

COUNTRY REPORT: BELGIUM

1. DESCRIPTION OF THE INDIRECT TAX SYSTEMS

This section describes the indirect tax system for Belgium. First we briefly explain the value added tax (VAT) system: the different rates and the goods and services they apply on. We then describe the system of excises for each relevant product category. Finally we list the other notable indirect taxes besides VAT and excises. Information generally refers to June 30th in a given year, unless specified otherwise. Information is presented up to the latest available year.

In order of importance, indirect taxes comprise of VAT (22.2% of total tax revenue, in 2014), excise duties (5.9% of total tax revenue), registration duties, mortgage duties, court fees and registration tax (3.4% of total tax revenue), estate duties and inheritance tax (2.5% of total tax revenue), miscellaneous duties and taxes (1.5% of total tax revenue), customs procedures upon importation, exportation and transit (1.0% of total tax revenue), and finally the packaging charge and the environmental charge (0.3% of total tax revenue).

1.1 Value Added Tax

The standard VAT rate is 21%, and applies to all the goods not mentioned in Table 14. There are two reduced rates, one of 6% and one of 12%. The system has not known a major change in the last decade. The most significant change was the change of VAT rate for electricity, from 21% to 6% (as of 1 April 2014), and back to 21% (2016).

Table 1: Overview of changes in VAT rates (2011-2016)

	2011-2016
Standard	21%
Reduced	12%
Super-reduced	6%

Source: Tax Survey 2011-2016

The reduced VAT rates apply to specific product categories, which are listed in Table 14 in the appendix.

VAT revenue as a percentage of total tax revenue decreased gradually since 2010, from 24.1% to 22.2% in 2015, whereas it remained rather constant as a percentage of GDP, totalling between 6.7% and 7.0%.

Table 2: VAT revenue 2010-2015

	2010	2011	2012	2013	2014	2015
million euros	25978.8	25978.8	26843.9	27250.0	27517.8	27546.6
% of government revenues	24.1	23.5	23.0	22.6	22.4	22.2
% of GDP	6.9	6.9	6.9	7.0	6.9	6.7

Source: National Bank of Belgium Statistics, EUROSTAT

1.2 Excise duties

Excise duties are levied upon energy and tobacco products, alcoholic beverages, coffee, and –to a very limited extent- some specific non-alcoholic beverages. The European directive concerning the general arrangements for excise duty (the so-called horizontal directive) applies to energy products and electricity, alcohol and alcoholic beverages, as well as manufactured tobacco (i.e. *excise goods*). Moreover, there are directives relating to the structures and rates of excise duties applying to these products and relating to the taxation of energy products and electricity. For non-alcoholic beverages and coffee (i.e. *excise products*), a special national system applies irrespective of the provisions of the horizontal directive (FPS Finance 2015 pp. 242).

1.2.1 Energy products and electricity

Directive 2003/96/EC of the Council of 27 October 2003 restructures the Community framework for the taxation of energy products and electricity. At national level, provision is made for this in Chapter XVIII of Title XI – Finance of the Programme Law of 27 December 2004. For the application of Chapter XVIII of the Programme Law of 27 December 2004, “excise duty” means (ordinary) excise duty, special excise duties, the inspection fee on domestic fuel oil and the levy on energy (FPS Finance 2015 pp. 246).

Table 3: Excises on energy products (euro per unit, 2011-2016)

