

The Influence of the economic crisis on the underground economy in Germany and the other OECD-countries in 2010: a (further) increase

By Friedrich Schneider*¹⁾

1. Introduction

Since the worldwide economic crisis also affected the real economy in Germany; the official GDP declined by 5 percent in 2009 and unemployment increased too. In 2010 a moderate growth of 1,5% of the GDP is expected but unemployment will further increase. Against this background the extent of the underground economy in Germany and its development over time are once again the subject of intense debate, as many people will attempt to make up for loss of income in the official economy through greater participation in the underground economy. Furthermore, policy-makers are also considering how underground activities can be transferred into the official economy.

This paper reports on the development of the underground economy in Germany and in further 20 OECD countries since 1990 and provides first (and preliminary) calculations for 2010, taking the continuing economic crisis into account. As a result of the economic crisis, all OECD countries are again expected to face a renewed increase in the size of the underground economy for the second time in 2010 (first time in 2009).

The estimates of the size of the underground economy are based on a combination of the currency demand approach with the Multiple Indicators Multiple Causes (MIMIC) method. The basic idea behind the currency demand approach is that goods and services performed in the underground economy are paid for in cash and that, using a cash demand function, it is possible to estimate such goods and services performed in return for cash and thus to calculate the volume of the underground economy. The MIMIC approach is based on the idea that the underground economy is not a directly observable figure, but that it is possible to approximate it using quantitatively measurable causes of working in the underground economy (such as the tax burden and amount of regulation), and using indicators (such as cash, official working hours, etc.), in which underground economic activities are reflected.¹

*¹⁾ Prof. Dr. Friedrich Schneider, Department of Economics, Johannes Kepler University of Linz, A-4040 Linz-Auhof, Tel.: 0043-70-2468-8210, Fax: 0043-70-2468-8209, E-mail: friedrich.schneider@jku.at, <http://www.econ.jku.at/Schneider/>

¹ These methods (among others) are presented in detail and subjected to critical assessment in the following books: FRIEDRICH SCHNEIDER (2004), *Arbeit im Schatten: Eine Wachstumsmaschine für Germany? (Work in the shadows: an engine of growth for Germany?)*, Wiesbaden: Gabler Verlag; Friedrich SCHNEIDER and Dominik ENSTE (2002), *The Shadow Economy: An International Survey*, Cambridge (UK): Cambridge University Press.

As the MIMIC method only enables relative orders of magnitude of the underground economy of individual countries to be calculated, some values that were calculated with the help of the cash approach are necessary to convert the underground economy quantities into absolute values (in percentage of official GDP or in billions of euros).

2. Development of the underground economy over time up to 2010

Table 1 shows the development over time of the underground economy quantities estimated using this process for the three German-speaking countries in the period 1975 to 2010.

Table 1

2.1 Development of the underground economy in Germany from 1975 to 2010

Turning first to the development of the underground economy in **Germany**, following sharp increases up to the beginning of this decade, there was a decline from EUR 370 billion in 2003 to EUR 345.5 billion in 2006. In 2007, for the first time in three years, there was once again a rise in the underground economy compared with the previous year calculated at EUR 3.5 billion or 1 percent to EUR 349 billion; one important reason for this was the increase in Value Added Tax in 2007. However, as the official economy grew by just under 3 percent in nominal terms more than the underground economy, the ratio of the underground to the official economy continued to improve further even in 2007. While the value of the underground economy in relation to the official GDP was still 17.1 percent in 2003 and 15.0 percent in 2006, this ratio, at just under 14.7 percent, even returned to below the level of 1998 for the first time.

In 2008, thanks to the healthy economic environment, the underground economy shrank again by EUR 2.2 billion. A renewed rise in the underground economy took place in 2009 and will again take place in 2010 mainly due to the economic crisis and the continuing recession in Germany. The detailed results are set out in Table 2 for 2010.

