

## “Black” Activities Low in Germany in 2006

About one in ten of the 18-74-year-olds in Germany carry out “black” activities (“Schwarzarbeit”), but apparently the black working week has been reduced since 2001 when the Rockwool Foundation Research Unit first investigated the extent and structure of black activities in Germany by means of interview surveys.

In ten waves of interviews carried out from April 2001 through September 2006, the rate of participation in black activities found varied between 7 and 12 percent. On average, about one in ten respondents had carried out black activities (within the previous 12 months) and there are no clear signs of a decrease or an increase.

The average black working week reported by respondents ranged from about 5½ hours in April 2005 to more than 10 hours in April 2001. The average for all interviews was 7½ hours a week but apparently with a downward trend.

This is shown in Table 1 where we have pooled the interviews carried out in each year to obtain larger sample sizes and reduce the impact of random fluctuations.

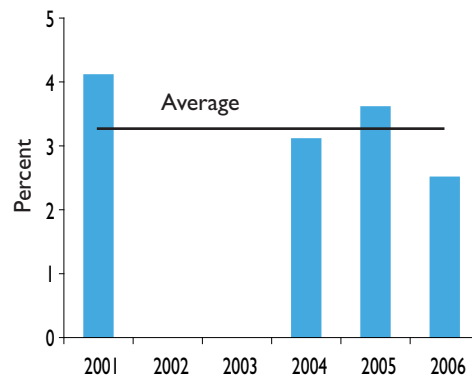
**TABLE 1**  
**Participation in black activities in Germany, 2001-2006.**

	Carried out black activities within the previous 12 months	
	Participation rates	Hours : minutes per week
2001	10.4	8 : 14
2004	8.8	7 : 30
2005	11.1	6 : 40
2006	7.2	7 : 16

Note: 18-74-year-olds.  
Source: The Rockwool Foundation Research Unit.

In Figure 1, we use participation rates and black working hours to calculate the proportion between black working hours and working hours in the formal economy.

**FIGURE 1**  
**Black activities as a percentage of Gross Domestic Product (GDP) in Germany, 2001-2006.**



Notes: Hours worked in the black economy as a proportion of hours worked in the formal economy. 18-66-year-olds.  
Source: The Rockwool Foundation Research Unit.

This is a way of measuring the extent of black activities in one single figure. The columns in Figure 1 may be considered estimates of the black economy as a percentage of the Gross Domestic Product (GDP). As the comparison is with the formal labor market, the age group used is 18-66 years.

As was to be expected based on a stable average participation rate and a falling number of hours worked, the figure shows a downward trend. It remains to be seen whether this trend will continue after the increase in VAT in 2007.

On page 3 we define “black” activities and explain the use of this term and on pages 4-11 we investigate the development in the German black economy since 2001 with respect to its size and structure. On page 12 we investigate whether increased audit rates and higher fines have been noticed by the public, and we look at possible changes in tax morale and other social norms.

*It remains to be seen whether the downward trend continues in 2007 after the increase in VAT.*

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*By Lars P. Feld, Prof. Dr. (Econ.), Ruprecht-Karls-University of Heidelberg, and  
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In this newsletter we supplement the descriptive evidence in *News from the Rockwool Foundation Research Unit June 2005* about black activities in Germany in 2001 and in 2004 with data collected in 2005 and in 2006. We would like to thank the German Ministry of Finance for funding the data collection in 2005, which extends the basis for comparison with 2001, and the Rockwool Foundation for providing the generous funding necessary for the project in its entirety. In carrying out this study, we have naturally maintained complete scientific independence in our relationships with the Ministry of Finance and with the Rockwool Foundation itself.

# Defining and Measuring “Black” Activities

The shadow economy, “black” activities, tax evasion – each type of potential tax cheating attracts considerable interest from policymakers, the public and scientists alike. However, there is much discussion as to the most acceptable way of “measuring the immeasurable” and how to define it, and the boundaries between black activities, the shadow economy, tax evasion and other terms used are not unambiguously defined in the literature, but vary depending on the context.

## Definition of “Black” Activities

In this newsletter, we only set out to measure a part of the total shadow economy, namely “**black**” activities. These are defined here as productive economic activities which are legal and taxable, but on which income tax, social security contributions, VAT, etc., are not paid, because they are not reported to the tax or customs authorities. Prices and wages can therefore be kept below what should have been paid at the formal market. Buyer and seller are both aware of the non-reporting, and both obtain a financial advantage in this way. Trade in goods and services, payments in cash and in kind, and significant exchanges of goods and services between friends and neighbors are included. Evasion which benefits only one party and activities which are in themselves illegal are not.

Black activities thus form a part of the domestic product which is not regularly or explicitly accounted for in the national accounts via official statistics, and which therefore has to be estimated. The survey method, in which representative samples of the population are directly asked if they have participated in such activities, is one way of doing this.