	2011	2012	2013	2014	2015	2016	unit
Leaded petrol	637.7	637.7	637.7	637.7	639.4	643.4	1000 litre
Unleaded petrol							
<i>High-sulphur</i>	628.6	628.6	628.6	628.6	630.3	634.2	1000 litre
<i>Low-sulphur</i>	613.6	613.6	613.6	613.6	615.2	619.1	1000 litre
Gasoil (propellant)							
<i>(sulphur>10 mg/kg)</i>	425.7	442.7	442.7	442.7	443.9	480.0	1000 litre
<i>(sulphur<=10 mg/kg)</i>	410.7	427.7	427.7	427.7	428.8	464.8	1000 litre
Gasoil (Heating, non-business)							
<i>(sulphur>10 mg/kg)</i>	18.5	18.5	18.5	18.5	18.5	18.7	1000 litre
<i>(sulphur<=10 mg/kg)</i>	17.1	17.4	17.1	17.1	17.1	17.3	1000 litre
Liquefied Petroleum Gas							
Propellant	0.0	0.0	0.0	0.0	0.0	0.0	1000 kg
Heating (non-business)							
<i>Butane</i>	17.1	18.5	18.5	18.5	18.5	18.6	1000 kg
<i>Propane</i>	17.3	18.7	18.7	18.7	18.8	18.9	1000 kg
Heating (non-business)	0.27	0.27	0.27	0.27	0.28	0.28	Gigajoule
Electricity (non-business)	1.9	1.9	1.9	1.9	1.9	1.9	MWh

Source: Tax Survey 2011-2016

Overall excises on energy products did not keep track with the rise in the general price level over the period 2011-2016. Only excises on gasoil (used as a propellant fuel) and on butane and propane have increased by more than the increase in consumer prices over the period. The increase of gasoil excises is part of a move to eradicate the fiscal advantage diesel cars enjoy over cars using petrol.

1.2.2 Manufactured tobacco

For manufactured products of tobacco, both specific and ad valorem excise duties apply. The latter are expressed as a percentage of the retail price (i.e. including VAT). Moreover, all manufactured tobacco products are subject to a minimum excise (Tax Survey 2015, pp 255). For cigarettes there has been a shift from ad valorem excises to specific excises. Specific excises on smoking tobacco have increased each year. The excise duties on cigars have remained unchanged, at a level considerably lower than cigarettes and smoking (fine cut) tobacco. The latter is subject to both specific and ad valorem excises. The ad valorem excises has remained unchanged at 31.5%, but the specific excise has tripled since 2011, from 7.96 to 23.70 euro per kilo.

Table 4: Excises on tobacco products (euro per unit, 2011-2016)

	2011	2012	2013	2014	2015	2016	unit
<u>Cigarettes</u>							
<i>specific excise</i>	15.93	15.93	21.99	23.59	36.89	39.52	1000 units
<i>ad valorem excise (%)</i>	52.41	52.41	50.41	50.41	45.84	45.84	
<u>Cigars</u>							
<i>ad valorem excise (%)</i>	10.00	10.00	10.00	10.00	10.00	10.00	
<u>Smoking tobacco</u>							
<i>specific excise</i>	7.96	9.50	12.50	14.50	16.50	23.70	kg
<i>ad valorem excise (%)</i>	31.50	31.50	31.50	31.50	31.50	31.50	

Source: Tax Survey 2011-2016

1.2.3 Alcoholic beverages

Beer containing more over 0.5% alcohol is subject to specific excises, the height of which is subject to the degrees of Plato of the beer. The total excise duty on 1 litre of pilsner beer, with a density of 12.5 Plato degrees amounted in 2016 to: $12.5 \times 2.0 = 25.0 / 100 = 0.25$ euro. Beer produced by small independent breweries is taxed using a reduced excise (see Table 5 below). Beer excises have nominally increased by 17% over the period 2011-2016.

Table 5: Excises on alcoholic beverages (euro per unit, 2011-2016)