Table 2

This table shows, based on the assumption of a rise in the unemployment rate of up to 600.000, that the economic crisis will lead to an increase in the underground economy of between EUR 7.6 billion and EUR 10.1 billion. The underground economy is also expected to fall slightly due to the 0.6 percentage point decrease in the health care insurance contribution rate. Against this, the introduction of minimum wages in some areas have a positive impact on the development of the underground economy in an amount of between EUR 200 million and EUR 400 million. A new law of tax deductions (*Bürgerentlastungsgesetz*) will reduce the shadow economy between EUR 900 and EUR 1.150 million. The net effect of all these measures is a rise in the underground economy of between EUR 6.4 billion and EUR 8.3 billion.²

2.2 Underground economy in Austria and Switzerland

In **Austria** the underground economy had grown from EUR 22.5 billion in 2003 to EUR 23.0 billion in 2004, a rise of 2.2 percent. One fundamental cause of the increase in the underground economy in 2004 was the continuously high burden of taxation and social

² It must be clearly pointed out that, based on the information available as of January 2010, it is still extraordinarily difficult to estimate the full extent of the economic crisis in Germany but also the effect of the new law of tax deductions (*Bürgerentlastungsgesetz*).

contributions following the restructuring of budget revenues in Austria in recent years. In 2005 the underground economy in Austria was only EUR 22.0 billion, that is it declined for the first time and fell by about EUR 1 billion, a drop of 4.35 percent compared with the previous year. The main cause of this decline was the reduction in direct tax rates that came into effect at the beginning of 2005. For 2007 and 2008 the figures for Austria again showed a slight reduction in the underground economy to EUR 20.80 billion (2007) and EUR 19.9 billion (2008). Due to the worldwide recession a renewed rise in the underground economy to EUR 20.5 billion, or 8.5 percent of official GDP took place in 2009. For 2010 a further increase of the shadow economy by 4.0% to EUR 21.32 billion is expected due to the **continuing** economic crises.

In **Switzerland**, as in Austria, a decline in the underground economy was observed for the first time from 2004 to 2005. It fell from SFR 39.5 billion in 2004 to SFR 38.7 billion in 2005, or a good 9 percent of GDP, and it dropped further to an estimated EUR 37 billion, or 8.5 percent of GDP in 2006. Among the reasons for the decline were stricter legal measures to combat the underground economy and in part a more attractive treatment of domestic services in the official economy. In 2007 and 2008 the underground economy shrank due to the healthy economic conditions and a package of measures from the Swiss federal government against moonlighting; in 2007 it fell to SFR 36.8 billion and in 2008 to *SFR 35.4 billion*. As in Germany and Austria, due to the world economic crisis, the underground economy grew in 2009 to SFR 36.4 billion or 8.3 percent of official GDP, and will further increase by 2.2% to SFR 37.2 or 8.34% in 2010.

2.3 International comparison of the extent of the underground economy

In order to make an international comparison of the size of the underground economy with other OECD countries, Table 3 presents the underground economy of 21 OECD countries up to 2010 (and Graph 4 shows the changes compared with 1997/98).

Table 3

Clearly shows Table 3 that the underground economy declined in most OECD countries from the end of the 1990s to 2008. The unweighted average of the underground economy in the 21 OECD countries in 1999/2000 was 16.8 percent and deduced to 13.3 percent in 2008, that is, a drop of fully 3.5 percentage points! Taking 1997/98 as the peak year for the underground economy in most OECD countries, the underground economy has declined continuously in 18 OECD countries. Only in Germany, Austria, and Switzerland did the growth in the underground economy persist somewhat longer and did not fall until 2003, or 2004, respectively. The decline in the underground economy from 1997/98 to 2009 measured as a proportion of GDP was greatest in Italy, with a drop of 5.3 percentage points, in Finland and Belgium with a fall of 4.7 percentage points, and in Sweden with 4.5 percentage points of GDP. The continuous decline of the underground economy in the OECD countries from 1997 to 2008 came to an end in 2009. With the beginning of the global economic crisis the underground economy grew in all 21 OECD countries. On average it amounted to 13.8 percent – a rise of 0.5 percentage points compared with 13.3 [*percent*] in 2008 –thus almost returning to the level of 2007. In 2010 we expect a further increase of all 21 OECD countries between 0.1 percentage points (Danmark, Ireland, etc.) and 0.3 percentage points (in Spain); the average will be 14.0% in 2010!