## Methods of Measurement

Because we only set out to measure a part of the total shadow economy, and because some of the persons interviewed are likely to understate their involvement in black activities, our estimates and the survey approach in general measure a lower limit of the shadow economy as well as of black activities. Another reason for this is that we only interview private individuals,

not firms. The more professional forms of black activity are therefore not fully captured. Neither is, for obvious reasons, the part carried out by illegal immigrants.

An upper boundary is provided by the indirect methods of measurement which use macroeconomic data to assess the size of the shadow economy. In recent years, such methods have produced estimates of the total shadow economy that are about four times larger than the part accounted for by black activities according to the estimates presented in this newsletter.

Part of the reason for this is the different definitions of undeclared work that are used in different research projects, but indirect methods are also criticized for overestimating the size of the shadow economy and for the fact that it is not clear what is actually measured. The advantage of the survey method lies in the details that can be obtained about well-defined parts of the shadow economy.

## About the Term “Black” Activities

We use the term “black” activities or “black” work because the questionnaire was designed to be used in Denmark and was later used in Norway and Sweden, where the general public are familiar with the term (“sort” arbejde). The direct translation into German is “Schwarzarbeit”, and there even is a “Law against Schwarzarbeit”. According to this law, working without paying taxes or social security contributions, failure by social security recipients to report obtaining job to the authorities, and working, supplying services, or running a business without proper registration are all considered black activities. Schwarzarbeit in the sense of the law thus covers more than black activities according to the definition we use in this newsletter.

*“Black” activities are defined here as productive economic activities which are legal and taxable, but on which income tax, social security contributions, VAT, etc., are not paid, because they are not reported to the tax or customs authorities. Prices and wages can therefore be kept below what should have been paid at the formal market. Buyer and seller are both aware of the non-reporting, and both obtain a financial advantage in this way.*

## The Rate of Participation in Black Activities

Turning to the results of the interviews, Table 2 shows that, in 2001, 10.4 percent of the respondents answered that yes, they had carried out black activities during the previous 12 months. This share decreased to 8.8 percent in 2004 only to increase to 11.1 percent the year after and then decrease again to a comparatively low level of 7.2 percent in 2006. It thus looks as if the participation rate varies around an average which would be almost exactly one in ten had it not been for the interviews carried out in 2006 which pull the average down. However, 2006 is based on only one wave of interviews, whereas two waves were carried out in both 2004 and 2005 and five waves in 2001.

TABLE 2  
Proportion of respondents who had carried out black activities within the previous 12 months by gender, age, and occupation.

	Carried out black activities			
	2001	2004	2005	2006
	%			
Men	14.5	13.4	13.9	9.0
Women	6.5	4.5	8.5	5.3
18-19-year-olds	16.6	24.3	13.9	8.8
20-29-year-olds	19.1	13.4	21.0	11.1
30-39-year-olds	13.2	12.2	13.3	11.2
40-49-year-olds	10.0	10.3	9.4	4.8
50-59-year-olds	7.4	5.1	8.5	7.6
60-69-year-olds	5.6	2.6	8.2	4.3
70-74-year-olds	1.0	3.0	2.9	1.3
Self-employed/ assisting spouses	12.1	1.7	9.9	16.2
Salaried employees	7.1	8.9	10.2	5.0
Skilled workers	19.2	16.6	13.8	13.7
Unskilled workers	8.2	8.9	14.0	6.9
Unemployed	20.7	17.1	19.1	7.0
Pensioners	4.2	3.6	6.3	3.2
Students	27.3	14.6	15.3	8.2
Other	8.7	6.1	10.8	6.3
Total	10.4	8.8	11.1	7.2
No. of persons	5,686	2,143	2,144	1,083

Note: 18-74-year-olds.  
Source: The Rockwool Foundation Research Unit.

Due to the extraordinarily low level of participation found on the basis of a relatively small sample, the results for 2006 must be interpreted with extra care. The results may suggest that both an actual change in the level of participation in black activities and (occasionally) a change in the respondents' readiness to answer questions about such activities honestly may be at work.

The interview surveys have been conducted in a period with increasing focus on tax evasion. In recent years, several steps have been taken to enhance tax compliance by raising the level of deterrence, mainly by increasing audit rates, but also by higher fines. These policies have been particularly aimed at fighting black activities although it is the stated goal of the German Federal Finance Ministry to fight tax evasion at all levels from the international capital markets to housekeeping services.

In July 2004, the German parliament even passed a "Law against Schwarzarbeit" and it is likely that the implementation of these policy measures, and the campaigns accompanying them, have had an impact on respondents' readiness to answer questions about black activities honestly. This is the experience from Danish surveys carried out before and after the introduction in 2004 of a "Fairplay campaign" against black activities. The Danish experience also suggests that this effect to a large extent is temporary and depends on the intensity and media coverage of the campaign.

