Statistics Netherlands

Report

Inclusion of Non-Observed Economy in Dutch National accounts after the 2010 ESA revision

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[1] The views expressed in this paper are those of the authors and do not necessarily reflect the policies of Statistics Netherlands. The research reported here is joint work by numerous colleagues. The authors would like to thank Piet Verbiest, Brugt Kazemier, Marcel Pommée, and Gerard Eding for valuable comments and suggestions.

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1. Introduction

National accounts need to be exhaustive covering all economic activities confined within the production boundary regardless of whether they are (il)legal, (in)formal or underground. There is a compelling reason for insisting on exhaustiveness, which is that due to the fact that supply and demand always need to balance, the exclusion of certain productive activities will have a distorting effect. For instance, the production of XTC requires all sorts of chemical products, which when not consumed in the absence of XTC production, may cause imbalances between supply and demand. In the integration phase, these chemical products will if we do not account for XTC production in the accounts probably be wrongly allocated to the chemical industry or to exports.

While illegal activities should have been included in National accounts estimates already according to the 1995 ESA, it was common practice in the Netherlands and in the majority of EU member states to exclude them (Statistics Netherlands 2014). The main reasons were concerns regarding the quality of the estimates and in particular that comparability of National accounts data between countries would be jeopardized. However, after lengthy debates in the GNI committee, it was finally concluded that illegal activities have to be included in the National accounts of member states with the 2010 ESA revision. This will have an upward effect on e.g. GDP in all member states in the EU. Of course there will be differences in the impact of illegal activities on the member states' accounts. But as of September 2014 al EU member states will publish their national accounts including illegal activities.

There are all sorts of underground activities and the boundaries are sometimes diffuse. In this paper we follow the structure and definitions regarding the non-observed economy (NOE) as provided by the OECD (2002). The OECD handbook distinguishes between five problem areas:

- Underground production: "Production from which the revenues are not declared in full to the fiscal authorities, e.g. clandestine production of textiles." (ESA 2010)
- Illegal production: "Production forbidden by law, as long as all units involved in the transaction enter into it voluntarily" (ESA 2010);
- Informal sector production: "productive activities conducted by unincorporated enterprises in household sector that are unregistered and-or are less than a specified size in terms of employment, and that have some market production" (OECD 2002);
- Household production for own final use:
- Production missed due to deficiencies in data collection program. This could be due to undercoverage, non-response, or underreporting of enterprises.

The boundaries between these categories are often difficult to draw. For instance, revenues from illegal activities are most likely also not declared to the tax authorities. Also the interpretation of the notion illegal is not always straightforward: there is illegality in a strict sense (penal code) and illegality in a broader sense (breaking the law). A further complication arises with respect to its scope. Is illegal predicated of activities or of individuals engaged in the activity. For instance, is a dentist without the proper qualifications an example of illegal activity?

Regarding the 5th category 'deficiencies in the data collection program', in the Netherlands when compiling output by economic activity using business surveys, already a lot of statistical deficiencies are corrected for by doing imputations. It is difficult to quantify the

value of these imputations as they are included in the data sources used by the National accounts. There are however various types of activities that fall within the production boundary but for which no regular data sources are available, for which we make estimates. Some of these activities could also be classified as being part of the informal sector. In the Dutch National accounts tradition we call category 3, 4 and 5 combined "white spots" (Van de Ven 1998). This category also includes tips, which are seen as rewards for production and hence need to be included in the value of the transaction.

It is important to mention that some NOE activities cannot be separately identified due to the type of data sources that is being used. For example, in agriculture, crop harvest data is used to estimate production which is necessarily exhaustive, and will include output that is the results of NOE activities. For these reasons it is difficult to provide an accurate estimate of the size of the NOE, nor to provide an exact breakdown between the types of problem areas. We can only aspire to provide exhaustive estimates of production.

Statistics Netherlands has a long tradition of doing research on the NOE going back to the 1980s (Van Eck and Kazemier, 1988; Kazemier and Van Eck, 1989; Kazemier, 1991). Two research lines have been followed during all these years: one on illegal activities and one on underground activities.

Illegal activities: estimates were made for 1995 and 2001 (Van der Werf, 1997 and 1998; Smekens and Verbruggen, 2005). Recently a time series of various illegal activities has been estimated in a project partly financed by Eurostat (Kazemier et al. 2012; 2013).

