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# Shadow economy and tax evasion in the EU

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**Abstract**

**Purpose** – The main purpose of this paper is to explore size of the shadow economy of 31 European Countries in 2014 and size of the shadow economy of 28 European Union countries over 2003-2014 (in per cent of official GDP). An additional objective is to identify tax evasion, as the problem of all the EU countries, answering the questions how better combat the tax fraud.

**Design/methodology/approach** – Estimates of the shadow economy for all 28 European Union countries and other three countries from Europe, i.e. Norway, Switzerland and Turkey – MIMIC method was applied.

**Findings** – The average size of the shadow economy in 28 EU countries was 22.6 per cent in 2003 and decreased to 18.6 per cent (of official GDP) in 2014. We also consider the most important driving forces of the shadow economy. The biggest ones are with 14.6 per cent unemployment and self-employment, followed by tax morale with 14.5 per cent and GDP growth with 14.3 per cent. The proportion of tax evasion (accounting for indirect taxation and self-employment activities) was on average 4.2 per cent (of official GDP) in Poland, 1.9 per cent in Germany and 2.9 per cent in the Czech Republic.

**Research limitations/implications** – The MIMIC statistics do not address a large part of the wholly illegal economy (of typically criminal nature) and, accordingly, it is not an absolute magnitude of the whole unofficial economy. However, it does not seem that other, alternative, methods of measuring the unofficial economy are better in individual terms.

**Practical implications** – Current statistical research should lead to practical acceptance in the framework of need for developing better organizational & legal ways for multi-level governance within the European Union, leading to effective methods of counteracting – in particular intra-Union fraud. In addition, the presentation of a review of typology of the main theories and studies regarding the unofficial economy aspects relating to tax evasion constitutes a practical review of the pursued research areas.

**Social implications** – Safeguarding the national economy as a whole, by seeking ways of reducing the scope of shadow economy.

**Originality/value** – Both regarding presentation of the latest shadow economy estimates and typology of its main studies and theories.

**Keywords** Tax evasion, Shadow economy, Economic growth, Reverse charge, Tax avoidance

**Paper type** Research paper

**JEL classification** – D78, H11, H26, K42, O57, U17

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## 1. In lieu of Introduction – what do we know about shadow economy?

Unofficial economy (shadow economy) should not be associated exclusively with the media picture of grey zone (grey economy), as this would be a mistake. It is a natural element of the economic/social life and should be considered in such a context.

From the definition perspective, the term shadow economy can be applied to unregistered activities aimed at yielding tangible benefits, in either natural or in monetary form, generating given consequences of value creating and/or distribution character (Mróz, 2002).

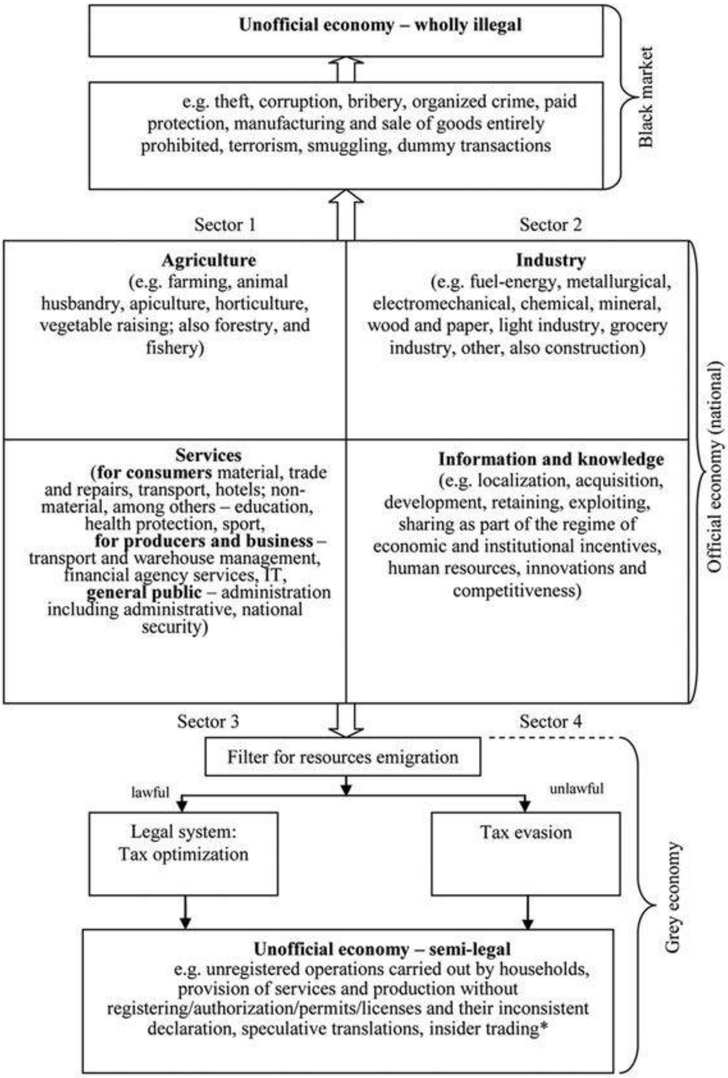
The entire subject and object contents of shadow economy stem from entirety of economic endeavour (Figure 1), based in this review on modified distinction of three sectors in the economy, according to the A. G. Fisher-Clark model, supplemented with the fourth sector of information and knowledge. From the shadow economy perspective, it is this fourth sector which is of fundamental significance and which is decisive for the opportunity to create value by minimizing the information gap in decisions undertaken – both the legal ones (official economy), semi-legal (semi-legal grey economy operations) and the entirely unlawful actions (shadow economy – entirely illegal) (Raczkowski, 2013).