If one looks at other waves of interviews in isolation there are fluctuations as well, but the overall participation rate is particularly low in 2006. In order to reduce the impact of random fluctuations as much as possible, and in order to compare results based on equal sample sizes and corresponding field periods over the year, we prefer to regard the interviews in 2004 and 2005 as one survey when we make comparisons with 2001. (Interviews were carried out in the months of April-October).

The results for 2006 should be regarded as tentative and, at most, as an indica-

tion that black activities do not appear to have increased between 2005 and 2006.

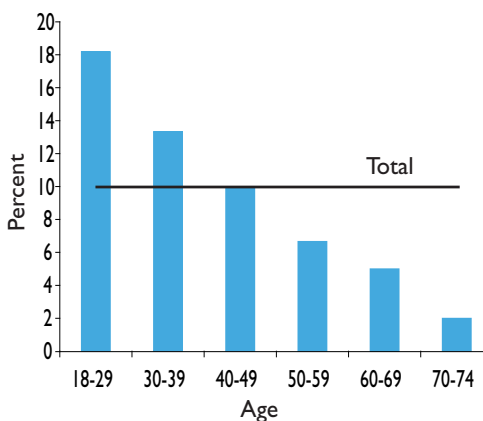
### Gender

In 2001, the participation rate for men (14.5 percent) was more than twice that for women (6.5 percent). In 2004/05, the picture was the same. The frequency decreased slightly, but not significantly, to 13.6 percent for men, and remained constant at 6.5 percent for women. However, if we look at 2004 and 2005 separately, we get quite different pictures for women as a result of a low level in 2004 and a high level in 2005. The overall participation rate for 2004/05 thus is practically the same as in 2001. The decline in 2006 is shared by men and women.

### Age

Like the overrepresentation of men, an above average rate of participation in black activities among younger people is part of a well-known pattern, and as shown in Figure 2, that is also what we find.

**FIGURE 2**  
**Proportion in various age groups who had carried out black activities within the previous 12 months, average 2001-05.**



Note: 18-74-year-olds.  
 Source: The Rockwool Foundation Research Unit.

On average, for the years 2001-05, one in five or six of the 18-29-year-olds, declining to one in 20 of the 60-69-year-olds, and one in 50 of the 70-74-year-olds had carried out black activities within the previous 12 months. The decline in 2006 is primarily among the 18-29-year-olds and the 40-49-year-olds.

### Occupation

As to black activities in different occupational groups, we find extremely marked reductions from 2001 to 2004 among the self-employed/assisting spouses and (from an exceptionally high level) students. However, the decrease found for the self-employed in particular is unlikely to solely reflect an actual change in the level of participation in black activities, despite the fact that an increase in deterrence in 2004 was mainly aimed at this group: it is likely that the respondents' readiness to answer such questions honestly decreased as well, at least temporarily, especially in 2004.

*In general, the highest participation rates are found among men, the 18-39-year-olds, skilled workers, the unemployed and students – 15-20 percent compared to 10 percent for the total population.*

This assumption may be further supported by the fact that participation for the self-employed increased to an even higher level in 2006 than in 2001. All other occupational groups except skilled workers experienced reductions in 2006.

Reductions in 2006 were most noteworthy among the unemployed from twice the average down to the average level. Students also reduced their participation further. Finally, the participation rate among salaried employees, unskilled workers and pensioners decreased, but less dramatically.

In general, the highest participation rates are found among skilled workers, the unemployed and students – 15-20 percent compared to 10 percent for the total population. The interviews in 2006 only confirm the role of skilled workers as an important group when it comes to black activities, whereas the unemployed and students do not stand out. On the other hand, the interviews in 2006 reintroduce the self-employed and assisting spouses as an important group. But, as mentioned, an important question to investigate is how much of the reduction from 2005 to 2006 (and from 2001 to 2004) was actually due to changes in the level of participation in black activities and how much was caused by other things.

# Black Working Hours

Those who reported that they had carried out black activities were asked about their average black working week within the previous 12 months (see Box 1). The average time per week spent on black activities fell from about 8¼ hours in 2001 to an average of 7 hours in the interviews carried out in 2004/05. As shown in Table 3, the black working week decreased to 7½ hours in 2004 and further to 6¾ hours in 2005, but then appears to have increased slightly again to 7¼ hours in 2006.

TABLE 3  
Average number of black hours worked per week by those who had carried out black activities within the previous 12 months by gender.