Underground activities: as a follow-up to the survey held in the 1980s, an experimental survey was held in several years (2006-2010) to investigate the size and the structure of the hidden labour market (In Dutch: "zwart werk")[2] (see Kazemier 2014). It was however concluded that the results of the internet survey were not robust enough to allow use for monitoring the size of the hidden economy and the experiments were stopped (Kazemier 2014).

Both strands of research do however give insights in the NOE and have been used in order to include estimates for the NOE during the 2010 ESA revision of the Dutch National accounts.

The objective of this paper is to provide a concise overview of the main results of the inclusion of various types of NOE activities during the 2010 ESA revision (see Kazemier 2003 for a similar overview of exhaustiveness for the 1995 ESA revision).

The outline is as follows. In Section 2 we describe the main methods used for respectively underground activities, illegal activities, and other activities falling in the production boundary. Section 3 discusses how NOE activities are implemented in the Dutch National accounts databases. Section 4 presents the main results. Section 5 discusses issues related to data quality and uncertainty and concludes with an outlook on future activities in this area.

[2] Some of this was commissioned by the Ministry of Social Affairs.

2. Methodology

2.1 Approaches

There are various approaches towards generating estimates for the NOE (OECD, 2002; Kazemier 2006). Macro model methods such as those used by Schneider (Visa Europe et al., 2013) often draw a lot of attention due to the big numbers they generate[3], however is it obvious that these estimates have serious shortcomings (Kazemier 2012). Most notably, their modular approach risks double counting of activities that are already included in National accounts and GDP estimates, and they are often based on crude assumptions. Finally, their macro approach makes them unsuitable for National accounts usage as we need detailed information (at least production and value added) at the industry level used in the accounts.

The second type of approach is based on using discrepancy methods. There are all sorts of examples of this approach. On the macro level, for instance, one could compare the production, income and/or expenditure approach with each other, and identify possible differences as due to NOE. On a meso level however, a discrepancy method could also compare reported production of a specific activity (available from business survey) with theoretical production (estimated using assumptions or information from branch organizations), which is an approach that we also use.

A third approach is to run surveys. However, results are not always reliable due to low response rates and unwillingness of respondents to admit engaging in hidden work (shown by a specific drop-out pattern). Nevertheless, surveys may provide useful information for identification of the scope of NOE (i.e. in which sectors does it occur mostly) and for obtaining other information (e.g. average renumeration) regarding NOE activities.

The approach that we follow can be described as an activity specific method.

As a first step, we list the phenomena which we believe are (to a certain extent) non-observed. As point of departure we took the phenomena for which NOE estimates were already included before the revision. Subsequently, this list was supplemented with phenomena that were mentioned during the surveys (for instance hidden activities in the area of ICT and business services). Finally, several phenomena were added that were mentioned in newspapers or other background articles. An example of the latter is for instance the increasing use of unregistered taxis (in Dutch: "snorders") for which we have made an estimate.

Secondly, we make for each phenomenon a best estimate of production and intermediate consumption using available data sources. Examples are research reports, newspaper articles, internet searches etc., sometimes in combination with business survey results. In addition, sometimes, due to a lack of information, we have to resort to expert guesses.

In a final step, the estimates for production and value added are translated into labor inputs. Hereto we use information about average renumeration per phenomenon which are derived mostly from the earlier mentioned survey that was held on underground activities to calculate first the number of worked hours. Sometimes proxy wages are used from the industry in which the NOE phenomenon is occurring. In a second step, the number of worked hours was translated into man-years. In a final step, the number of man-years was translated into number

[3] For instance in 2005 according to Visa et al. 2009 the shadow economy would amount to 11 percent of GDP for the Netherlands, 20 percent for Belgium and 39 percent for Latvia. In 2013, this would be respectively 9, 16 and 26 percent. (Visa et al. 2013).

of jobs (distinguishing self-employed and employees) taking into account the expected average number of worked hours per worker (part-time factor).

2.2 Description of activity specific methods

We will now provide a brief description of the activity specific methods used for estimating underground activities, illegal activities and white spots. We focus here on giving a description of the most important activities in terms of value added. More detailed descriptions of the methods used for illegal activities can be found at Kazemier et al. (2013) and Statistics Netherlands (2012). Regarding the estimation of labour inputs, we restrict ourselves to the most important categories in terms of additional jobs.

2.2.1 Underground activities

House renovations (large-scale maintenance), small-scale maintenance
According to a Dutch research report (SEOR 2004) on informal activities commissioned by households, 30 percent of jobs are organized outside the regular market. The Dutch branch organization of households who own a house (VEH 2011) provides information on average costs on major maintenance for 2010. Herewith an estimate is made on the value of production.