The size of Germany's underground economy places it in the mid-range for the OECD, while Austria and Switzerland are in the lower bottom third. The southern European countries have

underground economies that measure between 20 and 25 percent of official GDP and continue to be among the frontrunners. The Scandinavian countries are next with underground economies measuring between 15 and 16 percent.

3. Sector breakdown of the underground economy for Germany and Austria

A breakdown of the underground economy into economic and service sectors is given for Austria and Germany in Table 4.

Table 4

This shows that in 2010 according to forecasts, the construction sector and skilled manual trades account for about 38 percent of the volume of the underground economy (39% for Austria), followed by the ones of other trades and industries (e.g. car services) and services (hotels, restaurants, etc.) with 17 percent each (16 percent). Miscellaneous trades and domestic services (such as private tuition, hairdressing, or babysitting, for example) account for 15 percent (17 percent) of volume of the underground economy; the Entertainment and leisure sector represents a further 13 percent (12 percent). Table 5 provides a further breakdown of the results of estimates for the largest sector, that of the construction trade and skilled manual trades.

Table 5

This shows that in Germany about 47.8 billion € in underground economic volume applies to the main construction sector. Construction-related sectors represent 35.5 billion €. Skilled manual trades in the construction sector generate EUR 24.6 billion in underground activities and miscellaneous repairs (televisions, domestic appliances, etc.) generate EUR 28.6 billion in underground activities.

4. Calculation of the number of moonlighters

Table 6 shows the results of an estimate of the development of full-time non-foreign moonlighters and of the illegal foreign workers (only as it relates to underground economic activities) in Germany, Austria, and Switzerland for the period 1995-2010.³

Table 6

In Germany the notional figure of full-time non-foreign moonlighters or full-day moonlighters in 1995 totaled 7.3 million people and will increase by 2010 to 8.67 million people. However the number of illegal foreign workers in Germany is also not negligible; while this figure was 878,000 people in 1995, it will increase to 1.020.000 people by 2010. The rise in the number of full-time non-foreign moonlighters or full-day moonlighters in Austria is also substantial; while this figure was 575,000 people in 1995, it will increase to

³ **Non-foreign full-time moonlighters** are an artificial quantity calculated from the hours worked in the underground economy. Illegal foreign workers represent an initial estimate of foreigners working illegally (**only with respect to underground economic activities**). It must be clearly pointed out that two thirds of the added value in the underground economy is generated by Germans, Austrians, or Swiss citizens or by foreigners legally resident in those countries and all having a good job (part-time or full-time) in the official economy, so that the calculation of the development of full-time non-foreign moonlighters only demonstrates large the volume of moonlighting is measured by the number of full-time workers.

741.000 people by 2010. The number of illegal workers was 75.000 people in 1995 and will rise to 102.000 people by 2010.⁴

⁴ The term illegal workers refers here solely to those who mostly “only” carry out moonlighting, and not, for example, to those who pursue traditionally criminal activities.

Table 1: Size of the underground economy in Germany, Austria, and Switzerland in the period 1975 to 2010 – calculated using the currency demand approach and the MIMIC method

Size of the underground economy (in percent of official GDP)						
Year	Germany		Austria		Switzerland	
	In %	EUR billion	In %	EUR billion	In %	SFR billion
1975	5.75	29.6	2.04	0.9	3.20	12
1980	10.80	80.2	2.69	2.0	4.90	14
1985	11.20	102.3	3.92	3.9	4.60	17
1990	12.20	147.9	5.47	7.2	6.20	22
1995	13.90	241.1¹⁾	7.32	12.4	6.89	25
1996	14.50	257.6¹⁾	8.32	14.6	7.51	27
1997	15.00	274.7¹⁾	8.93	16.0	8.04	29
1998	14.80	280.7¹⁾	9.09	16.9	7.98	30
1999	15.51	301.8¹⁾	9.56	18.2	8.34	32
2000	16.03	322.3¹⁾	10.07	19.8	8.87	35
2001	16.02	329.8¹⁾	10.52	21.1	9.28	37.5
2002	16.59	350.4¹⁾	10.69	21.8	9.48	38.7
2003	17.10	370.0¹⁾	10.86	22.5	9.52	39.4
2004	16.12	356.1¹⁾	11.00	23.0	9.43	39.5
2005	15.41	346.2¹⁾	10.27	22.0	9.05	38.7
2006	15.00	345.5¹⁾	9.51	21.20	8.48	37.0
2007	14.74	349.0¹⁾	9.06	20.80	8.23	36.8
2008	14.22	346.8¹⁾	8.07	19.92	7.96	35.4
2009²⁾	14.57	351.8¹⁾	8.47	20.50	8.28	36.4
2010²⁾	14.65	359.2¹⁾	8.67	21.32	8.34	37.2

Source: Own calculations (2010).

