and satisfactorily clear correlation between the extent of black activities in the five countries and those explanatory factors which economic theory would normally point to, namely taxes, the perceived risk of sanctions, and citizens’ social morality.

It would require further research on longer time series to be able to say anything with certainty. But all the indications are that there is a complex interplay between tax, morality, and the perceived risk of sanctions in the various countries. In addition to further research, it would also require additional explanatory variables, such as the degree of regulation in each country. There is no doubt, for example, that an important reason why the level of black activities is not higher in Denmark is the high degree of regulation, which ensures that all income and tax deductions are more or less automatically reported to the authorities. This should also be seen in light of the fact that, in Denmark, there are relatively most potential new suppliers of black activities.

However, the degree of regulation can also have the opposite effect on the extent of black activities, namely if regulation of, for example, the labour market makes it more difficult to dismiss employees, or if minimum wages are higher than the market is willing to pay. In such cases, employers might prefer to hire black labour to ensure a higher degree of flexibility – a view that respected German economists recently have put forward as an explanation for the extent of black activities in Germany.

If to this is added the relatively high level of employers’ social contributions in Germany, then we have two important explanatory factors for the large extent of black activities in Germany compared with the other surveyed countries: On the demand side, there are big incentives in Germany to hire black labour, which enables employers to both ensure a degree of flexibility lacking in the country’s rigid labour market and save on payroll costs.

In order to get a more precise impression of the incidence of black activities in the various industries, the number of black hours worked has been compared with the number of hours worked in the formal part of the economy industry by industry.

In all countries except Germany, most black activities are carried out in the “construction industry”. Thus, in Denmark, black hours worked are no less than 25% of “white” hours worked. Norway is at a slightly lower level, black hours being almost 17% of white hours. Germany, Sweden and Great Britain come next, black hours as a proportion of white hours being 13%, 9% and 5% respectively. It is important to remember here that, while black hours worked in, for example, Denmark, are 25% of white hours worked, they are carried out not just

by craftsmen, but also by others whose main “white” employment is in another industry, but who also have the skills required to carry out black activities in the construction industry. The same applies to the other countries and industries.

In Germany, relatively most black activities are carried out in the agriculture, fishing and forestry industry, where black hours worked are just under 15% of white hours. There are also a lot of black activities in this sector in Denmark, where black hours worked are 16% of white hours.

While this new European analysis uses, for the first time, an identical questionnaire method in all five countries surveyed, it has the unfortunate consequence, which is always the case with new measurement methods, that it is not possible to compare the results directly with older measurements.

However, this only applies to the four countries where the Danish questionnaire method has been used for the first time. Therefore this makes it particularly interesting to take a look at the main results of recent surveys in Denmark using this method. As mentioned above, black activities were 3.8% of GDP in Denmark in 2001, an increase of no less than 26% over 1998, where a comparable estimate arrived at a figure for black activities of 3.0% of GDP.

This substantial increase was mainly due to a big increase in black activities in the construction industry – together with smaller increases in agriculture and the hotel and restaurant sector. Thus, in 1998, black hours worked were over 16% of white hours, which, as we saw above, had increased to no less than over 25% in 2001.

The explanation probably lies in the demand for black labour, since continued low interest rates have made it cheaper to obtain loans for home repairs and maintenance. This should also be seen in the light of big increases in house prices from 1998-2001, which has increased home-equity quite considerably.

Thus, it cannot be ruled out that the boom, including in the construction industry, has accounted for much of the recent increase in the size of the black sector in Denmark – but it has not been curbed by people’s (negative) perception of the tax burden, the huge improvement in tax morality, or by increased concern about the cost of discovery by the tax authorities either.

As was pointed out in chapter 3, there are no statistically significant regional differences in the proportion of people who carry out black activities between any of the countries.

The last section in chapter 4 took a closer look at Germany, since it is especially interesting to examine the differences and similarities between East and West

Germany in this respect, given the effect that the communist regime has had in East Germany up to 1989.

The analysis of the new data for 2001 in this book shows that comparing black hours worked with hours worked in the formal part of the economy gives a figure for black activities as a proportion of white hours – which, as mentioned above, can cautiously also be seen as a figure for black activities as a proportion of GDP – of 4.1% in West Germany, against 4.2% in East Germany. Alternatively, if we calculate the extent of black activities measured in actual black hourly wages paid and compare these figures with GDP in the two regions, we get a figure of 1.3% in West Germany and 1.4% in East Germany. Thus, irrespective of whether we measure the extent of black activities at market price or in actual black hourly wages paid, there is no difference between the new and old Bundesländer in the extent of black activities carried out within the last year.

We thus have a shadow economy in Northern Europe which is much bigger than assumed in the national accounts, but much smaller than indicated in recent years' so-called monetary measurements and eagerly reported by the media. The highest level in the five surveyed countries – about 4% of GDP in Germany – is possibly connected with a relatively rigid labour market there, which makes it more attractive to hire black labour, who are easily dismissed again. Moreover, employers' social contributions to insurance schemes are relatively high, which increases their incentives to buy black labour. The lowest level of about 1% in Great Britain is probably partly due to the greater number of non-taxable activities there compared with the other countries, and partly to a lower tax burden.