Regarding small-scale maintenance, information was used from the most recent Dutch household budget survey on expenses on minor maintenance (painting etc.) from 2007. Information is extrapolated based on the development of the number of households and a price index.

Estimates for intermediate consumption are made assuming that the ratio of intermediate consumption to production is identical to that found in the (legal) construction sector.

Car repair and maintenance
Point of departure is the motor vehicle fleet (cars and motorcycles) in the Netherlands. It is assumed that lease cars or company owned cars are not subject to repair and-or maintenance in the hidden economy. Moreover, we assume that motor vehicles under 5 years old will in all likelihood also not be repaired in the hidden economy due to for instance factory warranties and the durability of today's new cars. In 2009, we arrive at approximately 5.7 million vehicles remaining. An assumption is made that the price of the annual maintenance and/or repair amounts to 65 percent of the regular legal price.

Regarding maintenance costs, the estimate is based on an assumption on the percentage of car fleet (motorcycles are estimated separately) that are treated in the hidden economy broken down by age of the car (ranging between 4 and 8 percent). A correction is made for the fact that not every owner will do proper maintenance (depending on the age of the car).

Likewise, an estimate for repairs is made based on the number of claims per year and the average damage, based on the annual report of the branch organization (FOCWA), in combination with an assumed percentage of cars (which is allowed to differ between years) that is repaired (ranging between 6 and 10 percent) in the hidden economy.

Estimates for intermediate consumption are obtained assuming the same ratio of intermediate consumption to production as found in the legal sector.

Hairdressers
Here a discrepancy analysis was used, comparing the reported revenues from the business survey with an estimated theoretical revenue. The latter is based on several assumptions: we assume that 10 percent of the population does not frequent a hairdresser. Furthermore, we use information from the branch organization on number of visits by gender and age category and on average prices.

Food and beverage service activities
Essentially the method consist in using a mark-up of 3 percent of legal production for selected activities. This is a continuation of the method that was already in use during the 2001 benchmark revision (Statistics Netherlands 2008). The main difference is that we no longer make an estimate for restaurants as we assume that most payments occurs electronically and there is less possibility for hidden transactions.

Landscaping
Before the 2010 revision, no estimate for underground activity was included in the national accounts, however based on the survey results it was decided that an estimate was warranted. The approach followed was to do a mark-up of 5 percent of the output reported in the business survey of landscaping services (i.e. excluding by-products from this sector). The 5 percent was chosen based on the assumption that 50 percent of landscapers engages in hidden activities for one day a week, during half a year. Intermediate consumption was estimated based on business survey data, taking into account that some of the (maintenance) costs will be borne by the employer as equipment is likely to be borrowed.

Illegal temporary employment through employment agencies
Here the demarcation underground / illegal proves difficult. Kazemier et al. (2012) include this estimate in the illegal sector, but given that an estimate for this phenomenon was already included in the 2001 benchmark revision, we have subsumed it here under the underground sector. The estimate is based upon the number of mediated illegal man-years and an average margin (going back to Smekens and Verbruggen (2005) based on various research reports e.g. Zuidam and Grijpstra -2004). It is assumed that these mediated workers are employed by these agencies and the height of their salaries is assumed to be equal to the average margin. The main reason being that it seems likely that companies do not want to know who they are hiring, they prefer to pay just compensation to the intermediary who then pays the wages.

In addition, there is a range of other activities for which estimates concerning underground activities have been included in the 2010 revision but whose effect on value added is smaller than 50 million euro: textiles; wholesale; collection and sale of metal waste; unregistered taxis; ICT and business support activities; and, activities in the entertainment sector (e.g. music bands and guides).

2.2.2 Illegal activities

Activities are qualified as illegal when the production, sale or possession is forbidden by law. Most often these activities are also not declared by the tax authorities. Illegal activities that are estimated by Statistics Netherlands are (i) the production and sale of drugs (further specified into cannabis, heroin/cocaine and XTC), (ii) prostitution, (iii) smuggling of cigarettes, (iv) fencing, (v) illegal copying of software, movies or films, (vi) illegal gambling and (vii) illegal employment by employment agencies.

