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Evasion of Value-added taxes in Europe: Ifo Approach to Estimating the Evasion of Value-added Taxes on the Basis of National Accounts Data (NAD)

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Value-added tax is among the most remunerative of taxes and thus plays a leading part in many tax systems. Consequently, small increases or even reductions in revenues, the latter almost certainly due primarily to tax evasion in the VAT sector and especially to carousel fraud[1], create considerable commotion. However, almost no official figures are available for estimating the extent of VAT evasion. Some time ago, therefore, the Ifo Institute developed a new approach to calculate the loss in tax revenues in the VAT sector via a macroeconomic estimate of theoretical tax revenues on the basis of the NAD, and quantified tax evasion rates for selected EU countries (Nam et al. 2001; Dziadkowski et al. 2002). In measuring the theoretical revenues from VAT, the macroeconomic basis for VAT assessment was initially derived from national accounts data, input-output tables and special statistics. This allowed a relatively precise calculation of the weighty blocks of the theoretical assessment basis, i.e. purchases by private households as well as intermediate input and investments by the state, credit institutions and insurance companies not eligible to input-tax deduction.

The next step was to split the principal components of national accounts data (private consumption, intermediate input and investments by the state, credit institutions and insurance companies, private non-profit organizations as well as the other sectors not eligible to input-tax deduction[2]) up into tax-liable and tax-exempt items. The theoretical VAT revenues could then be derived by assigning the corresponding (normal or reduced) tax rates to the tax-liable components. If an item cannot be unequivocally assigned to a single tax rate, but consists of various sub-items subject to different tax rates, then a weighted VAT rate must be applied. The weighting is either determined from more detailed statistical sources or is estimated.

After a flat-rate adjustment of the revenue differences due to the gaps between the original and cash-point values of the VAT as well as to payment periods, their overruns, extensions or temporary tax waivers (especially due to insolvencies), an ex post facto estimate of the hypothetical VAT revenues in selected EU countries was obtained and presented in Table 1.

The collection rate could then be determined by comparing the collected revenue (on the basis of the rate-setting country) with the estimated revenue:

Collection rate = Collected VAT revenue ÷ Hypothetical VAT revenue

Because this collection rate will always be less than 100 percent, the difference is obtained as the tax evasion rate:

Tax evasion rate = 100 – Collection rate (%).

The VAT evasion rates determined in this way for selected European countries during the period 1994 to 1996 (1991 to 1993) are also shown in Table 1.

A closer examination of these results reveals that very different levels of VAT evasion can be observed in the various European countries. Thus the evasion rates recorded during the investigated period extend over a large range from 0.4 percent (cf. Great Britain 1991) to 35.5 percent (cf. Italy 1992). It is also remarkable that the country-specific evasion rates remained relatively stable during this period. Thus the Netherlands, Denmark and France show very low evasion rates throughout this period, whereas Italy, Spain and Belgium are uncontested front-runners with particularly high evasion rates. Moreover, a certain south-north gradient can be observed with regard to VAT evasion, so that evasion rates tend to decline the further north the country lies. Only Belgium, whose evasion rate rose from 18.0 to 20.1 percent during the investigated period, is a clear exception to this pat-

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[1] Moving goods between businesses in various jurisdictions to capitalize on differences in VAT rates.

[2] Especially the housing industry, the health and education services, but also smaller sectors such as the post office.

Table 1
Comparison of hypothetical VAT revenue with collected revenue for 1994-96 (in billions of the national currency)