## Appendix: Representativeness of the surveys

By Helle Cwarzko Jensen

This appendix examines the representativeness of the respondents in relation to the whole population in each of the five countries. In principle, we want to examine whether the distribution of answers to the various questions (the dependent variable) in the omnibus surveys corresponds to the distribution we would have obtained if the whole population in the country in question had been asked. Since this is obviously not possible, we look instead at the distribution of respondents in the omnibus surveys by central background variables (the independent variables), such as sex, age and geography, all of which are accessible in the official statistics. If these distributions of the independent variables match those for the population as a whole, there is good reason to assume that the cross-section of respondents has not given fundamentally different answers in the questionnaire than the whole population would have done.

### Denmark

Appendix table 1 shows the distribution of the 1,796 respondents in the Danish omnibus survey and the whole Danish population by age and sex. The sample population here consists of the 18-74-year-olds, this being the age group used in the Danish survey.

**Appendix table 1: Respondents in the Danish omnibus survey and the whole population, by age and sex. Percent**

	Respondents in the omnibus surveys 18-74-year-olds			Whole population 1/1-2001 18-74-year-olds		
	Men	Women	Total	Men	Women	Total
18-24	9.6	8.9	9.2	11.7	11.4	11.5
25-29	10.8	8.0	9.4	10.2	10.0	10.1
30-39	19.1	23.5	21.3	21.8	21.0	21.4
40-49	20.6	19.3	19.9	19.7	19.3	19.5
50-59	22.7	18.6	20.6	19.7	19.5	19.6
60-69	12.4	15.7	14.0	12.3	13.2	12.8
70-74	4.9	6.1	5.5	4.6	5.6	5.1
Total	100	100	100	100	100	100
%	49.1	50.9	100	50.1	49.9	100
	-----number-----			-----number, 1,000-----		
	882	914	1,796	1,910	1,899	3,809

Source: Statistics Denmark: *Befolkningen i kommunerne 1. januar 2001* (Population in the municipalities on January 1, 2001) and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

As the table shows, compared by sex alone, men are slightly underrepresented, 49.1% and 50.9% in the omnibus survey being men and women respectively, against 50.1% and 49.9% in the whole population. Compared by the age variable alone, the 18-29-year-olds are underrepresented by 3 percentage points. There is on the other hand an overrepresentation of the elderly.

Appendix table 2 shows the distribution of the respondents in the omnibus surveys and the whole population by age and the three geographical regions concerned, namely the metropolitan area, rest of the islands, and Jutland.

**Appendix table 2: Respondents in the omnibus survey and the whole population, by age and region. Percent**

	Respondents in the omnibus surveys 18-74-year-olds				Whole population, 1/1-2001 18-74-year-olds			
	Met. area <sup>56</sup>	Rest of the islands	Jutland	Whole country	Met. area	Rest of the islands	Jutland	Whole country
18-24	7.9	10.9	9.5	10,5	11.4	10.6	12.0	11.5
25-29	10.0	8.7	9.1	9,2	11.6	8.6	9.6	10.1
30-39	24.8	21.7	18.5	21,0	22.8	20.0	20.9	21.4
40-49	17.5	19.0	22.2	19,7	18.4	20.3	20.0	19.5
50-59	21.2	20.4	20.3	20,3	19.1	20.8	19.5	19.6
60-69	12.5	15.0	14.8	13,8	12.0	14.0	12.9	12.8
70-74	6.2	4.4	5.6	5,4	4.6	5.7	5.1	5.1
Total	100	100	100	100	100	100	100	100
%	34.4	20.5	45.1	100	34.5	19.9	45.6	100
	-----number-----				-----number, 1,000-----			
	618	368	810	1,796	1,313	758	1,738	3,809

Source: Statistics Denmark: *Befolkningen i kommunerne 1. januar 2001* (Population in the municipalities on January 1, 2001) and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

The distribution for the omnibus survey roughly matches that for the whole population. Jutland, with just over 45%, is slightly underrepresented, the corresponding figure for the whole population being 45.6%. Rest of the islands is slightly overrepresented – 20.5% against 19.9% for the rest of the population. The differences are greater within the various age groups, however. The younger age groups in the metropolitan area and Jutland seem generally to be slightly underrepresented, while the opposite applies to the elderly. It is harder to see a pattern in the rest of the islands, since the deviations fluctuate to both sides.

<sup>56</sup> The metropolitan area consists of Copenhagen and Frederiksberg municipalities, and Copenhagen, Frederiksborg and Roskilde counties.

## Germany

Five different omnibus surveys were carried out in Germany, all of which have been combined with a total number of 6,154 respondents in the age group 18 and more.

As mentioned in chapter 2, the sample unit in Germany is the household, though only one person per household was interviewed, even though several might have satisfied the selection criteria. This ensures that the probability of selection for households is the same, which, however, it is not at the individual level. In order to obtain a representative sample at the individual level, Infratest Sozialforschung adjusts for this problem in their standard weighting, which is also adjusted for non-response with regard to sex, age and region.

Appendix tables 3 and 4 show the distribution of the 6,154 respondents and the German population as a whole by sex and age. The difference between the two tables is that the figures are weighted in table 4 but not in table 3. The sample population here is everyone over 17.