1) From 1995 figures for the *whole* of Germany.

2) Forecast, or estimate, as applicable, as the official statistics are not yet available

Table 2: Effects of the global economic crisis/ recession and some economic policy measures of the CDU / CSU / FDP government on the underground economy in 2010

(Policy) Measures in 2010	Increase (+) / decrease (-) of the underground economy and [] average value
(1) Economic crisis: GDP rise in unemployment by 600,000 to 4.100 Mio.	+ 7.600 to + 10.100 [8.850] million €
(2) Decrease in health insurance contribution rate by 0.6 percentage points to 14.9%.	- 500 to - 800 [- 650] million €
(3) Various tax deductions	- 900 to - 1.400 [- 1.150] million €
(4) Introduction of minimum wages in the fields of painting, garbage collection and mining.	+ 200 to + 400 [+ 300] million €
Net effect for 2010	+ 6.400 to 8.300 [7.350] million €

Source: Own calculations.

Table 3: Size of the underground economy in 21 OECD countries from 1989/90 to 2010 (in % of official GDP) using the cash approach and the MIMIC method

OECD countries	Average 1989/90	Average 1994/95	Average 1997/98	Average 1999/00	Average 2001/02	2003	2004	2005	2006	2007	2008	2009 ¹	2010 ¹
1. Australia	10.1	13.5	14.0	14.3	14.1	13.7	13.2	12.6	11.4	11.7	10.6	10.9	11.1
2. Belgium	19.3	21.5	22.5	22.2	22.0	21.4	20.7	20.1	19.2	18.3	17.5	17.8	17.9
3. Canada	12.8	14.8	16.2	16.0	15.8	15.3	15.1	14.3	13.2	12.6	12.0	12.6	12.7
4. Denmark	10.8	17.8	18.3	18.0	17.9	17.4	17.1	16.5	15.4	14.8	13.9	14.3	14.4
5. Germany	11.8	13.5	14.9	16.0	16.3	17.1	16.1	15.4	15.0	14.7	14.2	14.6	14.7
6. Finland	13.4	18.2	18.9	18.1	18.0	17.6	17.2	16.6	15.3	14.5	13.8	14.2	14.3
7. France	9.0	14.5	14.9	15.2	15.0	14.7	14.3	13.8	12.4	11.8	11.1	11.6	11.7
8. Greece	22.6	28.6	29.0	28.7	28.5	28.2	28.1	27.6	26.2	25.1	24.3	25.0	25.2
9. United Kingdom	9.6	12.5	13.0	12.7	12.5	12.2	12.3	12.0	11.1	10.6	10.1	10.9	11.1
10. Ireland	11.0	15.4	16.2	15.9	15.7	15.4	15.2	14.8	13.4	12.7	12.2	13.1	13.2
11. Italy	22.8	26.0	27.3	27.1	27.0	26.1	25.2	24.4	23.2	22.3	21.4	22.0	22.2
12. Japan	8.8	10.6	11.1	11.2	11.1	11.0	10.7	10.3	9.4	9.0	8.8	9.5	9.7
13. Netherlands	11.9	13.7	13.5	13.1	13.0	12.7	12.5	12.0	10.9	10.1	9.6	10.2	10.3
14. New Zealand	9.2	11.3	11.9	12.8	12.6	12.3	12.2	11.7	10.4	9.8	9.4	9.9	9.9
15. Norway	14.8	18.2	19.6	19.1	19.0	18.6	18.2	17.6	16.1	15.4	14.7	15.3	15.4
16. Austria	6.9	8.6	9.0	9.8	10.6	10.8	11.0	10.3	9.7	9.4	8.1	8.47	8.67
17. Portugal	15.9	22.1	23.1	22.7	22.5	22.2	21.7	21.2	20.1	19.2	18.7	19.5	19.7
18. Sweden	15.8	19.5	19.9	19.2	19.1	18.6	18.1	17.5	16.2	15.6	14.9	15.4	15.6
19. Switzerland	6.7	7.8	8.1	8.6	9.4	9.5	9.4	9.0	8.5	8.2	7.9	8.3	8.34
20. Spain	16.1	22.4	23.1	22.7	22.5	22.2	21.9	21.3	20.2	19.3	18.7	19.5	19.8
21. U.S.A.	6.7	8.8	8.9	8.7	8.7	8.5	8.4	8.2	7.5	7.2	7.0	7.6	7.8
Unweighted average of 21 OECD countries	12.7	16.2	16.8	16.8	16.7	16.5	16.1	15.6	14.5	13.9	13.3	13.8	14.0