In the Netherlands these activities are in fact not all fully illegal. Under certain conditions is legal. Prostitutes have to declare their income to the tax authorities and this part of the prostitution sector will already be included in the National Accounts, just as the expenses that they can deduct from their income statement. In our approach we estimated the entire prostitution sector and adjusted for the part we already assumed to be covered by our national accounts. Also for cannabis the rules are less obvious as the possession and use of the drug is tolerated. Coffee shops can sell cannabis up to a certain amount a day, but the production and the purchase of cannabis by coffee shops is still illegal. Also for this activity we estimated the entire sector. The method distinguishes between the production of cannabis and its subsequent sale.

Each of these illegal estimates required a specific methodology to estimate the value added to the economy. Because of the nature of these activities information is hidden just as the activity itself. However there are many data sources each covering certain aspects of the activities. For drugs and prostitution this is elaborated upon briefly below, for a description of the full methodology and the other illegal activities we refer to Kazemier et al. (2012).

Drugs

Drugs are further specified into cannabis (for which we know there is a large production in the Netherlands), XTC (production used to be high but gets lower due to international competition and declining demand) and heroin/cocaine (no production in the Netherlands, only trade). Domestic consumption is estimated by combining the number of users, the average quantity used and street price. For heroin/cocaine the domestic consumption has to be covered entirely by imports and the remainder is considered exports. For imports, exports and domestic consumption the price information is gathered from the World Drug Report (UNODC), number of users for all drugs are taken from the Trimbos Institute, which is a center of expertise on mental health and addiction in the Netherlands.

Production is estimated using (assumed) seizure rates on XTC-laboratories or cannabis plantations. The seizure rate in these estimates is quite influential and little is known about it. Intermediate costs can be quite substantial because plantations/laboratories are set up, drugs are transported, stored and distributed. For this part of the drug trade very little information is known and intermediate costs are assumed to be a fraction of the total production.

Prostitution

For prostitution the estimates start with domestic consumption. This equals the number of prostitutes times the number of clients per week, the price per visit and the number of working weeks in a year. Adjustments are made for imports (prostitutes from abroad who work in the Netherlands for less than a year) and exports (foreign visitors of Dutch prostitutes).[4] Total turnover is assumed to be divided 50/50 by the prostitutes and the managers.

The intermediate costs of prostitutes consist for example of the use of condoms and clothing and transportation costs in case of escorts. These expenses are probably already included in the National accounts but allocated under 'clothing' or 'transportation costs'. To avoid double counting adjustments are made for the cases to which this applies.

[4] Technically speaking this is implemented through adjustment for consumption of non-residents in the Netherlands.

2.2.3 White spots

Own account construction
According to a report by the Dutch Economical Institute for Housing and Construction (EIB, 2004), 27 percent of construction projects commissioned by individuals, are implemented on own account. This percentage is used in combination with information about the number of building permits issued and an estimate about the average building costs to obtain an estimate of production value.

Tips
There is in general a lack of data sources here, and we need to rely to a large extent on expert guesses.

- Taxis: research has shown that about 75 percent of taxi services concern pre-arranged trips, where it is unlikely that a significant amount of tips are given. For the remaining 25 percent we assume an average tipping rate of 5 percent. The resulting value is augmented with 10 percent to take into account tips during pre-arranged trips.
- Tips hairdressers: estimated as 2 percent of the production value reported in the business survey. This is in fact a continuation of the assumptions made during the previous revision (Statistics Netherlands 2008).
- Tips restaurants, bars and hotels: tips in restaurants and bars are estimated as 4 percent of the production value reported in the business survey, while for hotels 1 percent is used reflecting the fact that more frequent use is made of electronic payments. This is in fact a continuation of the assumptions made during the previous revision (Statistics Netherlands 2008). A confrontation was however made by comparing the resulting value with the reported value for a fundraising event in which all tips obtained during one evening were donated (in Dutch: "Nacht van de Fooi").

Rental private houses
Privately owned houses that are rented out to tourist outside holiday parks are not accounted for in our business surveys. An estimate is made based on the number of houses in scope, average number of weeks rented, and average rental rates.

Cleaning (buildings and houses)
The estimates are based on the approach followed by SEOR (2004). Based on this survey the number of households which uses a cleaning lady is assumed to be 17 percent. The average number of hours worked is 3.4 and average wage rate was about 8.3 euros. A distinction is made between formal (30 percent) and informal activities (70 percent), where the latter are defined as cleaning not undertaken by companies or institutes. The 2004 estimate is extrapolated to 2010 based on the developments of the number of households and a price index. The labor inputs are estimated based on the assumption that a cleaning lady has on average 3 clients, resulting in 288 thousand jobs.