**Appendix table 3: Respondents in the German omnibus surveys and the whole population, by age and sex. %. (Unweighted)**

	Respondents in the omnibus surveys 18 and over			Whole population, 31/12-1998 18 and over		
	Men	Women	Total	Men	Women	Total
18-24	9.7	9.0	9.3	10.1	9.0	9.5
25-44	34.6	38.8	37.0	41.5	36.4	38.9
45-59	24.3	22.0	23.0	25.0	22.9	23.9
60-64	10.8	7.6	9.0	8.1	7.9	8.0
65+	20.6	22.5	21.7	15.3	23.8	19.7
Total	100	100	100	100	100	100
%	44.8	55.2	100	48.2	51.8	100
	-----number-----			-----number, 1,000-----		
	2,756	3,398	6,154	31,922	34,371	66,292

Source: Statistisches Bundesamt: *Statistisches Jahrbuch 2000*, table 3.10 and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

Not surprisingly, there are big differences between the two tables. The distribution by sex differs by 3.4 percentage points in the unweighted distribution, against 0.4 percentage points in the weighted distribution. Much of this difference can be attributed to the fact that the sample unit is the household, which does not ensure an equal distribution between the sexes.

**Appendix table 4: Respondents in the German omnibus survey and the whole population, by age and sex. Percent. (Weighted)**

	Respondents in the omnibus surveys 18 and over			Whole population, 31/12-1998 18 and over		
	Men	Women	Total	Men	Women	Total
18-24	10.8	10.2	10.5	10.1	9.0	9.5
25-44	37.9	34.8	36.3	41.5	36.4	38.9
45-59	25.7	21.1	23.3	25.0	22.9	23.9
60-64	8.8	8.4	8.6	8.1	7.9	8.0
65+	16.8	25.5	21.3	15.3	23.8	19.7
Total	100	100	100	100	100	100
%	47.8	52.2	100	48.2	51.8	100
	-----number-----			-----number, 1,000-----		
	2,855	3,123	5,977	31,922	34,371	66,292

Source: Statistisches Bundesamt: *Statistisches Jahrbuch 2000*, table 3.10, and the Rockwool Foundation Research Unit

Note: Due to rounding, the sum of the percentages can be different from 100.

As can be seen, the age distribution also varies a lot. In appendix table 3, the most marked difference is the overrepresentation of the 60-64-year-olds and underrepresentation of the oldest. In appendix table 4, on the other hand, there is an overrepresentation of the 18-24-year-olds of 1 percentage points and an underrepresentation of the 25-44-year-olds of 2.6 percentage points.

**Appendix table 5: Respondents in the German omnibus surveys and the whole population, by age and geography. %. (Unweighted)**

	Respondents in the omnibus surveys 18 and over			Whole population, 31/12-1998 18 and over		
	West Ger- many	East Ger- many	Total	West Ger- many	East Ger- many	Total
18-24	8.8	11.4	9.3	9.3	10.5	9.5
25-44	37.8	33.5	37.0	39.2	37.5	38.9
45-59	23.0	23.2	23.0	23.8	24.5	23.9
60-64	8.7	10.6	9.0	7.9	8.4	8.0
65+	21.7	21.3	21.7	19.9	19.1	19.7
Total	100	100	100	100	100	100
%	80.4	19.6	100	81.2	18.8	100
	-----number-----			-----number, 1,000-----		
	4,947	1,207	6,154	53,821	12,471	66,292

Source: Statistisches Bundesamt: *Statistisches Jahrbuch 2000*, table 3.10 and the Rockwool Foundation Research Unit

Note: Due to rounding, the sum of the percentages can be different from 100.

Appendix tables 5 and 6 look at the distribution of respondents in the German omnibus surveys and the whole population by age and the two geographical regions, West and East Germany.

The distribution in the omnibus survey is roughly the same as for the population as a whole. As can be seen in appendix table 5, West Germany, with 80.4%, is slightly underrepresented, the corresponding figure for the whole population being 81.2%. In the weighted distribution, the distribution of respondents for West Germany is slightly more underrepresented.

**Appendix table 6: Respondents in the German omnibus surveys and the whole population, by age and geography. Percent. (Weighted)**

	Respondents in the omnibus surveys 18 and over			Whole population, 31/12-1998 18 and over		
	West Ger- many	East Ger- many	Whole country	West Ger- many	East Ger- many	Whole country
18-24	10.3	10.9	10.5	9.3	10.5	9.5
25-44	36.3	36.3	36.3	39.2	37.5	38.9
45-59	23.3	23.2	23.3	23.8	24.5	23.9
60-64	8.4	9.4	8.6	7.9	8.4	8.0
65+	21.6	20.2	21.3	19.9	19.1	19.7
Total	100	100	100	100	100	100
%	79.7	20.3	100	81.2	18.8	100
	-----number-----			-----number, 1,000-----		
Number	4,767	1,211	5,977	53,821	12,471	66,292

Source: Statistisches Bundesamt: *Statistisches Jahrbuch 2000*, table 3.10 and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

### Great Britain

As in the German omnibus surveys, the sample unit in Great Britain is the household. One person per household was interviewed, even though several might have satisfied the selection criteria. As mentioned above, this ensures that the probability of selection for households is the same, which, however, it is not at the individual level. In order to obtain a representative sample at the individual level, National Statistics adjust for this problem in their standard weighting. Unlike in Germany, the weighting for Great Britain does not adjust for non-response, but only for unequal probability of selection.