	Carried out black activities			
	2001	2004	2005	2006
	Hours : minutes per week			
Men	8 : 27	7 : 52	8 : 14	8 : 16
Women	7 : 51	6 : 46	4 : 28	5 : 58
Total	8 : 14	7 : 30	6 : 40	7 : 16
No. of persons who reported black working hours:	312	103	134	46

Note: 18-74-year-olds.  
Source: The Rockwool Foundation Research Unit.

Not everyone who had carried out black activities could say – or was willing to say – how much they did it. Only between 50 and 60 percent gave this information, and this, of course, introduces some additional uncertainty about the remainder. In 2006, the number of persons who answered the question was particularly low, because they come from one single wave of interviews. Any further breakdown, e.g. by age and occupation, would therefore be too sensitive to distortions due to outliers; information about a single individual could change the picture significantly.

## Gender

In general, women spend less time on black activities than men, and women also reduced the time they spent on such activities more than men did over the period of the surveys. In fact, men who carry out black activities have exhibited a rather stable average black working week of a little more than 8 hours, while women ap-

pear to have reduced their black working hours significantly during the period from just under 8 hours to 6¾ hours in 2004 and further to 4½ hours in 2005.

This downward trend seems to have been reversed somewhat in 2006, but we prefer not to put too much emphasis on the results based on only one single wave of interviews in 2006, with correspondingly few people who have carried out black activities. Instead, we concentrate on the interviews in 2004 and 2005 and regard them as one survey for comparisons with 2001.

The overall decrease in the black working week by 1¼ hours from 2001 to 2004/05 is thus due to a very significant reduction of time spent on black activities by women who carry out such activities and a more moderate reduction among men. However, about twice as many men as women carry out black activities, so even a modest reduction among men may have some influence on the average for all.

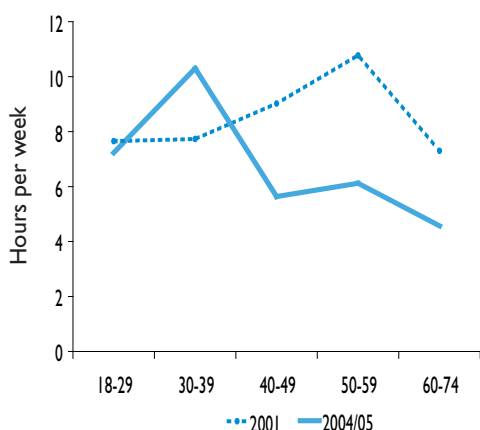
### Box 1. Calculation of the average black working week

Respondents who had carried out black activities were asked to state the average time per week spent on such activities. First, answers from those respondents who could give an exact number of hours in the range 1 to 70 (inclusive) were accepted and entered into the calculation of a weekly average for all 18-74-year-olds who had carried out black activities. Second, if the answer was not an exact number but, for example, “less than 1 hour” or “don’t know”, the respondents were given the possibility of stating the total number of hours spent during the last 12 months instead. If this resulted in a number of hours per week in the range 1 to 70 (inclusive), then that answer was entered into the calculation. Other respondents were assumed to have spent an amount of time corresponding to the average for all participants. The results obtained by using this method are shown in Table 3 on this page.

## Age

The average black hours worked per week by age group for those of the respondents who had carried out black activities within the previous 12 months are shown in Figure 3: figures for 2001 are indicated by the dotted line and for 2004/05 by the solid line.

**FIGURE 3**  
Average number of black hours worked per week by those who had carried out black activities within the previous 12 months by age.



Note: 18-74-year olds.

Source: The Rockwool Foundation Research Unit.

The 18-29-year-olds who participated in black activities worked about the same average number of black hours in 2004/05 as in 2001: between  $7\frac{1}{4}$  and  $7\frac{3}{4}$  hours. But then the lines for the two survey periods separate.

In spite of the overall decline in hours worked, the 30-39-year-olds increased their average number of hours worked and even did so considerably, by about  $2\frac{1}{2}$  hours to  $10\frac{1}{4}$  hours. They were in fact the only age group to show an increase. This means that they moved from a position just below the average to a position well above the average number of hours worked. Those aged 40 or older reduced their average number of hours worked by about 40 percent to  $5\frac{1}{2}$  hours, and thus moved from a position above the average to a position below the average. In consequence, the difference between the highest and the lowest numbers of hours worked increased even though the average number of hours worked decreased significantly.

In 2006, however, the 30-39-year-olds appeared to be back at the initial (2001)

level, but as mentioned previously this is based on relatively few respondents, and we will refrain from more detailed comments about 2006.

## Occupation

With respect to occupation, our calculations show that the average black working week was reduced for skilled workers by about one hour to  $6\frac{3}{4}$  hours between 2001 and 2004/05, for the unemployed by two hours to  $8\frac{1}{2}$  hours, and for pensioners by three hours to  $5\frac{3}{4}$  hours. The average black working week remained constant for salaried employees at a little more than 4 hours and for unskilled workers at  $8\frac{1}{2}$  hours. We refrain from commenting on the self-employed and students because these groups comprise relatively few individuals who answered the questions about time spent on black activities in the survey in 2004/05.