	1994 (1991)			1995 (1992)			1996 (1993)		
	Hypothetical revenue	Collected revenue	Evasion rate (%)	Hypothetical revenue	Collected revenue	Evasion rate (%)	Hypothetical revenue	Collected revenue	Evasion rate (%)
Belgium (BEF)	667.3	547.3	18.0	686.4	549.8	19.9	720.3	575.8	20.1
Denmark (DKR)	95.7	91.4	4.5	99.6	95.4	4.3	105.1	101.2	3.8
France (FF)*	560.3	514.8	8.1	569.1	520.9	8.5	571.1	515.1	9.8
Germany (DM)	239.6	235.7	1.6	247.3	234.6	5.2	256.3	237.1	7.5
Great Britain (GBP)*	38.7	38.5	0.4	41.1	39.3	4.4	43.5	40.7	6.5
Greece (DRS)	2,160.0	1,735.5	19.8	2,438.8	1,939.6	20.5	2,712.1	2,160.5	20.3
Italy (ITL)*	121,448.8	81,112.0	33.2	130,373.7	84,062.0	35.5	133,594.1	86,947.0	34.9
Netherlands (HFL)	42.7	41.1	3.8	44.3	43.6	1.7	47.3	46.5	1.6
Portugal (ESC)	1,259.1	1,084.5	13.9	1,408.6	1,225.6	13.0	1,509.0	1,273.8	15.6
Spain (PTS)	4,482.2	3,569.0	19.2	5,127.8	3,791.0	24.6	5,404.8	4,080.0	24.0

*Values for 1991–93.

Source: Nam, Parsche and Schaden (2001), Measurement of Value Added Tax Evasion in Selected EU Countries on the Basis of National Accounts Data, ifo studies 47 (2), p. 135.

tern with an evasion rate significantly higher than its immediate neighbours.

In general, however, increasing rates of tax evasion can be noted in some countries during the period examined. Thus the German rate rose from 1.6 percent in 1994 to 7.5 percent in 1996. Only in the Netherlands did the VAT evasion rate drop significantly during the examined period from 3.8 percent (1994) to 1.6 percent (1996). A slight decline was also observed in the case of Denmark, where the rate dropped from 4.5 percent to 3.8 percent. In addition, small reductions could be observed between 1995 and 1996 in the cases of Greece and Spain, although these are hardly significant in view of the very high evasion rates existing in these countries. The assumption of a generally increasing rate of VAT evasion in the single market (Europäische Kommission 2001) is also supported by new results from Germany. They show an increase of the evasion rate from 7 percent to 9.5 percent in the period from 1997 to 2001 (cf. Table 2), although it should be noted that there is only a limited degree of direct comparability with earlier results due to the change in the macroeconomic accounting system which had taken place in the intervening period.

Table 2
VAT evasion in Germany in the years 1997 to 2001

	Tax evasion rates (%)				
	1997	1998	1999	2000	2001
Tax evasion rate	7.0	7.0	5.9	7.4	9.5

Source: Calculations of the Ifo Institute.

A closer look at the year-by-year development of the German tax-evasion rate reveals a certain slowdown in the increase in VAT evasion in the period from 1997 to 2000, or at least no further sign of the significant rise observed for the earlier period. A temporary significant decline of this rate can even be seen in 1999. However, it must be noted that this result was affected by changes in taxation law relating to the tax-assessment basis which yielded additional revenues (cf. Tax Relief Law 1999/2000/2002). As the estimate of the hypothetical revenues included the assumed additional VAT revenues produced by the changes in this law, the decline in evasion rate may be due to a certain underestimation of these revenues. Since the year 2000, however, a significant rise again occurred, and the evasion rate even reached a record level of 9.5 percent in the year 2001.

Explaining the diverse rates of VAT evasion in an international comparison

The fact that a certain north-south gradient can be observed in VAT evasion rates is not surprising. Thus Italy and Greece are characterized by a relatively low tax morale of their citizens, complicated legislation and an inefficient tax administration as well as high inflation coupled with automatic wage adjustments. These factors are the principal reasons for the high and repeatedly censured tax evasion rates in these countries (Spanakakis and Martelli 1981). Italy in

particular has repeatedly made headlines in the past by attempting to clean up its national budget by means of tax amnesties. As such amnesties tend to reward dishonesty because they offer no incentives to return to an honest payment of taxes. They can undermine the entire tax system and in the long term even lead to lower tax revenues or force the state to impose excessive tax rates. All this leads in the extreme case to a situation in which ever more people become tax evaders, in particular because they do not see why they should compensate the evasions of others and can also be relatively sure that the next amnesty will soon be forthcoming. In fact, the Italian attempts to deal with the problem are blatantly unsuccessful: they merely represent a source of funds for the short-term improvement of the domestic budget. This is evident from the fact that the rate of tax evasion rose significantly after the last major amnesty of 1991, which allowed the evaders to escape the consequences of their tax crimes without having to declare their real income or assets situation.