Appendix table 7 shows the distribution of the 1,625 respondents in the British omnibus survey by age and sex in relation to the population as a whole. The sample population here consists of the 16-74-year-olds.

**Appendix table 7: Respondents in the British omnibus survey and the whole population, by age and sex. Percent. (Weighted)**

	Respondents in the omnibus survey 16-74-year-olds			Whole population, 31/12-1998 16-74-year-olds		
	Men	Women	Total	Men	Women	Total
16-29	23.7	22.7	23.1	25.5	24.2	24.8
30-44	31.7	32.6	32.2	32.0	31.0	31.5
45-59	25.5	26.5	26.0	25.4	25.6	25.5
60-64	7.3	7.0	7.2	6.5	6.8	6.7
65-74	11.8	11.2	11.5	10.6	12.3	11.5
Total	100	100	100	100	100	100
%	48.3	51.7	100	50.0	50.0	100
	-----number-----			-----number, 1,000-----		
	785	840	1,625	20,942	20,897	41,839

Source: Office for National Statistics: *Annual abstract of statistics 2001 edition* and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

Based on the age variable alone, there is a good match between the distribution in the omnibus survey and the whole population, though there are slight disagreements with the 16-29-year-olds, who are underrepresented by 1.7 percentage points. The distribution by sex shows that, for the respondents, men are underrepresented by 1.7 percentage points.

Appendix table 8 shows the distribution of the respondents and the whole population by seven geographical regions.

The distribution for the omnibus survey is biased in relation to that for the whole population. As can be seen, the biggest differences are in Eastern England and London, which are over- and underrepresented by 3.5 percentage points respectively. There is a good match for Wales, however, with 4.8% of respondents from Wales against 5.0% for the whole population.

**Appendix table 8: Respondents in the British omnibus survey and the whole population, by region (16-74-year-olds). %. (Weighted)**

	Respondents in the omnibus survey 16-74-year-olds	Whole population. Estimated for mid-1999. 16-74-year-olds
	Total	Total
Northern England	26.8	25.0
Eastern England and the Midlands	29.5	26.0
London	9.2	12.7
Southeast England	12.4	13.9
Southwest England	9.2	8.4
Wales	4.8	5.0
Scotland	8.1	9.0
Total	100	100
Number	1,625	41,940

Source: Office for National Statistics: Population summary (series VS no.26, PP1 no.22) and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

### Sweden

Appendix table 9 shows the distribution of the 2,181 persons in the Swedish omnibus survey by age and sex. The sample population are the 18-74-year-olds. As can be seen, based on age alone, there is an underrepresentation in the 18-24 age group of 1.5 percentage points and overrepresentation in the 45-64 age group of 1.3 percentage points. Based on sex, there is a small overrepresentation of men and a corresponding underrepresentation of women. This bias is especially due to an overrepresentation of men over 45.

**Appendix table 9: Respondents in the Swedish omnibus survey and the whole population, by age and sex. Percent**

	Respondents in the omnibus survey. 18-74-year-olds			Whole population, 31/12-1998. 18-74-year-olds		
	Men	Women	Total	Men	Women	Total
18-24	9.6	11.6	10.6	12.2	11.9	12.1
25-44	41.0	38.6	39.7	40.3	39.0	39.6
45-64	37.1	37.2	37.2	36.0	35.8	35.9
65-74	12.3	12.6	12.5	11.4	13.3	12.4
Total	100	100	100	100	100	100
%	49.2	50.8	100	48.9	51.1	100
	-----number-----			-----number, 1,000-----		
	1,074	1,107	2,181	3,077	3,050	6,127

Source: Statistics Sweden: *Statistical yearbook 2000* and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

Appendix table 10 shows the distribution of the 1,986<sup>57</sup> respondents in the 18-74 age group in the Swedish omnibus survey and the whole population by four geographical regions.

**Appendix table 10: Respondents in the Swedish omnibus survey and the whole population, by region (18-74-year-olds). Percent**

	Respondents in the omnibus survey 18-74-year-olds Total	Whole population, 31/12-00. 18-74-year-olds Total
Stockholm	20.0	20.8
Southern Sweden	33.4	30.9
Central Sweden	35.6	38.2
Northern Sweden	11.9	10.1
Total	100	100
	-----number-----	-----number, 1,000-----
	1,986	6,492

Source: Statistics Sweden: <http://www.scb.se/befovalfard/befolkning/befstor/befarlig/befarligkomtab.asp> and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

<sup>57</sup> The lower number of respondents is due to the fact that, in the case of 195 respondents, the county was not stated.

As can be seen, there are small differences between the distribution of respondents by region and that for the whole population. Southern and Northern Sweden are slightly overrepresented, with 33.4% and 11.9% respectively, against 30.9% and 10.1% for the whole population. Central Sweden, on the other hand, is underrepresented by 2.6 percentage points.

## Norway

Appendix table 11 shows the distribution of the 2,686 respondents in the Norwegian omnibus surveys and the whole population by age and sex. The age group here are the 16-79-year-olds. Based on the age variable alone, there is a slight overrepresentation of the under-24s and a underrepresentation of the over-65s. Thus, the Norwegian survey is the only one in this study where the oldest age group is underrepresented.

Based on sex alone, there is a good match, 50.3% and 49.7% of respondents in the Norwegian omnibus surveys being men and women respectively, against 50.0% for the whole population.