Average black working weeks in 2001 and 2004/05 for 18-74-year-olds in various occupational groups, for people who had carried out black activities within the previous 12 months, are shown in Table 4.

**TABLE 4**  
Average number of black hours worked per week by those who had carried out black activities within the previous 12 months by occupation.

	2001	2004/05
	Hours : minutes per week	
Unskilled workers	8 : 34	8 : 35
Unemployed	10 : 42	8 : 34
Total	8 : 14	7 : 01
Skilled workers	7 : 32	6 : 40
Pensioners	8 : 55	5 : 47
Salaried employees	4 : 03	4 : 15

Note: 18-74-year olds.

Source: The Rockwool Foundation Research Unit.

In 2006, skilled workers apparently reduced their black working week further, to 5 hours. However, this result is only tentative, and we refrain from any further comment about time spent on black activities by occupational groups in the 2006 survey.

## Black Wages

With information on the number of people participating in black activities and on the time they spend per week on such activities, we have figures about the quantity of black activities. However, in a national accounts context, for example, economic importance is determined by both the quantity *and* the actual price of black activities. It is therefore necessary to obtain information on the monetary valuation of black activities. As black activities according to our definition comprise work and sales for payments in cash, in kind and in the form of return services, we had to ask about both actual and hypothetical wages and prices. For the sake of convenience, we use “wages” as short for “wages and prices”.

### Form of Payment

Interestingly enough it turned out that the nominal hourly compensation for black activities remained virtually unchanged for services paid for in cash, whereas the estimated average hourly rate for services paid for in kind or in the form of return services, should these have been paid for in cash, increased compared to 2001. Black wages by form of payment are shown in Table 5.

TABLE 5

**Average black hourly wages by form of payment.**

	2001	2004	2005	2006
	Euro <sup>1)</sup>			
Cash	9.5	10.2	9.0	9.2
Quid pro quo <sup>2)</sup>	11.0	10.4	16.9	13.4
Cash and quid pro quo <sup>2)</sup>	10.4	10.5	10.5	10.5
Total	10.3	10.4	13.3	11.8
No. of persons who reported black wages:				
	346	130	143	94

Notes: 18-74-year-olds who had carried out black activities within the previous 12 months <sup>1)</sup> 2001: DEM converted to euro by using the average synthetic exchange rate. <sup>2)</sup> Quid pro quo: hypothetical wages.  
Source: The Rockwool Foundation Research Unit.

As can be seen from the table, the price of a quid pro quo was particularly high in 2005 compared with 2001, while the smaller survey in 2006 sets this hypothetical price halfway between the two. It is indeed to be expected that this hypothetical wage varies more than the

wage where people have received cash for their efforts. As mentioned previously, we prefer to pool the interviews carried out in 2004/05 instead of looking at 2004 and 2005 separately when we break the figures down further and compare them with 2001. Consequently, we will only mention results from the small survey in 2006 briefly and regard them as tentative.

In 2001, the average hourly rate for services paid for in cash was €9.50 compared with €9.70 in 2004/05, while those people who were paid both in cash and in kind received €10.40 in 2001 compared with €10.50 in 2004/05. On the other hand, the estimated (hypothetical) average hourly rate for services paid for in kind or by means of return services, should these have been paid for in cash, increased significantly from €11.00 to €13.60, and total average payment therefore increased from €10.30 to €11.90.

### Gender

For men, average hourly wages increased by €1.70 to €13.00, while wages for women increased by one euro to €9.40 from 2001 to 2004/05 (see Table 6). So – as in the official economy – women earn less than men in the black economy. The single wave of interviews in 2006 indicates a narrowing of the gender gap via a modest increase in the remuneration of women, but whether this reflects a real change is difficult to say. Too much emphasis on 2006 may turn out to lead to premature conclusions.