## 2. Theoretical considerations

A significant role in this model is played by the tax system, particularly in relation to the grey economy. It should be noted that only and exclusive resort to tax optimization and tax evasion at that causes this to become grey economy. Should the taxpayer fail to meet these criteria (even in the least degree) and pay taxes, then the taxpayer operates within the official economy. Still, in the light of extensively developed tax engineering by many corporations, where the given corporation holds an evident intellectual and technological edge over the given fiscal jurisdiction, the fundamental question arises: when does one speak of optimizing tax, and when does such optimizing imply wilful tax evasion? There is no explanation such as that an international corporation active in the given area notoriously reports losses and pays no taxes. In the vast majority of cases this is a typical crime in the eye of the law and should be identified and qualified as such. Such an approach represents also unfair competition, eliminating the law-abiding businesses from the market. Tax administration of the given country which refrains from instituting proceedings in such cases acts to the detriment of State Treasury and reconciles of own accord to reduced revenues for the entire state budget, contributing negatively to the amount of deficit or public debt (Raczkowski, 2014).

More than forty years have passed since M. Allingham and A. Sandmoback in 1972 published the first more solidly documented theory of tax evasion, where the taxpayer as part of self-assessment selects or declares true income, or perhaps declares a lesser income than the one earned in reality. The taxpayer's choice was dictated by the taxpayer's own perception of probability of tax control and possible fine for under declaring income versus the profit gained by maximizing the amount withheld (Allingham and Sandmo, 1972). Many years later other tax evasion models have been formulated, which as theories came up much later than their practical implementation in economic turnover. As an example one can cite the model of VAT fraud as part of so-called intra-community deliveries (Fedeli and Forte, 2008), where it is relatively easy to swindle undue tax from the tax authority in connection with exporting a give type of commodity abroad (within the EU). Practical dimension of such practice was descriptively and graphically presented to the European Commission by the International VAT Association (2007) in March.

In addition, over the years there were numerous theories formulated and studies conducted of shadow economy in its tax evasion aspects (Mróz, 2012). Today it is




**Note:** *Insider trading – use of non-public information in transactions relating to securities of their own companies by persons employed in the given company (insiders), or persons having privileged access to it (brokers, auditors)
**Source:** Raczkowski (2013)

**Figure 1.**
Unofficial economy in the context of the whole economic operations carried out by the state

possible to point to 17 research fields on this subject, and they are not closed-in systems but, to the contrary, require reciprocal supplementing and studying as part of an interdisciplinary approach (Table I).

## 3. Measurement

Pervasiveness of different research fields is advisable, as it may lead to composing new research paradigms and still more precise estimates of the very shadow economy. A present there are no fewer than 14 methods of measuring this phenomenon, and each has its advantages and disadvantages (Georgiou, 2007):

(1) Direct surveys/Audits:
- Micro-surveys of informal sector.
- Tax audits.

(2) Monetary measures
- Denomination of bank notes.
- Currency ratio/demand method.
- Transactions method.

(3) Income & expenditure measures
- GDP income/expenditure discrepancies.
- Household income/expenditure discrepancies.
- Consumer expenditure: single equation approach.
- Consumer expenditure: demand system approach.

(4) Indirect non-monetary indicators/Measures
- Ranking method.
- Electricity consumption.
- Detection-controlled estimation.

(5) MIMIC (Latent variable models).

(6) Labour Market Measures:

> The most commonly used method of measurement is based on a combination of the multiple indicator multiple cause (MIMIC) procedure and on the currency demand method, or, alternatively, the use of only the currency demand method (Schneider and Williams, 2013).

Some consider the Currency Demand Approach (CDA) as the most popular among indirect, measurement methods (Ardizzi *et al.*, 2013).