Another major reason for the different trends in the various countries could lie in the varied density of monitoring. Thus Germany experiences problems in this regard due to its federal structure and the associated separation of monitoring responsibilities. These problems are in many cases exacerbated still further by insufficient staffing of the responsible authorities, obsolete technical equipment and incompatible computer systems. In contrast, Scandinavian countries such as Denmark apply a very rigid state monitoring system which makes fiscal fraud significantly harder. France too appears to possess advantages in this sector thanks to its highly centralized administration.

As against this, the differences in VAT rates appear to be of secondary importance in explaining the different evasion rates (cf. Table 3). Although both Belgium and Italy have very high VAT rates, precisely a country such as Denmark, which has no reduced rate and also has the highest normal rate by a wide margin, namely 25 percent, has one of the lowest tax evasion rates. The relatively high evasion rates in Spain and Portugal cannot be explained by particularly high VAT rates either. In fact, their VAT rates are among the lowest in Europe, at 16 percent and 18 percent respectively.

"Long frontiers" cannot be used as an argument for differences in evasion rates either, for then countries such as Germany and France would have an equally poor showing as Italy and Spain, and Belgium would do significantly better. However, no such picture emerges from the results obtained.

All in all, these differences really do seem to result mainly from the differing attitudes of the population to paying taxes as well as from differences in monitoring density.

Table 3

VAT rates in selected European countries (July 1, 2002)

Country	Local name for VAT	Tax rates in %		
		Normal rate	Reduced rates[a)]	Zero rate[b)]
Belgium	Taxe sur la valeur ajoutée (TVA) or Belasting over de toegevoegde waarde (BTW)	21	1 ; 6 ; 12	Yes[c)]
Denmark	Omsaetningsavgift (MOMS)	25	-	Yes[c)]
France	Taxe sur la valeur ajoutée (TVA)	19.6	2,1 ; 5,5	–
Germany	Umsatzsteuer	16	7	–
Great Britain	Value added tax (VAT)	17.5	5	Yes
Greece	Foros prostithemenis axias (FPA)	18	4 ; 8	Yes
Italy	Imposta sul valore aggiunto (IVA)	20	4 ; 10	Yes[d)]
Netherlands	Omzetbelasting (OB) or Belasting over de toegevoegde waarde (BTW)	19	6	–
Portugal	Imposto sobre o valor acrescentado (IVA)	19	5 ; 12	–
Spain	Impuesto sobre el valor añadido (IVA)	16	4 ; 7	

[a)] Especially for certain groups of essential goods and for certain social and cultural services. – [b)] Zero rate = Tax exemption with input tax deduction. This is mentioned here only where it applies not only to export rates but also to certain domestic rates. – [c)] For newspapers. – [d)] For construction land, raw gold, metal waste.

Source: Federal Ministry of Finance (2002), Fachblick Finanz- & Wirtschaftspolitik: Die wichtigsten Steuern im internationalen Vergleich, p. 34.

Table 4

Estimated VAT evasion and shadow economies in selected EU countries (1994–96)

	Belgium	Den-mark	France	Germany	Great Britain	Greece	Italy	Nether-lands	Portugal	Spain
VAT evasion rate in %: mean values for 1994–96	19.3 (4)	4.2 (8)	8.8* (6)	4.8 (7)	3.8* (9)	20.2 (3)	34.5* (1)	2.4 (10)	14.2 (5)	22.6 (2)
Share of the shadow economy as a % of GNP: mean values for 1994–95 determined by the currency-demand approach	21.5 (5)	17.8 (6)	14.5 (7)	13.5 (9)	12.5 (10)	29.6 (1)	26.0 (2)	13.7 (8)	22.1 (4)	22.4 (3)

* Mean values for 1991–93; ranking in brackets.

Source: Nam, Parsche and Schaden (2001), Measurement of Value Added Tax Evasion in Selected EU Countries on the Basis of National Accounts Data, ifo studies 47 (2); Schneider and Enste (2000), Shadow Economies: Size, Causes and Consequences, Journal of Economic Literature 38 (1), p. 135.