	2011	2012	2013	2014	2015	2016	unit
<u>Beer</u>							
<i>Standard rate</i>	1.71	1.71	1.71	1.85	1.85	2.00	hl/°Plato
<i><= 12500 hl</i>	1.49	1.49	1.49	1.61	1.61	1.74	hl/°Plato
<i><= 25000 hl</i>	1.54	1.54	1.54	1.66	1.66	1.80	hl/°Plato
<i><= 50000 hl</i>	1.59	1.59	1.59	1.71	1.71	1.86	hl/°Plato
<i><= 75000 hl</i>	1.64	1.64	1.64	1.77	1.77	1.92	hl/°Plato
<i><= 200000 hl</i>	1.69	1.69	1.69	1.82	1.82	1.98	hl/°Plato
<u>Wine</u>							
<i>Standard rate</i>	47.1	47.1	52.8	57.0	57.2	74.9	hectolitre
<i>Sparkling wine</i>	161.1	161.1	180.5	194.9	195.9	256.3	hectolitre
<i>< 8.5% vol.</i>	14.9	14.9	16.7	18.0	18.2	23.9	hectolitre
<u>Other fermented beverages</u>							
<i>Still</i>	47.1	47.1	52.8	57.0	57.2	74.9	hectolitre
<i>Sparkling</i>	161.1	161.1	180.5	194.9	195.9	256.3	hectolitre
<i><8.5 % vol.</i>	14.9	14.9	16.7	18.0	18.2	23.9	hectolitre
<u>Intermediate products</u>							
<i>Standard rate</i>	99.2	99.2	111.0	119.9	120.5	157.8	hectolitre
<i>Std. rate (Sparkling)</i>	161.1	161.1	180.5	194.9	195.8	256.1	hectolitre
<i><15 % vol.</i>	74.4	74.4	83.3	90.0	90.5	118.6	hectolitre
<i><15 % vol. (Sparkling)</i>	161.1	161.1	180.5	194.9	195.8	256.1	hectolitre
<u>Ethyl alcohol</u>	1752.2	1752.2	1962.0	2119.0	2124.7	2992.8	hectolitre p.a.

Source: Tax Survey 2011-2016

Excises on wine and other fermented beverages have increased by 59.0% in the period 2011-2016, excises on spirits and liquor even rose by 70.8%. The most import increase took place in 2016, as part of the so-called 'tax shift' to compensate for the lowering of the personal income tax.

1.2.4 Non-alcoholic beverages (including coffee)

A number of non-alcoholic beverages are subjected to excises as well, but this group only represents a very small share of total excise revenues (less than 1%). Coffee products are the most important among them. For an overview of the products we refer to the Belgian Tax Survey. Between 2011 and 2015, all excises on non- (or low-) alcoholic beverages have remained nominally unchanged. In 2016 as part of the general tax reform ('tax shift') the excises on non-alcoholic beverages have been increased.

Table 6: Excises on non-alcoholic beverages (euro per unit, 2011-2016)

	2011	2012	2013	2014	2015	2016	unit
Non-roasted coffee	0.1988	0.1988	0.1988	0.1988	0.1988	0.2001	kg
Roasted coffee	0.2486	0.2486	0.2486	0.2486	0.2486	0.2502	kg
Extracts, essences & concentrates of coffee,	0.6960	0.6960	0.6960	0.6960	0.6960	0.7004	kg
Other non-alcoholic beverages							
<i>Rate a</i>	0.00	0.00	0.00	0.00	0.00	0.00	hl
<i>Rate b</i>	0.00	0.00	0.00	0.00	0.00	6.81	hl
<i>Rate c</i>	3.75	3.75	3.75	3.75	3.75	3.75	hl
<i>Rate d</i>	3.75	3.75	3.75	3.75	3.75	3.75	hl
<i>Rate e</i>	3.75	3.75	3.75	3.75	3.75	3.75	hl
<i>Rate f</i>	3.75	3.75	3.75	3.75	3.75	3.75	hl
<i>Rate g</i>	0.00	0.00	0.00	0.00	0.00	0.00	hl
<i>Rate h1</i>	22.37	22.37	22.37	22.37	22.37	40.88	hl
<i>Rate h2</i>	37.28	37.28	37.28	37.28	37.28	68.13	100 kg

Source: Tax Survey 2011-2016

1.2.5 Tax revenue from excise duties

In 2015 excise rates amounted to 6.1 percent of total tax revenue, and 1.8 percent of GDP. After a gradual decrease, mainly because of non-indexation, excise revenue has increased again –slightly– as of 2014. Excises on energy products are responsible for the majority of excise revenues, representing 59% of all excise duties. Tobacco excises come second and account for 30% of excise revenue. Revenue from alcoholic beverages represent 10%, and excises on non-alcoholic beverages (including coffee) represent just 1% of total excise revenue.