**Appendix table 11: Respondents in the Norwegian omnibus surveys and in the whole population, by age and sex. Percent**

	Respondents in the Omnibus surveys 16-79-year-olds			Whole population, 1/1-2002. 16-79-year-olds		
	Men	Women	Total	Men	Women	Total
16-24	15.9	14.9	15.4	14.8	14.2	14.5
25-44	41.9	41.9	41.9	40.2	38.7	39.4
45-64	30.4	30.0	30.2	32.3	31.6	32.0
65-79	11.8	13.2	12.5	15.2	15.5	14.1
Total	100	100	100	100	100	100
%	50.3	49.7	100	50.0	50.0	100
	-----number-----			-----number, 1,000-----		
	1,351	1,335	2,686	1,681	1,680	3,361

Source: Statistics Norway: [www.ssb.no](http://www.ssb.no) and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

Appendix table 12 shows the geographical distribution of the respondents and the Norwegian population as a whole. As can be seen, the respondents are underrepresented in the Oslo and Akershus region, but slightly overrepresented in Trøndelag. In general, there seems to be a good match, there being no great differences between the distribution of respondents compared with that for the whole population.

**Appendix table 12: Respondents in the Norwegian omnibus surveys and in the whole population, by region. Percent**

	Respondents in the omnibus surveys 16-79-year- olds	Whole population, 1/1-2002. 16-79-year-olds
	Total	Total
Oslo and Akershus	19.6	22.3
Hedmark and Oppland	8.3	8.3
Rest of Eastern Norway	19.6	19.5
Agder and Rogaland	14.5	13.8
Western Norway	17.8	17.2
Trøndelag	9.3	8.7
Northern Norway	10.8	10.2
Total	100	100
	-----number-----	-----number-----
	2,686	3,361,511

Source: Statistics Norway: *www.ssb.no* and the Rockwool Foundation Research Unit.

Note: Due to rounding, the sum of the percentages can be different from 100.

### Summary

From the analyses of appendix tables 1-12, it can be concluded that there is a generally good agreement between the distribution of the respondents in the omnibus surveys and the population in the country concerned.

In general, the younger age groups are slightly underrepresented, while the older age groups are typically overrepresented. The problem here is that the young, as opposed to the old, are often not at home. This has also been found in Denmark for other types of questionnaire surveys, cf. Gunnar Viby Mogensen & Poul Chr. Matthiessen (2000) and Jørgen Goul Andersen (1998), and is thus not specific to the surveys on black activities here.

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## Index

### A

acquaintances; 38; 39; 40; 86  
 after-tax payment; 103  
 agriculture; 16; 17; 18; 89; 90; 106;  
 121; 127; 134; 135; 147  
 Aigner D. J.; 25  
 Allingham M. G.; 111  
 Andersen J. G.; 67; 116; 118; 124;  
 158  
 Apel M.; 21; 58  
 apprentices; 101  
 auditing of tax returns; 20  
 Austria; 22; 67

### B

Baden-Württemberg; 61; 62  
 Barthelemy P.; 67  
 Belgium; 26  
 Benton L.; 56  
 binding agreement; 46; 47; 52; 140  
 black economy; 11; 12; 13; 14; 15;  
 16; 17; 18; 22; 24; 25; 31; 60; 71;  
 81; 84; 86; 96; 103; 104; 106;  
 107; 108; 111; 113; 127; 130;  
 137; 138; 139; 143  
 black labour market; 58; 113  
 black market; 19; 21; 30; 57; 58;  
 65; 66; 67; 68; 69; 70; 71; 72; 77;  
 79; 83; 84; 85; 87; 89; 91; 96;  
 103; 111; 118; 124; 143  
 black wages; 13; 31; 55; 61; 84; 85;  
 86; 87; 89; 90; 92; 95; 96; 106;  
 107; 108; 113; 130; 140; 143  
 Blades D.; 15  
 bribery; 11  
 Brodersen S.; 37; 62; 71; 127  
 building repairs; 17  
 building starts; 17; 18  
 Bundesanstalt für Arbeit; 45

Bundesländer; 128; 129; 130; 136;  
 148

Børsen; 115

### C

Canada; 50  
 car repairs; 16; 17; 34; 41; 46; 122  
 cash; 25; 27; 28; 29; 30; 33; 38; 39;  
 40; 42; 46; 47; 52; 67; 84; 89;  
 109; 138; 140  
 censuses; 25  
 central personal registration system;  
 73; 92; 113; 132  
 cheque; 27; 29  
 cleaning; 16; 34; 57; 89; 122; 125  
 Clement S. L.; 67; 124  
 construction industry; 35; 45; 89;  
 90; 96; 120; 121; 126; 127; 134;  
 135; 143; 146; 147  
 consumer surveys; 17; 21; 22; 58;  
 80  
 consumption; 17; 21; 23; 81  
 Contini B.; 25  
 Conway K. S.; 72; 78  
 Copenhagen; 150  
 corruption; 11  
 Cowell F. A.; 11; 13; 21; 29; 137;  
 138  
 cpr-number; 73; 92; 113  
 credit card; 27; 30  
 currencies; 30; 85  
 Customs and Tax Administration;  
 67