### Age

The remuneration structure appears to have become more equal across age groups. The 40-49-year-olds, who earned the highest average black hourly wages in 2001, actually experienced a decrease from €12.70 to €10.70 in 2004/05, while the 30-39-year-olds, who were second from the top in 2001, experienced an increase of €1.40 which was below the average increase for the rest of the groups. In 2001, the 40-49-year-olds earned about 50 percent more than the group with the lowest average hourly wages – the 60-74-

TABLE 6

### Average black hourly wages by gender, age, and occupation.

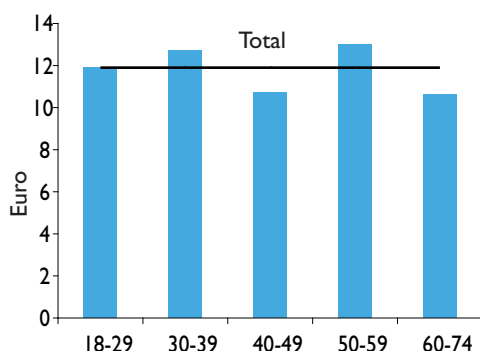
	2001	2004	2005	2006
	Euro <sup>1)</sup>			
Men	11.3	11.0	15.0	12.1
Women	8.4	8.7	10.0	11.1
18-29-year-olds	9.0	9.1	14.2	10.1
30-39-year-olds	11.3	11.9	13.7	12.8
40-49-year-olds	12.7	10.1	11.6	14.3
50-59-year-olds	9.7	10.9	13.8	11.4
60-74-year-olds	8.5	8.7	11.6	10.9
Self-employed/ assisting spouses	15.1	23.1	19.3	9.8
Salaried employees	14.6	11.5	19.6	13.5
Skilled workers	11.1	12.0	12.0	12.4
Unskilled workers	8.6	9.2	9.5	13.0
Unemployed	8.2	6.8	9.9	11.4
Pensioners	8.1	8.3	9.9	8.6
Students	8.4	11.3	10.2	11.7
Other	8.4	7.4	13.6	11.4
Total	10.3	10.4	13.3	11.8
No. of persons who reported black wages:				
	346	130	143	94

Notes: 18-74-year-olds who had carried out black activities within the previous 12 months 1) 2001: DEM converted to euro by using the average synthetic exchange rate. 2) Quid pro quo: hypothetical wages.  
Source: The Rockwool Foundation Research Unit.

year-olds – who earned about 8½ euro. In 2004/05, the difference between the highest and the lowest rate had decreased to 25 percent. In Figure 4, we show the wage distribution by age for 2004/05.

FIGURE 4

### Average black hourly wages by age, 2004/05.



Source: The Rockwool Foundation Research Unit.

## Occupation

The differences in black wages by occupation appear to be larger than the differences by age and gender. Because of the small number of observations, we refrain from saying anything about the wages of the self-employed and students. The most important group when it comes to the number of persons involved, the skilled workers, earned 11-12 euro in the black sector in all the years under consideration, including 2006, with a trend which if anything is slightly upward, while pensioners earned about 8-9 euro.

Unskilled workers and the unemployed were a little below the average in 2001 and in 2004/05, at 8½-9½ and about 8 euro respectively. In 2006, both these groups experienced a relative increase, but whether this is a real increase or just due to the small number of observations remains to be seen. Finally, salaried employees earned about 15-16 euro on the black labor market (in 2001 and 2004/05, but a little less in 2006).

In 2001, salaried employees were paid about 75 percent more than the group with the lowest average hourly wages – pensioners – when they carried out black activities. In 2004/05, the difference between the highest and the lowest rate – i.e. between salaried employees and the unemployed – had increased to almost 100 percent. Wages obviously reflect skills and opportunities.

Average black wages in 2001 and 2004/05 for 18-74-year-olds who had carried out black activities within the previous 12 months are shown in Table 7.

TABLE 7

### Average black hourly wages by occupation.

	2001	2004/05
Salaried employees	€14.60	€16.00
Skilled workers	€11.10	€12.00
Total	€11.30	€11.90
Unskilled workers	€ 8.60	€ 9.40
Pensioners	€ 8.10	€ 9.20
Unemployed	€ 8.20	€ 8.30

Source: The Rockwool Foundation Research Unit.

## The Extent of Black Activities

The participation rates, the time spent on black activities, and the actual wages and prices paid provide the means of estimating the total extent of black activities. The total number of hours spent on black activities as a proportion of the total number of hours worked in the formal economy in one year may be considered a measure of the black sector as a percentage of the Gross Domestic Product (GDP). This is on the assumptions that productivity is the same in the black sector as in the formal economy within the various trades and industries, and that overall average productivity or value added is the same across industries. This method is used for the calculations in Table 8. As the comparison is with the formal labor market, the age group is 18-66 years (inclusive).

TABLE 8

**Black activities as a percentage of Gross Domestic Product (GDP) in Germany, 2001-2006.**

	Carried out black activities	Work in the formal economy, total population	Black sector as a percentage of GDP	
	(1)	(2)	(3)	
	%	Hours per week	(1) x (2) / (3)	
2001	11.7	8.31	23.6	4.1
West	11.4	8.58	24.0	4.1
East	12.7	7.33	21.9	4.3
2004	9.6	7.56	23.4	3.1
West	8.5	7.65	23.5	2.8
East	13.9	7.37	23.2	4.4
2005	12.2	6.80	23.4	3.6
West	11.4	6.78	23.8	3.2
East	15.2	6.84	21.7	4.8
2006	7.6	7.40	22.1	2.5

Notes: Minutes are expressed as fractions of an hour. 18-66-year-olds.  
Source: The Rockwool Foundation Research Unit.