→ Source: Own calculations, 2010, (Prof. Dr. Friedrich Schneider, University of Linz, Altenbergerstraße 69, A-4040 Linz/Auhof).

1) Provisional figures.

Table 4: Breakdown of the underground economy into economic and service sectors in Austria and Germany ¹⁾

Sector	Breakdown of underground economy Austria 2010		Breakdown of underground economy Germany 2010	
	In %	EUR billion	In %	EUR billion
Construction sector and skilled manual trades (including repairs)	39%	8.2	38%	136.5
Other trades and industries (motor vehicles, machines, etc.)	16%	3.3	17%	61.1
Services (Hotels, restaurants, etc.)	16%	3.3	17%	61.1
Entertainment and leisure sector	12%	2.5	13%	47.0
Miscellaneous trades and domestic services (private tuition, hairdressing, babysitting)	17%	3.6	15%	53.5
Total underground economy	100%	20.9	100%	351.8

1) Source: Own calculations (2010).

Table 5: Breakdown of the underground economy in the construction trade and skilled manual trades ¹⁾

Sector	Breakdown of underground economy in construction trade and skilled manual trades Austria 2010		Breakdown of underground economy in construction trade and skilled manual trades Germany 2010	
	In %	EUR billion	In %	EUR billion
Main construction trade	41%	3.4	35%	47.8
Construction-related trades	30%	2.5	26%	35.5
Skilled manual trades in the construction sector	16%	1.3	18%	24.6
Miscellaneous repairs (televisions, electric appliances, domestic appliances)	13%	1.0	21%	28.6
TOTAL Construction trade and skilled manual trades (including repairs)	100 %	8.2	100 %	136.5

1) Source: Own calculations (2010).

Table 6: Development of full-time non-foreign moonlighters and illegal foreign workers in Germany, Austria, and Switzerland in the period 1995 to 2010¹⁾

Year	Development of full-time non-foreign moonlighters and illegal foreign workers in thousands of people					
	Germany		Austria		Switzerland	
	Full-time non-foreign moonlighters	Illegal foreign workers	Full-time non-foreign moonlighters	Illegal foreign workers	Full-time non-foreign moonlighters	Illegal foreign workers
1995	7,320	878	575	75	391	55
1996	7,636	939	617	83	426	61
1997	7,899	987	623	86	456	67
1998	8,240	1,039	634	89	462	69
1999	8,524	1,074	667	93	484	74
2000	8,621	1,103	703	99	517	79
2001	8,909	1,149	734	104	543	84
2002	9,182	1,194	746	109	556	88
2003	9,420	1,225	769	112	565	90
2004	9,023	1,103	789	114	560	89
2005	8,549	1,002	750	104	520	82
2006	8,124	952	716	98	493	78
2007	8,206	961	709	97	490	77
2008	8,154	955	679	93	471	74
2009 ²⁾	8,272	968	713	98	484	76
2010 ²⁾	8,677	1,022	741	102	495	78

Source: Own calculations (2010).

1) Please note: **Non-foreign full-time moonlighters are a notional quantity**, calculated from the hours worked in the underground economy. The illegal foreign workers represent an initial estimate of foreigners working illegally (in underground economic activities).

2) Forecast or estimate, as applicable, as the official labor market data are not yet available.