Assessment of the Ifo approach to estimate VAT evasion

A major problem in estimating VAT evasion by national accounts is naturally the availability of the necessary data. Within the scope of the calculations presented here, the VAT revenues were estimated exclusively on the basis of official statistics. There are naturally certain limits to such an approach, as these statistics are as a rule highly aggregated and the fine points relevant to taxation (tax-free vs. tax-liable supplies, normal vs. reduced rates) are not always evident from the publications. In such cases, estimates must be made. In addition, a series of individual regulations relevant to VAT were not quantified within the scope of this calculation.

Beyond this, the macroeconomic accounting procedures applied in the various European countries do not have a standardized structure but are characterized by national peculiarities which must be considered in the estimate but are often not recognizable at first sight. In addition, the quality of the estimate naturally depends on the available data.

A comparison of the results obtained by the Ifo Institute with those of Schneider and Enste (2000), who used a currency-demand approach to calculate the GNP share of the total shadow economy, reveals great similarities. Naturally these results are not comparable in an absolute sense, for the Schneider-Enste approach ultimately covers a much broader area, although VAT evasion almost certainly comprises a considerable part of it. However, if the selected European countries are ranked in ascending sequence according to the rates determined by both methods, i.e. the country with the highest rate is assigned the lowest number, significant parallels become evident even if 100 percent agreement is not obtained (cf. Table 4). Both approaches show that Italy, Greece and Spain take up the first three positions, followed by Belgium and Portugal, although the sequence is slightly changed around and France is located in the midfield area in both methods. The Ifo approach shows that particularly low evasion rates are found in the Netherlands, preceding Great Britain and Denmark, whereas the Schneider-Enste approach shows Great Britain followed by Germany and the Netherlands. Great Britain at least has a very good showing in both cases.

The comparison of tax evasion rates together with other calculations on the general shadow economy allows the conclusion to be drawn, despite the differences in the survey methods and approaches applied, that the tax evasion rates estimated by the Ifo Institute are relatively well founded.

As the various tax evasion rates not only give rise to national problems but also affect the other EU countries via the calculation of the EU's capital resources, all EU member states would be well advised to initiate a joint initiative against tax evasion in general and VAT evasion in particular.[3] Although relevant impulses have repeatedly come from the European Commission, among others, it would seem that insufficient (international) coop-

[3] Another reason for urgency is that enormous VAT revenues have already been lost for a number of years due to inter-community tax evasion models (especially carousel fraud).

eration continues to dominate the scenario at the expense of joint efforts.

References

Dziadkowski, D., A. Gebauer, W.C.Lohse, C.W. Nam and R. Parsche (2002), *Entwicklung des Umsatzsteueraufkommens und finanzielle Auswirkungen neuerer Modelle bei der Umsatzbesteuerung,* ifo Forschungsberichte No. 13, München.

Europäische Kommission (2001), *Vorschlag für eine Verordnung des Europäischen Parlamentes und des Rates über die Zusammenarbeit der Verwaltungsbehörden auf dem Gebiet der Mehrwertsteuer, Vorschlag für eine Richtlinie des Europäischen Parlamentes und des Rates zur Änderung der Richtlinie 77/799/EWG des Rates über die gegenseitige Amtshilfe zwischen den zuständigen Behörden der Mitgliedstaaten im Bereich der direkten und indirekten Steuern (von der Kommission vorgelegt), KOM(294) endgültig,* Brüssel.

Federal Ministry of Finance (2002), *Fachblick Finanz- & Wirtschaftspolitik: Die wichtigsten Steuern im internationalen Vergleich,* Berlin.

Nam, C.W., R. Parsche and B. Schaden (2001), "Measurement of Value Added Tax Evasion in Selected EU Countries on the Basis of National Accounts Data", *ifo Studien* 2, 127–144.

Schneider, F. and D.H. Enste (2000), "Shadow Economies: Size, Causes and Consequences", *Journal of Economic Literature,* 77–114.

Spanakakis, G. and S. Martelli (1981), "Steuerhinterziehung als Form des Steuerwiderstands", *ifo Schnelldienst* 16/17, 95–104.