Likewise an estimate is made for informal cleaning of companies. Here we assume that only small companies (size classes 0,1,2) are cleaned, about 790 thousand. We use the same tariff as for house cleaning and assume this requires on average 1 day labor a week.

Babysitters and childcare
The production boundary in case of childcare is not easy to draw. Complicating factor is the Childcare Act (2005) which made it possible to accredit family (mostly grandparents) through approved agencies and obtain a subsidy ('host parents'). SEOR (2004) distinguishes between

formal mechanisms (daycare, host family, after school programs); and informal mechanisms (family; child-minders/sitters) and estimates the production value of the latter at 1.1 billion euro. This includes however childcare which does not fall within the production boundary because it can be considered voluntary without payment. Our estimate covers the production generated through 'host parents' as this is not registered through any other data source, and the production by child-minders/sitters.

Hereto, the method used in the SEOR report was used. A distinction is made between children aged 0-3 and aged 4-12 as children enroll in elementary school when they turn 4 in the Netherlands. Information is used about the number of children for those age categories, the percentage of households that use childcare in those ages; average hours of childcare a week; average hourly price (we assume that informal price is lower than the formal price); the type of childcare used.

Regarding the corresponding labor inputs, in 2010 about 75 thousand parents were using 'host parents', and according to Nibud (National Institute for Family Finance Information), about 80 thousands high school students sometimes work as a sitter.

In addition, there is a range of other activities for which estimates concerning white spots have been included in the 2010 revision but whose effect on value added is smaller than 50 million euro: kitchen gardens; the delivery of newspapers or (advertisement) leaflets; music lessons; and, tutoring.

3. Integration issues

In addition the challenging task of compiling data for the NOE, a technical issue concerns how NOE estimates can and/or should be integrated in the supply use tables. A possibility that was discussed during the revision process was to introduce separate activities for instance for cannabis production or smuggling to allow for separately identifying these activities. The solution eventually chosen was to introduce two additional products: Cannabis and Drugs. This has the advantage that we are able to separately identify production of the two largest illegal activities, without drastically changing the system.

Technically speaking, the estimates for NOE activities are introduced in the system that we use to generate estimates (prior to balancing) as an additional mark-up or correction layer to the observed economic activities. This requires that the estimated values for production and intermediate consumption are translated into the required product detail of the Dutch national accounts (around 600 products).

Furthermore, in order to compile supply and use in volume terms for the two newly introduced products, price information from the activity specific methods is used.

The value added estimated for non-observed activities need not be equal to the impact their inclusion will have on GDP due to the issue of double counting. Some revenues may already be included in National accounts. For instance, prostitutes may identify themselves as cleaning ladies. Also some expenditures may already be recorded in the accounts for instance under final consumption. There is therefore a need to reallocate some of these expenses. This reallocation has been done primarily for illegal activities. In case of underground activities and white spots, it was decided not to reallocate expenditures for historical reasons and data difficulties. In a number of instances, depending on the data sources, additional consumption was included in the consumption estimate. For instance, in case of hairdressers, the consumption estimate was based upon information from the branch organisation, which was close to the production value we obtained from the production survey, and hence it was decided to include the underground estimate for production also on the consumption side.

A large change concerned the reallocation of several activities from ISIC category 97 "Activities of households as employers of domestic personnel" towards the principal type of activity (e.g. ISIC 81 in case of house cleaning), which was caused by a reinterpretation of the scope of ISIC 97.

In addition to the five problem areas that were mentioned in the introduction there are several other issues that have to do with exhaustiveness.

First of all, a distinction can be made between understatement of revenues (missed production) and overstatement of costs (cost fraud) (Van de Ven 1998). NOE estimates often fall into the first category, which implies that estimates will be made for production and intermediate consumption, and result in increase of value added. Regarding cost fraud, companies or entrepreneurs may have incentives to overstate costs or declare private costs as company costs in order to suppress taxable profits. Hereto in the Dutch National accounts a general estimate is made to correct for these cost, decreasing intermediate consumption, hence increasing GDP (and final consumption). Cost fraud estimates are reported in Section 4.

The most likely manifestation of cost fraud is that costs made on the account of an enterprise are used for private purposes. Because of the tight inspection of bookkeeping with large enterprises cost fraud in this sense seems to be unlikely. Therefore cost fraud is assumed

only to occur with small enterprises with less than 10 employees. From business statistics cost categories most likely to be liable to fraud like transport cost, sales cost, costs of communication are selected. Each of these categories has a fixed, dedicated percentage of its value attributed to cost fraud.