### D

Dalgaard E.; 14; 17; 24; 25  
 Danish Confederation of Industries  
 (DA); 109  
 Danish National Council of  
 Economic Advisors; 22; 91

Danish National Institute of Social Research; 36; 37  
 Dankort; 30  
 Danmarks Nationalbank; 30  
 Dansk Arbejdsgiverforening; 73  
 deductions; 14; 15; 16; 18; 20; 21; 30; 38; 59; 62; 113; 114; 119; 134; 138; 139; 146  
 definitions; 12; 13; 14; 15; 16; 23; 28; 31; 62  
 Det Økonomiske Råd; 22; 91  
 Dilnot A.; 21  
 direct question; 36; 48  
 Directorate of the Unemployment Insurance; 67  
 discrepancy; 23; 24; 110  
 disposable income; 25  
 dividends; 17; 107; 108  
 do-it-yourself (DIY); 14; 16; 17; 36; 37; 60; 62; 71; 127  
 drug-dealing; 14; 15; 139

**E**

earnings; 37; 44; 85; 96; 113; 125; 143  
 East Germany; 80; 95; 101; 127; 128; 129; 130; 135; 136; 148; 152; 153  
 ECB; 85  
 economic activities; 12; 13; 14; 16; 18; 44; 103; 130; 137; 138; 144  
 employment; 25; 26; 45; 60; 62; 63; 67; 69; 70; 121; 124; 134; 147  
 ENS95; 17; 23; 24  
 ESA; 14  
 EU; 11; 14; 17; 24; 31; 89; 119; 120  
 Eurostat; 31; 104; 105; 106; 121; 129

**F**

face-to-face interviews; 20; 49; 50; 52; 61; 128  
 FDM; 16  
 Feige E. L.; 56

firm; 19; 38; 45; 46; 55; 117  
 Focus; 60; 65; 68; 128  
 Foreningen af Statsautoriserede Revisorer; 35  
 formal ("white") market; 18; 30; 44; 70; 80; 84; 85; 86; 87; 95; 96; 103; 106; 111; 131; 142; 143; 145  
 formal economy; 11; 15; 16; 28; 73; 92; 103; 104  
 France; 22; 25  
 Frey B. S.; 24; 25; 26; 27  
 friendly turn; 29; 34; 35; 36; 40; 46; 63; 84; 89  
 full market price; 19  
 full time black activities; 115; 132

**G**

Gaertner W.; 56  
 Gallup; 124  
 Geld idee; 62  
 Geringfügigen Beschäftigung; 49  
 Gesetz zur Bekämpfung der Schwarzarbeit; 45  
 Gesetzes zur Erleichterung der Bekämpfung von illegaler Beschäftigung und Schwarzarbeit; 45  
 Gini coefficient; 91; 93; 97; 144  
 GNP; 11; 17; 22  
 Goldstein H.; 56; 57; 58; 81; 86; 108; 110  
 Gutmann P. M.; 67

**H**

Hansen H.; 69  
 Hansen W. G.; 56  
 health insurance; 49  
 Helberger C.; 62  
 hidden activities; 19  
 hidden assets; 29  
 hidden economy; 56  
 Holland; 22; 55; 56; 63

hotels and restaurants; 90; 121; 126;  
127

## I

IFAK; 60; 68; 128  
illegal activities; 15; 16; 139  
illegal transactions; 16  
illicit distilling; 15  
illicit work; 62  
income statistics register; 73; 113  
indicator variables; 26  
indirect methods; 20; 21  
industrial classification; 89; 90; 119  
informal economy; 15; 16  
Infratest Sozialforschung; 49; 50;  
101; 140; 151  
Inland Revenue; 17; 20; 21; 30; 35;  
36; 38; 40; 41; 114; 138  
Institut für Demoskopie Allensbach;  
60  
Institut für Wirtschaftsforschung  
Tübingen; 60  
interview situation; 36  
interview surveys; 49; 59; 63  
interviewee; 63  
interviewer; 36; 37; 38; 43; 61; 72  
interviewer effect; 37  
interviewer instructions; 35; 36; 39;  
40; 43; 44  
Isachsen A. J.; 29; 50; 56; 57; 65;  
75; 81; 86; 107; 108; 110  
ISTAT; 25  
Italy; 22; 25  
item non-response; 51; 52; 65  
Ivarsson, S.; 58

## J

Japan; 27  
Japsen, A.; 60; 62

## K

Kazemier B.; 50; 63; 88  
Kimmel J.; 72; 78  
Klovland J. T.; 27; 28

Kolding H. E.; 35

## L

labour force survey; 18; 25; 104;  
105; 120; 126  
labour market; 19; 37; 71; 82; 115;  
119; 132; 134; 146; 148  
Lamnek S.; 61; 62; 127; 128; 130  
Landsskatteretten (Danish National  
Tax Tribunal); 35  
Larsen C.; 17; 22; 23; 24; 110  
Laurin U.; 59; 64; 65  
Lemieux T.; 50  
length of education; 94; 141  
logistic regression; 70; 71; 74; 75  
loopholes; 19  
Lundager J.; 27; 28