Figures are shown separately for 2004 and 2005 in the table, but if we regard 2004 and 2005 as one survey changes in participation rates and in working hours resulted in a 20 percent decrease in the extent of black activities in Germany, from 4.1 percent of GDP in 2001 to 3.3 percent in 2004/05.

The bottom row of Table 8 indicates a further decline to 2.5 percent in 2006, but this result is based on a small sample with unusually few people who reported having

carried out black activities. For this reason we do not show figures separately for East and West Germany for 2006.

While the rates of participation in black activities in West and East Germany were relatively similar in 2001 at 11.4 percent in West Germany and 12.7 percent in East Germany, a marked divergence has occurred since then. In 2004/05, 9.9 percent of the population in West Germany carried out black activities, while the figure was 14.6 percent in East Germany. The total number of black hours worked as a proportion of hours worked in the formal economy also developed in different directions: from 4.1 percent to 3.0 percent in West Germany and from 4.3 percent to 4.6 percent in East Germany. The overall decrease is thus due to a decrease in the size of the black sector in West Germany.

An alternative calculation of the size of the black sector based on black working hours and the actual average prices and wages paid gives a 10 percent decrease in the size of the black sector, from 27,903 million euro to, on average, 26,501 million euro, or from rather more than 1.3 percent of GDP in 2001 to an average of just under 1.2 percent in 2004/05. In 2006, the size of the black sector decreased further to 19.658 million euro or 0.85 percent of GDP.

If the number of black hours worked per year were "converted" to full-time jobs then 2,709 million hours worked in the black sector in 2001 would correspond to 1.63 million jobs in the formal economy. According to a study made in Denmark by the Rockwool Foundation Research Unit in 1999, about one third of these activities would be bought on the formal market if that was the only possibility. If the same distribution of alternatives to black activities applied to Germany, the impact would still amount to more than 500,000 jobs in 2001. Similarly, had all, on average, 2,227 million black hours worked in 2004/05 been worked on the formal market, it would have corresponded to 1.33 million full-time jobs each year – one third of which amounts to more than 440,000 jobs. In 2006, 1,666 million black working hours would correspond to about 990,000 full-time jobs – one third of which is 330,000.

## Industry

In 2001, the construction sector, which is an area that the German Finance Ministry focuses upon, accounted for 29 percent of the total number of black hours worked, and this share rose by one third to 39 percent in 2004/05 (see Table 9).

TABLE 9

### Black hours worked by industry.

	2001 <sup>1)</sup>		2004/05 <sup>1)</sup>
Construction	29%	Construction	39%
Agriculture etc. incl. gardening	15%	Financial services and business activities	12%
Public and personal services	15%	Sales and repairs	10%
Hotels/restaurants	8%	Public and personal services	9%
Financial services and business activities	7%	Agriculture etc. incl. gardening	8%
Transport and telecomm.	5%	Transport and telecomm.	8%
Sales and repairs	4%	Hotels/restaurants	4%
Manufacturing	1%	Manufacturing	1%
Not stated	17%	Not stated	8%
	100%		100%

Note: <sup>1)</sup> The columns may not total 100 due to rounding.  
Source: The Rockwool Foundation Research Unit.

Agriculture, fishing, and quarrying (including gardening), collectively also known as the primary sector of the economy, and public and personal services, the second and third most important sectors for black activities in 2001, both saw a reduction from 15 percent in 2001 to 8 and 9 percent respectively in 2004/05. Financial services and business activities, transport and telecommunications, and sales and repairs increased their importance to 8-12 percent making financial services and business activities the second most important industry sector for black activities in 2004/05 followed by sales and repairs.

The distribution of black activities may also be illustrated by looking at the number of black hours worked as a proportion of the number of working hours in the formal part of the economy in each industry. This is done in Table 10.

In 2001, the largest proportion was 17

TABLE 10

### Black hours worked as a proportion of working hours in the formal part of the economy by industry.

	2001		2004/05
Agriculture etc. incl. gardening	17%	Construction	17%
Construction	13%	Agriculture etc. incl. gardening	9%
Hotels/restaurants	8%	Hotels/restaurants	4%
Transport and telecomm.	3%	Transport and telecomm.	4%
Financial services and business activities	2%	Financial services and business activities	3%
Public and personal services	2%	Sales and repairs	2%
Sales and repairs	1%	Public and personal services	1%
Manufacturing	0%	Manufacturing	0%

Source: The Rockwool Foundation Research Unit.

percent in agriculture, fishing, and quarrying (including gardening) followed by 13 percent in construction and 8 percent in hotels and restaurants. Between 2001 and 2004/05 the proportion in the primary sector decreased to 9 percent.