Table 7: Proceeds from excise duties (2010-2015)

	2010	2011	2012	2013	2014	2015
% of government revenue	6.2	5.9	5.7	5.7	5.8	6.1
% of GDP	1.8	1.7	1.7	1.8	1.8	1.8
Per commodity (% of GDP)						
<i>Mineral oil</i>	1.09	1.09	1.04	0.99	1.03	1.08
<i>Tobacco</i>	0.52	0.45	0.49	0.56	0.54	0.55
<i>Alcoholic beverages</i>	0.17	0.16	0.16	0.18	0.18	0.19
<i>Non-alcoholic beverages</i>	0.02	0.02	0.02	0.02	0.02	0.02

Source: National Bank of Belgium Statistics

1.2.6 Prices

In Table 8 we list the prices of the excise products as programmed in Euromod. The selection is based on data availability of both prices, and of the level of detail on the expenditure level in the household budget survey.

Table 8: Consumer prices of excise goods/products (euro per unit, 2012-2016)

	2011	2012	2013	2014	2015	2016	unit
<u>Energy products</u>							
<i>Petrol (av. of 95 & 98)</i>	1558.4	1723.6	1678.1	1619.7	1463.1	1354.3	1000 litres
<i>Diesel</i>	1264.9	1531.8	1475.8	1415.4	1223.6	1138.6	1000 litres
<i>Gasoline (heating, <20000l)</i>	783.8	939.8	883.7	818.6	609.5	478.0	1000 litres
<i>Natural gas (D3, 23260 kWh)</i>	549.6	628.1	530.1	545.8	548.1	580.0	MWh
<i>LPG – propellant</i>	635.7	718.3	671.9	596.0	453.2	391.3	1000 litres
<i>LPG – butane</i>	1376.1	1522.0	1387.4	1364.5	1197.0	1431.8	1000 kg
<i>LPG – propane</i>	1445.4	1559.6	1380.8	1350.3	1677.3	1453.5	1000 kg
<i>Electricity (Dd, 7500 kWh)</i>	172.4	206.0	200.8	182.8	216.8	200.0	MWh
<u>Tobacco products</u>							
<i>Cigarettes (Marlboro)</i>	251.8	327.2	329.1	337.6	331.3	315.8	1000 units
<i>Smoking tobacco⁽¹⁾</i>	100.2	132.7	133.5	139.9	137.1	128.1	kg
<u>Alcoholic beverages</u>							
<i>Pilsner beer (Jupiler)</i>	231.7	232.4	233.7	231.2	234.6	240.0	hl
<i>Heavy beer (Duvel)</i>	730.7	705.3	710.8	712.9	711.5	730.0	hl
<i>Spirits (Whiskey, 40%)</i>	2144.0	2094.6	2128.2	2258.0	2314.4	2407.0	hl
<i>Apero (Vermout, 18%)</i>	647.9	668.6	685.3	752.5	828.5	860.0	hl
<i>Wine</i>	826.4	789.7	759.7	778.2	790.5	800.0	hl
<i>Low alcohol wine (Stassen 5%)</i>	375.9	371.4	382.2	408.5	420.0	433.0	hl
<i>Champagne (Laurent-Perrier)</i>	4111.3	4037.3	4053.5	4118.3	4089.5	4159.0	hl
<u>Coffee⁽²⁾</u>	12.3	16.5	15.6	16.0	17.1	16.0	kg
<u>Coffee pads⁽³⁾</u>	22.8	21.1	20.9	20.5	21.7	21.7	kg