## M

Malmer H.; 20; 21  
marginal tax; 70; 73; 75; 76; 79; 91;  
94; 113; 124; 132; 141; 142  
marginal tax, expanded; 113  
marginal taxes; 76; 91; 113  
marital status; 70; 74; 75; 78; 79;  
94; 141  
market economy; 15  
market gardens; 17  
market price; 104; 110; 130; 136;  
144; 148  
market research; 49; 59; 62; 140  
market value; 46  
MARPLAN; 62  
maximum equalisation percentage;  
91; 93; 97; 144  
media coverage; 57; 124  
Merz J.; 60; 62; 63; 65; 70; 77  
model approach; 20; 25  
monetary methods; 20; 25; 27; 29;  
31; 60; 131; 145  
Morris C. N.; 21  
Mummert A.; 60; 62; 65; 68; 127;  
128

**N**

NACE, rev 1; 89; 90; 119; 121; 126  
 national accounting; 15; 16  
 national accounts; 14; 15; 16; 17;  
 18; 20; 22; 23; 24; 31; 110; 148  
 neighbourliness; 36; 47  
 network; 67  
 New Cronos, Eurostat; 105; 120;  
 121  
 non-declared; 14; 15; 16; 18; 19;  
 23; 29  
 non-filers; 21  
 non-productive; 14  
 non-response; 13; 33; 34; 49; 50;  
 51; 52; 58; 72; 139; 151; 153  
 normal working hours; 60; 103;  
 104; 105; 109  
 nuclear family; 36

**O**

occupation; 41; 66; 70; 72; 73; 74;  
 75; 77; 78; 79; 80; 81; 82; 83; 87;  
 88; 94; 96; 128; 141; 143  
 OECD; 13; 14; 16; 25; 26; 27; 31;  
 85; 91; 114; 138  
 Office for National Statistics; 49;  
 50; 102; 140; 153; 154; 155  
 Ognedal T.; 56; 57; 58; 64; 65; 68;  
 74; 75; 81; 86; 108; 110  
 Olbrich G.; 61  
 omnibus surveys; 37; 49; 51; 69;  
 73; 104; 113; 120; 149; 150; 151;  
 152; 153; 157; 158  
 ordinary tax evasion; 19; 55; 62;  
 110; 131; 138; 145

**P**

Pahl R. E.; 67  
 paid in cash; 27; 29; 34; 44; 84  
 painting; 110  
 parallel; 30  
 participation rate; 20; 24; 25; 70; 91  
 pay-as-you-earn; 26

payment in kind; 33; 35; 36; 39; 42;  
 46; 109; 112  
 Pedersen, P. J.; 70; 73; 113  
 Pedersen, S.; 13; 22; 27; 28; 29; 31;  
 34; 64; 65; 66; 67; 70; 71; 72; 73;  
 83; 87; 93; 103; 113; 122; 124;  
 125  
 Pedersen, Susanne; 35  
 Pelzmann L.; 67  
 perceived; 71; 74; 75; 78; 80; 95;  
 115; 116; 119; 124; 125; 133;  
 134; 142; 146  
 personal gross income; 73  
 Persson A.; 20; 21  
 Pesut M.; 13; 14; 22  
 pilot survey; 48; 49; 50  
 Pissarides C. A.; 21  
 police; 67  
 Pommerehne W. W.; 24; 25  
 postal giro; 30  
 postal questionnaire; 20; 59  
 price-times-volume; 16; 17; 106  
 principles; 15; 22  
 production boundary; 14; 16  
 production in households; 16  
 productive activities; 14; 138  
 productivity; 103; 104; 130; 144  
 prostitution; 14; 15; 18; 139  
 public administration; 107  
 public employees; 26  
 public regulation; 26  
 public sector; 15; 57  
 purchase black activities; 57; 61; 62  
 Pyle D. J.; 24; 25; 26; 27

**Q**

question design; 31; 33; 40; 49; 50;  
 56; 64; 68; 80; 87; 107; 108; 109;  
 123; 137; 139  
 questionnaire surveys; 12; 13; 15;  
 18; 19; 29; 30; 33; 34; 35; 36; 51;  
 53; 55; 56; 57; 58; 93; 110; 131;  
 137; 139; 140; 145; 158

quid pro quo; 29; 33; 34; 35; 39; 40;  
42; 47; 48; 52; 63; 64; 84; 86; 89;  
140

## R

reciprocal favours; 38  
regional differences; 74; 76; 127;  
130; 135; 147  
regional variation; 74; 75; 76; 79;  
95; 130; 142  
register data; 73; 92  
regression analysis; 75  
relief organisations; 14  
Renooy P.; 56; 58  
response rate; 13; 33; 34; 49; 50;  
51; 52; 53; 59; 61; 62; 139; 140  
retail trade; 17  
Riksrevisionsverket; 12; 38; 39; 58;  
64; 76; 104; 105; 137  
Riksskatteverket; 58; 59; 64; 66; 76  
risk; 11; 29; 71; 74; 75; 76; 77; 78;  
80; 95; 98; 99; 100; 101; 102;  
111; 112; 115; 116; 119; 124;  
125; 133; 134; 142; 146  
robbery; 15  
Rockwool Foundation Research  
Unit; 12; 13; 15; 18; 30; 36; 38;  
39; 48; 58; 106; 107; 109; 114;  
115; 123; 124; 127; 137; 149;  
150; 151; 152; 153; 154; 155;  
156; 157; 158