Nonetheless, it seems that the MIMIC method is considered as the most forthright, notwithstanding its shortcomings. It should soon be adapted to the constantly altering tax engineering and tax fraud carried out in an organized system. On the one hand this requires new data of black market measurement, on the other hand it is difficult to define precisely the magnitude of measurement error (due to the network character of societies and places of final expenditures or provision of services, or different tax jurisdictions), which can reflect significantly on the end result.

**Table I.**
Main theories and studies of shadow economy in its tax evasion aspects

| No. | Theory and studies | Selected scholars |
|---|---|---|
| 1 | Ethical stances and ideology of tax frauds; behavioural intentions, social (including religious) norms; | Vallerand *et al.* (1992); Heinemann and Schneider (2011); Sidani *et al.* (2014) |
| 2 | Theory of justified action, fiscal psychology and behavioural approach | Ajzen and Fishbein (1980); Kirchler (2009) |
| 3 | Tax morality (regarding moral compulsion to pay taxes, even patriotism) | Posner (2000); Feld and Frey (2002, 2006); Riahi-Belkaoui (2004); Torgler (2005); Frey and Torgler (2007); Alm and Torgler (2006, 2011); Torgler and Schneider (2007, 2009); Dell'Anno (2009); Konrad and Qari (2012); |
| 4 | Economic system, tax competitiveness, unequivocal preferences within theory of consumer choice, effectiveness and efficiency of actions | McGee and Feige (1989); Cowell (1990); Pyle (1991); Thomas (1992); Tendler (2001); Mróz, 2002; Chen (2003); Martinez-Vazquez and Rider (2005); Fortin *et al.* (2007); Skouloudis *et al.* (2011); Cerqueti *et al.* (2011); Dzhumashev and Gahramanov (2009); Raczkowski (2013, 2014); |
| 5 | Differing approaches to tax fraud, economic deterrence, fiscal psychology models, impact of corruption on shadow economy | Allingham and Sandmo (1972); Weigel *et al.* (1987); Johnson *et al.* (1998); Tanzi (1998); Hasseldine and Li (1999); Feld and Frey (2002); Choi and Thum (2003); Slemrod (2007); Nickerson *et al.* (2009) |
| 6 | Measuring the shadow economy | Cagan (1958); Tanzi (1983); Frey and Pommerehne (1984); Lippert and Walker (1997); Lacko (1997); Breusch (2005); Schneider *et al.* (2010, 2014); Schneider and Enste (2002); Feld and Larsen (2005, 2008); Pickhardt and Sardà (2006, 2011); Vuletin (2009); Ardizzi *et al.* (2013) |
| 7 | Comparative analysis of shadow economy estimates | Barthèlèmy (1988); Feige and Urban (2007); Raczkowski and Schneider (2013); Adair (2012) |
| 8 | Alternative and comprehensive approaches to studying tax evasion | Cullis and Lewis (1997); Gemmel and Hasseldine (2012) |
| 9 | Extreme risk aversion, perception of integrity, social norms | Webley *et al.* (1991); Alm *et al.* (1992); Güth *et al.* (2005) |
| 10 | Application of fines and controls | Yitzhaki (1974); Kesselman (1995); Feld and Frey (2007); Kirchler (2009); Blackwell, (2010) |
| 11 | Asymmetry of information in the financial sector – future prospects of tax evading firms | Balafoutas *et al.* (2014) |
| 12 | Collaboration of the state and organized crime in providing public goods (mafia as substitute of providing public goods) | Alexeev *et al.* (2004) |

(*continued*)

| No. | Theory and studies | Selected scholars |
|---|---|---|
| 13 | Kinds and ways of tax optimizing and tax evasion (tax fraud) | Chen and Chu (2005); Slemrod (2007); Fedeli and Forte (2009, 2012); Gravelle (2010); Alm (2012); Ainsworth (2011), (2014) |
| 14 | Electronic payments and the grey zone | Schneider and Kearney (2012); Ainsworth (2006) |
| 15 | Impact of inflation on the shadow economy | Koreshkova (2006) |
| 16 | Grey zone vs. formal and informal labour market | Contini (1981); Dallago (1988, 1990); Williams and Windebank (1998, 2001); Williams (2007) |
| 17 | Economic policy in the face of the grey zone | Cassel (1984, 1986); Kesselman (1995), Mróz (2002, 2012) |

**Note:** Own compilation

Table I.