Second, estimates are also made for wages and salaries in kind. These adjustment are however outside the scope this report.

4. Results

4.1 Underground activities

Table 4.1 provides resulting estimates for underground activities that have been included in the National accounts with the 2010 revision. The largest estimates are for house renovations and maintenance, employment agencies, and hairdressing and landscaping.

4.1 Estimates for various underground activities, 2010

Activity	Production	Int. Cons.	Value added	Jobs	Man. yrs	Wrk. hrs
	mln	*mln*	*mln*	*thousand*	*thousand*	*mln*
House renovations and maintenance	1,535	563	973	44	44	82
Car repair and maintenance	151	83	67	3	3	5
Food/beverage service activities	204	105	99	3	3	6
Temporary employment mediation	565	125	439	30	20	37
Hairdressers and landscaping	418	111	307	16	16	30
Other	264	20	244	12	12	23
	3,137	**1,008**	**2,129**	**108**	**98**	**182**

The total estimate for value added due to underground activities amounts to 2.1 billion euros in 2010, corresponding with an 108 thousand jobs.

4.2 Illegal activities

Table 4.2 provides resulting estimates for illegal activities that have been included in the National accounts with the 2010 revision. We see that cannabis production is the largest, followed by heroin/cocaine smuggling.

4.2 Estimates for illegal activities, 2010

Activity	Production	Int. Cons.	Value added	Jobs	Man. yrs	Wrk. hrs
	mln	*mln*	*mln*	*thousand*	*thousand*	*mln*
Cannabis	1,397	358	1,039	5	4	8
Drugs (e.g. XTC, heroin/cocaine)	474	54	420	3	2	4
Smuggling cigarettes and fencing	399	4	395	9	7	12
Illegal copying and gambling	267	23	244	3	3	5
Prostitution	861	324	537	9	6	10
	3,398	**763**	**2,635**	**29**	**21**	**40**

The total upward adjustment to value added due to illegal activities is 2.6 billion euro, which corresponds with about 29 thousand additional jobs.

4.3 White spots

Table 4.3 provides resulting estimates for household production for own final use and productive activities not covered by regular sources that have been included in the National accounts since the revision.

The total value added for white spots is 3.3 billion euros corresponding with 594 thousand jobs. The largest number of jobs is due to cleaning of houses, followed by babysitters and childcare

(in Dutch: "gastouders"). The estimates for value added for own account construction is 231 million euros.

4.3 Estimates for white spots

Activity	Production	Int. Cons.	Value added	Jobs	Man. yrs	Wrk. hrs
	mln	*mln*	*mln*	*thousand*	*thousand*	*mln*
Own account construction	403	172	231	24	11	20
Rental private houses	511	143	368	-	-	-
Cleaning	1,437	-	1,437	302	70	141
Babysitters and childcare	751	-	751	190	68	130
Other	91	11	80	77	8	18
Tips	470	-	470	-	-	-
	3,664	**327**	**3,337**	**594**	**157**	**308**

4.4 Impact on Gross Value Added

Table 4.4 presents an overview of the impacts of the various estimates that have been made for exhaustiveness during the 2010 revision on gross value added (GVA - basic prices) by ISIC.

In order to give a comprehensive overview Table 4.4 also includes estimates for cost fraud. This resulted in an upward adjustment of value added of 786 million euros for 2010.

4.4 Effect on GVA by ISIC by type of NOE including cost fraud, 2010

Section	*Division*	*Description*	*Cost fraud*	*Underground*	*White spots*	*Illegal*	*Total*	*GVA*	*% GVA*
A	01-03	Agriculture, forestry and fishing	88		5	67	160	10,828	1.5%
B-F	05-56	Industry, energy, construction	87	974	231	971	2,263	125,680	1.8%
G-I	45-56	Trade, transport, hotels, catering	250	214	442	776	1,682	110,472	1.5%
J-L	58-68	Communication, finance, insurance, real estate	35	-	368	73	476	107,164	0.4%
M-N	69-82	Business services	144	544	1,492	-	2,180	75,234	2.9%
O-Q	84-88	Government and care	-	-	770	-	770	123,746	0.6%
R-U	90-99	Culture, recreation and other services	142	398	28	515	1,083	14,633	7.4%
			746	2,130	3,336	2,402	8,615	567,757	1.5%
			0.1%	0.4%	0.6%	0.4%	1.5%		
								631,512	1.4%

We see that the total estimates for exhaustiveness amount to 8.6 billion euro in GVA which is equivalent to an upward revision of 1.5 percent of GVA of the Dutch economy (1.4 percent of GDP). Due to corrections for double counting, the total effect on GVA of illegal activities is slightly smaller than indicated in Table 4.2: 2.4 billion euro. This corresponds to 0.4 percent of GVA. The estimate for underground activities is also about 0.4 percent of GVA. The estimate for various white spots is slightly larger at about 0.6 percent of GVA. It needs to be pointed out

that these percentages are based upon initial estimates that subsequently may have been adjusted through the balancing process.