Like the decrease found for the self-employed, the change in the primary sector is unlikely to reflect solely an actual change in participation in black activities. Due to an increase in deterrence aimed mainly at this group, it most probably also reflects a change in the respondents' readiness to answer questions about such activities honestly (an "announcement" effect).

In 2004/05, construction replaced the primary sector as the sector where black hours worked as a proportion of working hours in the formal part of the economy made up the largest percentage (17 percent), while the proportion decreased from 8 to 4 percent in hotels and restaurants. This made hotels and restaurants the third largest sector once again in 2004/05, now together with transport and telecommunications. The proportions in financial services and business activities, public and personal services, and sales and repairs vary between 1 and 3 percent, while the proportion in manufacturing is negligible.

# Deterrence and Social Norms

In recent years, several steps have been taken to enhance tax compliance by raising the level of deterrence that is particularly aimed at combatting black activities. In July 2004 the German parliament even passed a "Law against Schwarzarbeit" to fight black activities, mainly by increasing the intensity of control. Table 11 indicates that the German public has noticed these policy measures implemented since 2001, and the campaigns accompanying them, though perceptions have not changed dramatically.

TABLE 11  
Perceived risk of detection if carrying out black activities.

	Very high	Fairly high	Fairly small	Very small	Don't know/refusal	Total
	%					
2001	10.8	25.4	30.1	18.2	15.6	100
2004	9.4	29.7	32.3	15.1	13.5	100
2005	11.5	31.3	32.4	13.8	11.1	100
2006	12.1	28.6	29.3	16.5	11.0	100

Notes: 18-74-year-olds. No. of persons: see Table 2 on page 4.  
Source: The Rockwool Foundation Research Unit.

The group perceiving the risk as fairly high has increased from about 25 percent of respondents in 2001 to about 30 percent. 9-12 percent think the risk is very high.

Since 2004, we have also asked questions about the perceived size of sanctions. The answers are shown in Table 12.

The respondents appear to have been relatively realistic about the size of sanctions,

TABLE 12  
Expected sanction if a person has carried out black activities...

Year	Taxes due	Taxes due and a fine	Im-prisonment	Don't know/refusal	Total
	%				
	... to the value of 2,500 euro				
2004	19.9	51.2	4.9	24.0	100
2005	26.3	53.5	7.8	12.4	100
2006	31.7	38.7	- <sup>1)</sup>	26.6	100
	... to the value of 10,000 euro				
2006	11.7	47.3	12.2	28.1	100

Notes: 18-74-year-olds. No. of persons: see Table 2 on page 4. <sup>1)</sup> Prison was not suggested an option when the amount was 2,500 euro.  
Source: The Rockwool Foundation Research Unit.

but with 2005 as an exception there are also about 25 percent or more who do not know.

Factors other than deterrence policies may have an impact on black activities. In particular, the recent German tax reforms with reductions in income tax rates and the changes in labor market policy ("Mini-Jobs") might equally well have induced a smaller number of black working hours.

## Tax Morale and Other Social Norms

In the end, black activities are shaped by tax morale, and in 2004 and subsequent surveys, respondents were asked to place eight kinds of cheating behavior on a scale from 1 to 10 (see Table 13).

TABLE 13  
Average individual assessment of various kinds of cheating behavior.

	2001 <sup>1)</sup>	2004	2005	2006
	%			
Welfare without entitlement	-	1.6	1.7	1.6
Free riding on bus/ train	-	2.4	2.6	2.6
Black activities:				
Carrying out	-	3.5	4.0	3.8
Private for private	-	4.4	5.0	5.0
Firm for private	-	2.7	3.1	3.1
Private for firm	-	1.9	2.1	2.0
Firm for firm	-	1.7	1.9	1.8
Tax evasion	-	2.7	2.9	2.7

Notes: Average on a scale from 1 to 10 where 1 is absolutely unacceptable and 10 is absolutely acceptable. 18-74-year-olds. No. of persons: see Table 2 on page 4. <sup>1)</sup> Questions were not asked in 2001.  
Source: The Rockwool Foundation Research Unit.

It is quite accepted that a private household hires a private person to do black work, but the acceptance declines considerably the more that firms are involved. If the buyer is a firm then the activity is ranked like receiving welfare without entitlement, at the bottom of the scale of acceptability. If a private household hires a firm to do black work it is ranked like tax evasion and taking a free ride on public transportation. This may be compared with the proportions of the respondents who had not carried out black activities and would not be willing to do so either: 54.2, 61.9, 56.3 and 64.6 percent respectively in the four surveys.

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