## 4. Tax evasion

Tax administrations of the different member states at present manifest considerable helplessness in combating these types of phenomena, but each to a different degree. Freedom of movement for people, goods, capital and services within the EU leads to visible asymmetry in intra-community trade, particularly in such goods as: cell phones, integrated circuits (particularly micro-processors and chips), natural gas and electric power certificates, provision of telecommunications services, deliveries of raw metals or semi processed elements of metals, deliveries of game controls, laptops, tablets, and even cereals and industrial crops (Council Directive, 2013/43/EU). In the light of this, the European Union already in 2006 adopted the possibility of applying the mechanism of reverse VAT charges (Article 199), adopting Council Directive 2006/112 EC of 28 November 2006 on common system of value added tax (which curbed the plague of VAT extortion, particularly for scrap metal), which was changed by Council Directive, 2010/23/EU of 16 March 2010, and after that by the aforementioned Council Directive 2013/43/EU. By this measure the requirement to pay VAT was shifted to the end customer for whom the given service was performed or a commodity delivered, classified to reverse charge category and adopted in national legal system. It was the last of these directives (Council Directive 2013/43/EU) which allowed for applying the reverse charge principle for a period of at least two years, but not later than until end 2018.

This briefly presented characterisation shows how leaky is the tax system, particularly in relation to VAT, in the whole European Union. The protracted community decision-making mechanism and absence of consensus on many issues makes even the very exchange of information on tax issues highly unsatisfactory. One can even formulate the thesis that in the given legal and organizational state of affairs, earning money on extorting taxes from given countries is a profitable business, and well secured within the crime carousel saves from penalization. At that, the various legislative implants, instead of supplementing each other and addressing issues in a systemic way, in the field of indirect taxes constitute an assemblage of inconsistent norms and recommendations. One could mention only that the adopted Council Directive 2011/16/EU of 15 February 2011 on administrative co-operation on tax issues and waiving Directive 77/799/EEC covers all tax groups with the exception of their most important part, that is the indirect taxes (VAT, excises and customs duties). At the same time, (EU) Council Regulation 904/2010 of 7 October 2010 on administrative co-operation and combating value added fraud does call into being Eurofisc – a decentralized co-operation network for VAT (Raczkowski, 2011), but defines exchange of information according to 20th rather than 21st century standards. Even though it sets up spontaneous and automatic possibilities for transfer of the necessary information, but supplements it with an extensive catalogue of exclusions, allowing for refusals to provide information in practically every single case. In addition, specifying a maximum period of three months for providing return information implies a purely historical time, as it does not reflect the speed of economic turnover and by the same does not allow for taking actions when taking such actions would be warranted.

A positive mark should be given, however, for the properly analyzed by the European Parliament: EU role on the international arena in this field; the necessity of struggling with the tax gap – in part by reducing its scope by half until 2020, tax fraud and tax evasion (also under the Fiscalis 2020 programme, or reporting about reducing the scope of shadow economy by all member states), tax avoidance and aggressive tax planning, tax havens, particularly as regards unequivocal designation, by definition and physically, of tax havens by end 2014 (European Parliament Resolution 2013/2060(INI)).

Visible in this respect is a duality of approach. On the one hand declarative statements about co-operation and community actions, and on the other hand legislation and provisions for actions which allow for protecting the national economy and even unfair competition. In addition, tax services in many countries, same as politicians, all too rarely take part in scholarly conferences, seminars or meetings with business people, cutting themselves off from the necessary knowledge and possibilities of securing external support. In effect, often when issuing tax decisions or interpretations they have no idea how real economic turnover takes place, where are the hazards and how can taxpayers be bolstered to act consistently with the law, by facilitating conduct of legal business operation.

## 5. Size of shadow economy and tax evasion in European countries

According to R. Murphy, who conducted a research project commissioned by *Tax Justice Network* using data obtained from World Bank, CIA World Factbook, Heritage Foundation and World Health Organization (WHO), in 2010 on global scale the losses caused by tax evasions in 145 countries reviewed amounted to some USD 3.1 trillion and constituted 98 per cent of global GDP and nearly 55 per cent of spending on health protection in the 145 reviewed countries (Murphy, 2011).

The average share of "grey zone" in GDP of 27 European Union member states in 2009 amounted to 22.1 per cent (using non-weighted average). With a weighted average this share was slightly lower and amounted to 18.4 per cent; this implies that the larger EU member state economies have a proportionately lower share of shadow economy in GDP (Table II).

Budget losses of EU countries due to tax evasion are immense; revenue losses in 2009 were estimated at euro 864 billion; according to World Bank data for the same year they amounted to euro 927 billion. Latest estimates concerning 2013 according to some experts exceeded euro 1 trillion (Murphy, 2012).

Lost budget revenues of EU member states are a serious problem and represent a significant percentage of government budget revenues and expenditures. Even more adverse (outright alarming) shapes the comparison with spending on health care. Mean losses due to tax evasion in 2009 equalled approximately 106 per cent of total spending on the health service and health care, and in some countries were more than twice higher; the infamous record in this respect was scored by Estonia, in which budget losses due to tax evasion equalled some 260 per cent of health care spending, and Italy (nearly 230 per cent). The relation of tax evasion losses to government spending gives no grounds for optimism; in a large number of countries this relation exceeds 20 per cent.