## S

sample; 17; 21; 50; 51; 53; 59; 60;  
61; 101; 102; 109; 149; 151; 153;  
155  
savings; 21  
Schneider F.; 27; 28; 30; 60; 62; 65;  
68; 127; 128; 131; 145  
Schwarzarbeit; 45; 47; 60; 61; 62;  
68; 108  
Schäfer W. J.; 61  
second job; 60; 63; 72; 78

self-employed; 19; 21; 38; 46; 55;  
66; 67; 73; 74; 75; 79; 82; 87; 94;  
95; 96; 141; 142; 143  
selling; 34  
Semo Group Info Data AB; 59  
sensitive questions; 37  
services; 15; 16; 18; 34; 35; 36; 39;  
40; 44; 45; 58; 63; 70; 89; 90; 96;  
107; 122; 143  
shadow economy; 13; 14; 15; 18;  
19; 20; 21; 24; 25; 26; 27; 28; 29;  
30; 31; 33; 44; 56; 58; 60; 110;  
131; 138; 139; 145; 148  
Simon C. P.; 20  
Skatteministeriet; 13  
skilled work; 66; 70; 73; 74; 75; 79;  
94; 96; 113; 125; 141; 143  
Smith, N.; 70; 72; 73; 103; 113; 122  
Smith, S.; 60  
SNA; 14; 15; 23; 24  
social contributions; 49; 61; 62; 63;  
115; 132; 133; 134; 146; 148  
social fraud; 116; 117; 130; 133  
social network; 71; 76; 77; 79; 95;  
142  
social security; 45; 85  
Sozio-oekonomische Panel; 49  
Spain; 55  
Sporstøyl J. O.; 86  
Statistics Denmark; 17; 18; 30; 31;  
36; 37; 49; 73; 92; 104; 105; 106;  
107; 109; 113; 122; 126; 131;  
140; 145; 149; 150  
Statistics Norway; 49; 140; 157;  
158  
Statistics Sweden (Statistiska  
centralbyrån); 49; 51; 140; 156  
Statistisches Bundesamt; 151; 152;  
153  
Stetkær K.; 16; 23  
Strøm S.; 29; 51; 56; 57; 65; 75; 81;  
86; 107; 108; 110  
students; 63; 66; 74; 75; 77; 79; 84;  
94; 141  
System of National Accounts; 14

**T**

Tanzi V.; 22; 25; 27; 56  
 tax assessment; 34; 35; 112  
 tax authorities; 17; 18; 19; 20; 21;  
 33; 38; 39; 42; 44; 46; 55; 59; 73;  
 114; 116; 124; 125; 132; 133;  
 135; 139; 147  
 tax avoidance; 19; 59  
 tax burden; 12; 13; 23; 26; 28; 111;  
 114; 115; 124; 127; 131; 132;  
 135; 138; 147; 148  
 tax control; 115; 133  
 tax evasion; 11; 16; 18; 19; 20; 21;  
 22; 23; 26; 29; 30; 33; 38; 39; 44;  
 48; 55; 59; 62; 65; 75; 110; 112;  
 116; 117; 124; 125; 131; 133;  
 137; 138; 139; 145  
 tax inspectors; 112  
 tax legislation; 12; 34; 42; 46; 47;  
 52; 55; 137  
 tax rate; 112; 113; 124  
 tax rate, average; 113  
 telephone interviews; 20; 49; 50; 59  
 Tengblad Å.; 15  
 Thage B.; 17  
 theft; 15  
 Thomas J. J.; 50; 56  
 time spent on black activities; 80;  
 81; 94; 141  
 trade; 17; 39; 44; 45; 114  
 transfer income; 14; 15; 16; 18;  
 138; 139  
 Tuftte P. A.; 29; 56; 57; 58; 65; 74;  
 75; 86

**U**

under-declaration; 15

underground economy; 13; 31  
 unemployed; 67; 68; 69; 71; 72; 77;  
 78; 79; 83; 88; 94; 95; 98; 100;  
 101; 102; 141; 142  
 unemployment; 11; 25; 30; 67; 68;  
 69; 71; 72; 73; 76; 77; 78; 94; 98;  
 100; 101; 102; 114; 141  
 unemployment benefit; 67; 68; 69;  
 76; 94; 141  
 unemployment, length of; 70; 72;  
 73; 77; 78; 94; 141  
 USA; 20; 25; 30; 72; 78  
 Ussing N.; 22

**V**

value added; 14; 103; 130; 144  
 Van Eck R.; 63; 88  
 VAT; 15; 16; 18; 19; 30; 33; 34; 38;  
 39; 40; 55; 113; 138; 139  
 Viby Mogensen G.; 16; 19; 20; 21;  
 23; 24; 26; 28; 29; 30; 36; 37; 48;  
 57; 62; 67; 70; 80; 81; 82; 103;  
 107; 109; 110; 112; 115; 122;  
 123; 124; 158

**W**

wage earners; 72  
 wage-earner household; 22  
 Wahlund R.; 59; 66  
 Weck-Hanneman H.; 25; 26; 27  
 Wenig A.; 56  
 West Germany; 61; 62; 77; 80; 95;  
 101; 109; 127; 128; 129; 130;  
 135; 136; 148; 152; 153  
 Witte A. D.; 20  
 Wolff K.; 60; 62; 63; 65; 66; 70; 77;  
 82; 87; 108; 109

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