Expressed as percentage of the observable economy, we see that the largest differences occur in ISIC 90-99 culture, recreation and other service activities, followed by business services 69-82.

The revision has had significant implications for the labor accounts, as summarized in Statistics Netherlands (2014). Before the revision, estimates for underground activities and white spots were not fully harmonized with the Dutch labor accounts. This harmonization has led to an increase of the number of self-employed workers by 95 thousand (95 thousand man-years). Another 155 thousand jobs are due to counting of babysitters and child-minders, and an additional 24 thousand jobs are the result of the inclusion of a job estimate for construction on own account. The inclusion of illegal activities caused another 29 thousand additional jobs (21 thousand man-years).

As a result, the number of jobs for self-employed workers rises through the revision by 598 thousand, or 45 percent. Converted to working years, the increase is smaller, but still substantial at 273 thousand employment years or an increase of 33 percent. The total number of hours worked by self-employed workers has been adjusted upwardly by 25 percent.

5. Discussion and conclusions

It is important to underscore that it lies in the nature of NOE that the resulting estimates are subject to significant uncertainty. The level of uncertainty is substantially higher than in observable economic activities where there are often multiple data sources that allow a confrontation (e.g. business survey and international trade data). For some estimates, that depend for instance on seizure rates, the range could easily be a factor 2.

It is difficult to make a proper comparison with pre revision estimates on the NOE as these estimates were not separately identified within our National accounts databases. This situation has been solved with the 2010 revision where we have improved upon our process tables. Based on the description in the Dutch GNI inventory, extrapolated towards 2007, according to internal research pre revision value added of NOE amounted to about 6.6 billion euro excluding illegal activities and cost fraud compared to 5.5 billion after revision (in 2010 euros). This lower after revision estimate is not counterintuitive given that government has increased its oversight, and at the same time, the role of electronic payments has increased over cash payments.

The current findings can be placed in context by comparing them with other findings. For instance, we can make a rough estimate based upon the Eurobarometer survey (EU 2007) and its successor study (Williams et al. 2008), as 1.8 billion euros.[5] This would be significantly lower than our estimates of the underground and illegal sectors combined, but on the other hand, surveys are known to underestimate hidden activities. Indeed, our own survey averaged over 2007/2010 period found on average a total unrecorded income of about 435 million euros (Kazemier 2014). At the same time, by comparing the supply and demand side for hidden labor, it concluded that "overall it is not unlikely that total hidden income is underestimated by a factor 3 to 10" (ibid). Overall, it remains difficult to make a proper comparison with other findings primarily due to differences in scope (e.g. whether illegal activities were included).

Currently, as part of the ESA revision, we are finalising a time series of National accounts data going back to 1987. It is clear that estimating NOE activities for a recent year is one thing, estimating what they were like twenty years ago is enormously challenging (If not a mission impossible).

Estimating growth rates of NOE activities is also difficult. Again, in general an activity specific strategy is used. Most estimates follow key drivers such as number of households (in case of cleaning), or growth rate of consumption (in case of renovations or small maintenance of dwellings), or the development in the legal economy (e.g. tips). Given the continuity strategy of the Dutch National accounts, new insights that would change the level of estimated NOE production cannot be incorporated and have to be saved up for the next benchmark revision.

Drawbacks of the activity specific method is that it is eclectic and very time consuming. Indeed, in any economic sector there will be hidden activities to a certain extent, which is not always properly reflected in our approach that makes estimates only for what we think are the most important sectors.

Another issue concerns the fact that the NOE and the observed economy could be considered as substitutes. In times of crises, seeing an increase in NOE activities would not

[5] Labor force (7 million) * percentage of people engaged in off the record activities (13 percent) * average number of hours a year (110 for continental EU) * average wage (16,6 EU average) = 1.8 billion euro (2008).

seem counterintuitive. However, this is something that would be difficult to detect in most of our activity based methods (the exception being estimates that use meso level discrepancy analysis e,g. in the case of hairdressers).