A still more depressing picture emerges when one compares state budget revenues lost due to evasion of tax obligation with size of budget deficits in EU countries. In some of them (Denmark, Finland) this relation exceeds 300 per cent and in four countries (Belgium, Hungary, Italy, Malta) it is well above 200 per cent. In 16 EU countries the budget collections lost due to existence of a grey zone and tax evasion would allow for covering the annual state budget deficit (Murphy, 2012).

| Country | Shadow economy scope (as % of GDP) | Tax burden (in %) | Estimate of losses due to shadow economy |
|---|---|---|---|
| Austria | 9.7 | 42.7 | 11 763 |
| Belgium | 21.9 | 43.5 | 33 629 |
| Bulgaria | 35.3 | 28.9 | 3 673 |
| Cyprus | 28.0 | 35.1 | 1 671 |
| Czech Republic | 18.4 | 34.5 | 9 205 |
| Denmark | 17.7 | 48.1 | 19 922 |
| Estonia | 31.2 | 35.9 | 1 680 |
| Finland | 17.7 | 43.1 | 13 732 |
| France | 15.0 | 41.6 | 120 619 |
| Germany | 16.0 | 39.7 | 158 736 |
| Greece | 27.5 | 30.3 | 19 165 |
| Hungary | 24.4 | 39.5 | 9 445 |
| Ireland | 15.8 | 28.2 | 6 951 |
| Italy | 27.0 | 43.1 | 180 257 |
| Latvia | 29.2 | 26.6 | 1 398 |
| Lithuania | 32.0 | 29.3 | 2 532 |
| Luxembourg | 9.7 | 37.1 | 1 511 |
| Malta | 27.2 | 34.2 | 577 |
| Netherlands | 13.2 | 38.2 | 29 801 |
| Poland | 27.2 | 31.8 | 30 620 |
| Portugal | 23.0 | 31.0 | 12 335 |
| Romania | 32.6 | 27.0 | 10 738 |
| Slovakia | 18.1 | 28.8 | 3 440 |
| Slovenia | 26.2 | 37.6 | 3 546 |
| Spain | 22.5 | 30.4 | 72 709 |
| Sweden | 18.8 | 46.9 | 30 596 |
| United Kingdom | 12.5 | 34.9 | 74 032 |
| *EU average (non weighted)* | *22.1* | *35.9* | *864 282* |

**Source:** Murphy (2012, pp. 10-11)

**Table II.**
Scope of shadow economy and losses due to tax evasion in EU countries, 2009

In the United Kingdom, Her Majesty's Revenues & Customs administration – HMRC estimates that the tax gap (that is the difference between taxes due and taxes actually paid in) in fiscal 2011 – 2012 amounted to some £ 25 billion (approximately euro 42 billion) (Syal, 2013). This amount is built up from 30 various estimates relating to different tax categories, types of taxpayer behaviour (tax evasion and tax avoidance), taxpayer errors, impossibility of collection due to taxpayer's bankruptcy, etc. In cross-section by type of tax, the tax gap in the United Kingdom according to HMRC consisted of:

- swindles and fraud linked to VAT (£ 11.4 billion);
- unpaid income tax (£ 15.3 billion);
- losses due to unpaid corporate taxes (£ 4.7 billion); and
- losses due to unpaid excise (£ 2.5 billion).

According to HMRC estimates, the losses due to tax evasion in fiscal 2011-2012 amounted to £ 5.1 billion, while tax avoidance through application of so-called tax optimizing resulted in reducing tax authorities revenues equal to £ 4 billion. Criminal activities (including fraud and contraband) resulted in state budget losses equal to £ 4.7 billion (Syal, 2013).

In the opinion of R. Murphy, this is a gross underestimation; in his opinion the 2006 budget losses in the United Kingdom due to the above causes equalled about euro 74 billion. The same author estimated the 2006 budget losses in the United Kingdom due to corporate tax avoidance at £ 12 billion, whereas in his opinion in relation to private taxpayers the equivalent amount came to about £ 13 billion (that is much more than HMRC estimates). Taken together, the losses equalled approximately 7.6 per cent of tax revenues, which in 2006 came to approximately £ 330 billion (Murphy, 2012).

According to R. Murphy, the United Kingdom tax administration (HMRC) has adopted an erroneous strategy by planning manpower reductions in its outposts during the next few years, by 12 thousand officers. This will severely curtail the capacity to fight tax evasions and will deprive the British coffers of tax revenues, exacerbating the crisis in public finances (Murphy, 2011).

On the other hand, Swedish fiscal services in addition to tax evasion are beginning to focus their attention on the problem of tax avoidance by large international corporation, something euphemistically termed as tax optimizing or making use of so-called tax shelters. It is estimated that in the total amount of nearly SEK 47 billion some SEK 11 billion (23.5 per cent) can be ascribed to tax avoidance, namely resort by large international corporations to various ways of legally reducing their tax burden. The total (general) tax gap is estimated in Sweden at some SEK 133 billion. That amount includes the so-called domestic tax gap of some SEK 66 billion, and it is estimated that approximately SEK 43 billion represents budget revenues lost due to tax evasion by micro businesses (Murphy, 2012).

In Italy, the shadow economy (*economia sommersa*) and tax evasion (*evasione fiscale*) are a grave problem for national economy and public finance. R. Murphy estimates the losses due to tax evasion at euro 183 billion annually (with external debt amounting to approximately € 1.9 trillion) (Murphy, 2011). In Italy, out of the 41.3 million tax payers in 2011, only 0.1 per cent declared an annual income exceeding € 300 thousand; some 63 per cent claims an annual income of less than € 26 thousand, and 27 per cent by profiting from various types of deductions and tax reliefs pay nothing (Evasione fiscale, 2014; Livadiotti, 2014). The widest opportunities to cheat fiscal authorities are available to entrepreneurs and free professions (so-called *lavoratori autonomi*); it is estimated that 56.3 per cent of them pay no taxes or less taxes than the amount due.

Italian tax administration is not famous for its effectiveness: with 5 million taxpayers suspected of smaller or larger scale of tax fraud, only 200 thousand inspections have been carried out. The biggest ally of dishonest taxpayers is the inefficient court system. One has to wait 903 days (sic!) for the first sentence of a taxpayer charged with tax fraud, and often the procedure is prolonged by appeals to higher instances, protests, etc. In effect only 1.7 per cent taxpayers accused of tax crimes is ever arrested (Evasione fiscale, 2014).

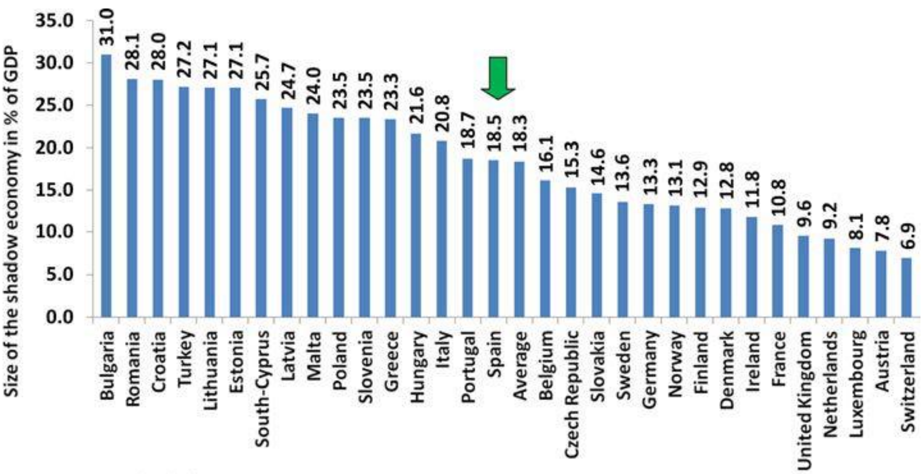
The biggest tax gap threat due to development of the "unofficial" economy in Poland is the value added tax, where the largest loss of revenues is registered of all EU countries – which manifests a massive and organized tax fraud practice, particularly relating to intra-community delivery and intra-community purchase of goods (SWD, 2014). A similar situation may be observed in Estonia, where "disappearing" economic entities (MTIC), contribute to the largest gap in value added tax (Republic of Estonia, 2014). Beginning with 2011 Estonia did manage to reduce the losses connected with MTIC fraud, yet progress here is slow.

Our estimates indicate that the grey zone on average in 31 European states (28 EU plus Norway, Switzerland and Turkey) declined by 0.2 per cent GDP y/y (from 18.5 per cent in 2013 to 18.3 per cent in 2014). It is still under 10 per cent in such countries as Switzerland, Austria, Luxembourg, Netherlands, and United Kingdom, but with the sole exception of Switzerland each of these countries in the last year noted an expansion, not a decline, of the level of shadow economy. At the same time the highest level of such activities continues in Bulgaria (31 per cent in 2014) – Figure 2, Table III.