Improving estimates of the NOE clearly warrants future research. In fact, at the moment, we are collaborating with the Dutch Tax Agency to see whether their fiscal audit data could be used to improve upon our activity specific methods. The audited companies are based on a random sample drawn from all small and medium enterprises. Although the audit is focused on estimating compliance with various tax measures, we are investigating to what extent the underlying data could be used to estimate missed production or cost fraud. The advantage would be that this would constitute a data source that would be comprehensive (covering all sectors), and annual (allowing to monitor NOE growth rates). However, companies that are unregistered in first instance cannot be audited, so even under these circumstances, certain types of estimates for exhaustiveness continue to be required.

6. Literature

EC, 2007. Eurobarometer Survey N°284, Undeclared Work in the EU.

Eck, R. van, B. Kazemier, 1988, Features of the hidden economy in the Netherlands. In Review of Income and Wealth, Series 34(3), pp 251-273.

ESA, 2010. European System of Accounts.

Economisch Instituut voor de Bouwnijverheid, 2004. Bouwen in eigen beheer en onrechtmatige bedrijfsuitoefening in 2003.

Heij, R. de., 2007. Linking the illegal economy to national accounts. (BPA 2007-149-MOO, Statistics Netherlands).

OECD, 2002. Measuring the Non-Observed Economy. A Handbook.

Kazemier, B., 2014. Hidden workers and the hidden worker potential in the Netherlands, Economic Analysis and Policy http://dx.doi.org/10.1016/j.eap.2014.01.005.

Kazemier, B., 2013. Zwartwerkers in Nederland. Economische Statistische Berichten.

Kazemier, B., 2006, Monitoring the Underground Economy – A Survey of Methods and Estimates. In Enste, D.H. and F. Schneider, 2006, Jahrbuch Schatten-Wirtschaft 2006-2007, (Lit Verlag, Vienna/ Berlin), pp. 11-54; 200-208.

Kazemier, B., 2003, The Measurement of the Non-observed Economy in the Dutch national Accounts. Paper presented at the Conference on the Non-Observed Economy: Measurement and Policy Issues, Rome, Italy, January 20-21, 2003.

Kazemier, B., 1991, Concealed interest income of households in the Netherlands: 1977, 1979 and 1981. In Public Finance, 46(3), pp 443-453.

Kazemier, B., and R. van Eck, 1989, Surveying hidden labour. In Netherlands Official Statistics, 4(1) (CBS, Voorburg/Heerlen), pp 4-20.

Kazemier, B., Bruil, A., van de Steeg, A., Rensman, M., 2012. The contribution of illegal activities to national income in the Netherlands. Statistics Netherlands, the Hague 2012; Public Finance Review September 2013 vol. 41 no. 5 544-577.

SEOR (2004). De markt voor persoonlijke dienstverlening, in opdracht van SZW.

Schneider, F. and D. Ernste, 2000, *Shadow economies: size, causes and consequences*. Journal of Economic Literature 38, pp 77-114.

Smekens, M. and M. Verbruggen, 2005. The illegal economy in the Netherlands, Discussion paper 05005 (Statistics Netherlands).

Statistics Netherlands, 2014. Nationale Rekeningen Revisie 2010.

Statistics Netherlands, 2008, Gross national income inventory (ESA 95), 2001 the Netherlands (Statistics Netherlands, The Hague).

Ven, van de, P., 1998. Illegale economie, zwarte economie en witte vlekken. Internal note.

Vereniging Eigen Huis, 2011. Woonpeil, augustus 2011.

VISA Europe, F. Schneider and A.T. Kearney, 2013. The shadow economy in Europe.

VISA Europe, F. Schneider and A.T. Kearney, 2009. The shadow economy in Europe.

Werf, R. van der, 1998. Illegal production in the national Accounts of the Netherlands. In Netherlands Official Statistics, (13, Autumn), 24-28.

Werf, R. van der, 1997. Registration of illegal production in the National Accounts of the Netherlands. Paper prepared for joint OECD, ECE and Eurotat Meeting on National Accounts, Paris 3-7 June 1997 (Statistics Netherlands, National Accounts Department).

Williams, Colin C. , Edwin Horlings and Piet Renooy, 2008. Tackling undeclared work in the EU, 2008.

Zuidam, M. en D.H. Grijpstra, 2004. Over de grens. Een onderzoek naar illegale activiteiten op het gebied van uitzendarbeid. Research voor Beleid.