During the same period the level of, unofficial economy for the three countries outside the European Union, that is Norway, Switzerland and Turkey continues at the mean level of 15.4 per cent GDP, while each of these countries is on a different level of economic system development and, what follows, also its shadow zone. In that group Switzerland is the absolute leader and since 2010 has been regularly cutting down the participation of its citizens in semi-legal or completely illegal ventures. Similar trends may be observed in Norway and Turkey, even though the two countries have completely different scopes of shadow economies (respectively Norway 13.1 per cent of GDP, Turkey 27.2 per cent of GDP) – Table IV.

## 6. Conclusions

In summing up this review we will attempt to formulate conclusions in the form of recommendations which may be addressed both to the scholarly community (and we shall start with these), but particularly to the decision-makers in the political spheres and public administration, as it is they who shape the framework for economic turnover:




**Note:** Own calculations, January 2014

**Figure 2.**
Size of the shadow economy of 31 European countries in 2014 (in per cent of off. GDP)

| Country/Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 10.8 | 11.0 | 10.3 | 9.7 | 9.4 | 8.1 | 8.47 | 8.2 | 7.9 | 7.6 | 7.5 | 7.8 |
| Belgium | 21.4 | 20.7 | 20.1 | 19.2 | 18.3 | 17.5 | 17.8 | 17.4 | 17.1 | 16.8 | 16.4 | 16.1 |
| Bulgaria | 35.9 | 35.3 | 34.4 | 34.0 | 32.7 | 32.1 | 32.5 | 32.6 | 32.3 | 31.9 | 31.2 | 31.0 |
| Croatia | 32.3 | 32.3 | 31.5 | 31.2 | 30.4 | 29.6 | 30.1 | 29.8 | 29.5 | 29.0 | 28.4 | 28.0 |
| Czech Republic | 19.5 | 19.1 | 18.5 | 18.1 | 17.0 | 16.6 | 16.9 | 16.7 | 16.4 | 16.0 | 15.5 | 15.3 |
| Denmark | 17.4 | 17.1 | 16.5 | 15.4 | 14.8 | 13.9 | 14.3 | 14.0 | 13.8 | 13.4 | 13.0 | 12.8 |
| Estonia | 30.7 | 30.8 | 30.2 | 29.6 | 29.5 | 29.0 | 29.6 | 29.3 | 28.6 | 28.2 | 27.6 | 27.1 |
| Finland | 17.6 | 17.2 | 16.6 | 15.3 | 14.5 | 13.8 | 14.2 | 14.0 | 13.7 | 13.3 | 13.0 | 12.9 |
| France | 14.7 | 14.3 | 13.8 | 12.4 | 11.8 | 11.1 | 11.6 | 11.3 | 11.0 | 10.8 | 9.9 | 10.8 |
| Germany | 17.1 | 16.1 | 15.4 | 15.0 | 14.7 | 14.2 | 14.6 | 13.9 | 13.7 | 13.3 | 13.0 | 13.3 |
| Greece | 28.2 | 28.1 | 27.6 | 26.2 | 25.1 | 24.3 | 25.0 | 25.4 | 24.3 | 24.0 | 23.6 | 23.3 |
| Hungary | 25.0 | 24.7 | 24.5 | 24.4 | 23.7 | 23.0 | 23.5 | 23.3 | 22.8 | 22.5 | 22.1 | 21.6 |
| Ireland | 15.4 | 15.2 | 14.8 | 13.4 | 12.7 | 12.2 | 13.1 | 13.0 | 12.8 | 12.7 | 12.2 | 11.8 |
| Italy | 26.1 | 25.2 | 24.4 | 23.2 | 22.3 | 21.4 | 22.0 | 21.8 | 21.2 | 21.6 | 21.1 | 20.8 |
| Latvia | 30.4 | 30.0 | 29.5 | 29.0 | 27.5 | 26.5 | 27.1 | 27.3 | 26.5 | 26.1 | 25.5 | 24.7 |
| Lithuania | 32.0 | 31.7 | 31.1 | 30.6 | 29.7 | 29.1 | 29.6 | 29.7 | 29.0 | 28.5 | 28.0 | 27.1 |
| Luxembourg (Grand-Duché) | 9.8 | 9.8 | 9.9 | 10.0 | 9.4 | 8.5 | 8.8 | 8.4 | 8.2 | 8.2 | 8.0 | 8.1 |
| Malta | 26.7 | 26.7 | 26.9 | 27.2 | 26.4 | 25.8 | 25.9 | 26.0 | 25.8 | 25.3 | 24.3 | 24.0 |
| Netherlands | 12.7 | 12.5 | 12.0 | 10.9 | 10.1 | 9.6 | 10.2 | 10.0 | 9.8 | 9.5 | 9.1 | 9.2 |
| Poland | 27.7 | 27.4 | 27.1 | 26.8 | 26.0 | 25.3 | 25.9 | 25.4 | 25.0 | 24.4 | 23.8 | 23.5 |
| Portugal | 22.2 | 21.7 | 21.2 | 20.1 | 19.2 | 18.7 | 19.5 | 19.2 | 19.4 | 19.4 | 19.0 | 18.7 |
| Romania | 33.6 | 32.5 | 32.2 | 31.4 | 30.2 | 29.4 | 29.4 | 29.8 | 29.6 | 29.1 | 28.4 | 28.1 |
| Slovenia | 26.7 | 26.5 | 26.0 | 25.8 | 24.7 | 24.0 | 24.6 | 24.3 | 24.1 | 23.6 | 23.1 | 23.5 |
| South-Cyprus | 28.7 | 28.3 | 28.1 | 27.9 | 26.5 | 26.0 | 26.5 | 26.2 | 26.0 | 25.6 | 25.2 | 25.7 |
| Spain | 22.2 | 21.9 | 21.3 | 20.2 | 19.3 | 18.4 | 19.5 | 19.4 | 19.2 | 19.2 | 18.6 | 18.5 |
| Slovakia | 18.4 | 18.2 | 17.6 | 17.3 | 16.8 | 16.0 | 16.8 | 16.4 | 16.0 | 15.5 | 15.0 | 14.6 |
| Sweden | 18.6 | 18.1 | 17.5 | 16.2 | 15.6 | 14.9 | 15.4 | 15.0 | 14.7 | 14.3 | 13.9 | 13.6 |
| United Kingdom | 12.2 | 12.3 | 12.0 | 11.1 | 10.6 | 10.1 | 10.9 | 10.7 | 10.5 | 10.1 | 9.7 | 9.6 |
| *28 EU-Countries/Average (unweighted)* | *22.6* | *22.3* | *21.8* | *21.1* | *20.3* | *19.6* | *20.1* | *19.9* | *19.6* | *19.3* | *18.8* | *18.6* |

**Note:** Own calculations, January 2014

**Table III.**
Size of the shadow economy of 28 European Union countries over 2003-2014 (in % of off. GDP)

| Country/Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Norway | 18.6 | 18.2 | 17.6 | 16.1 | 15.4 | 14.7 | 15.3 | 15.1 | 14.8 | 14.2 | 13.6 | 13.1 |
| Switzerland | 9.5 | 9.4 | 9.0 | 8.5 | 8.2 | 7.9 | 8.3 | 8.1 | 7.8 | 7.6 | 7.1 | 6.9 |
| Turkey | 32.2 | 31.5 | 30.7 | 30.4 | 29.1 | 28.4 | 28.9 | 28.3 | 27.7 | 27.2 | 26.5 | 27.2 |
| *3 Non EU-Countries/Average* | *20.1* | *19.7* | *19.1* | *18.3* | *17.6* | *17.0* | *17.5* | *17.2* | *16.8* | *16.3* | *15.7* | *15.7* |
| *Unweighted Average of all 31 European Countries* | *22.4* | *22.1* | *21.6* | *20.9* | *20.1* | *19.4* | *19.9* | *19.7* | *19.3* | *19.0* | *18.5* | *18.3* |

**Note:** Own calculations, January 2014

**Table IV.**
Size of the shadow economy of three European countries (Non EU-Members) over 2003-2014 (in % of off. GDP)

- In our paper we clearly demonstrated the existence of 17 shadow economy research areas, which should be pursued as part of interdisciplinary co-operation. This implies that research fields cannot be limited solely to, for instance just economy or law or management or psychology, as the studies encompassing contact points between different disciplines of learning are gaining in value, providing complementary knowledge. Such taxonomy which we propose of course does not exhaust research areas or the possibilities of applying learning in this respect – to the contrary – it should serve as the point of reference and search for new or crystallizing existing paradigms.
- Still the main driving forces of the shadow economy are indirect taxes, followed by self-employment and unemployment. Hence, these are the most efficient policy options to reduce the shadow economy.
- Massive swindling of value added tax in intra-community trade within the EU requires real, and not makeshift co-operation, which should be taking place in real time and through coordinating actions in executive mode, e.g.: OLAF. Without that it would be mostly tax administrations of given fiscal jurisdictions who would decide on their own whether they protect their own national economy or unfair competition. At that, excessive interference in budget policy of given member state could be extremely dangerous and used for a variety of purposes in the event of excessive governance from outside.
- The average shrinking, demonstrated by us, in the scope of EU shadow economy in 2014 to 18.6 per cent of GDP does not necessarily have to reflect its true scope, which through regular advances in tax engineering can reflect deformations and statistical errors, in a broad spectrum of confidence. They certainly point to a trend, which should be subjected to more extensive analysis, within the scope of numerous internal factors of economic turnover itself, and of its external environment.

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