Notes: ⁽¹⁾ Camel full flavour MYO/121G, ⁽²⁾ Douwe Egberts – Arome, ⁽³⁾ Douwe Egberts – Senseo

Source: Price Observatory 2012-2016, and 2016 retail prices (incl. Delhaize)

1.3 Other indirect taxes (see Tax Survey 2015)

The other indirect taxes in Belgium comprise of (1) the registration duties and the registration tax, (2) the mortgage duties, (3) court fees, (4) estate duties, (5) inheritance tax, (6) miscellaneous duties and taxes (including duties on written documents, deeds drawn up by notaries, deeds drawn up by bailiffs, and written bank documents, other written documents, (7) tax on stock-exchange and carry-over transactions, (8) annual tax on insurance transactions, (9) annual tax on profit-sharing schemes, (10) tax on long-term savings, (11) bill-posting tax, (12) annual tax on credit institutions, (13) annual tax on credit institutions, (14) import duties, (15) packaging charge, (16) taxes assimilated to income taxes, (17) circulation tax, (18) tax on the entry into service, (19) the Eurovignette, (20) betting and gambling tax, (21) automatic gaming machine licence duty, and (22) Tax on employee equity participation and employee participation in profits and enterprise results

For a detailed description of these tax instruments, we refer to the Fiscal Survey.

2. DATA

2.1 Description of HBS

The Household Budget Survey is conducted on a biannual basis (before 2010 it was done on an annual basis), and is organised by Statistics Belgium of the Federal Public Service for Economics. The survey sample covers the whole territory of Belgium and consists of private households (i.e. collective households such as homes for elderly, hospitals, student hostels, and other types of collective households are not covered by the survey sample). Data on most non-durable expenditures is derived from diaries filled in by respondents over a period of one month. Data on other kinds of spending is collected through face-to-face interviews and cover longer periods. All socio-demographic characteristics of households reflect the situation at the time of the interview.

2.2 Sample descriptives

Table 9 presents the distribution of expenditure in the HBS data across income deciles. Poor households spend most on *food & non-alcoholic beverages* and *housing & rent*. *Home fuels, electricity and water* is the third biggest expenditure group for low income households. *Durables* and *other goods & services* complete their top five. High-income households spend most on *durable goods, restaurants & hotels*, and on *food & non-alcoholic beverages*. *Other goods & services*, and *home fuels, electricity and water* come fourth and fifth. The two richest deciles spend 5.7 times as much on *restaurants & hotels* as the poorest ones, and 3.9 times as much on *durable goods*.

Table 9 Mean (unequalised) household disposable income and expenditure by income decile and expenditure category, Euro/month

Expenditure category	1	2	3	4	5	6	7	8	9	10	All
1. Food & non-alcoholic beverages	264	286	303	323	375	384	425	438	439	478	371
2. Alcoholic beverages	16	19	30	32	36	38	40	49	55	69	38
3. Tobacco	24	19	22	16	22	21	21	19	14	19	20
4. Clothing and footwear	68	70	88	99	125	141	174	193	192	216	137
5. Home fuels, electricity & water	174	187	197	205	208	203	226	221	229	263	211
6. Housing & rents	263	234	180	187	160	144	141	131	110	158	171
7. Household goods & services	39	53	64	87	81	100	120	144	138	145	97
8. Health	73	92	107	116	109	121	137	149	143	146	119
9. Private transport	65	98	128	169	171	187	193	215	212	261	170
10. Public transport	10	15	10	11	9	10	12	16	12	18	12
11. Communication	73	77	79	84	90	95	96	98	93	105	89
12. Recreation & culture	63	89	99	123	136	143	175	168	181	198	137
13. Education	12	11	10	9	20	15	24	17	13	18	15
14. Restaurants & hotels	67	97	146	185	226	292	296	352	404	530	259
15. Other goods & services	139	157	181	216	241	261	284	286	308	353	242
Durables	157	201	287	279	375	367	503	625	659	737	419
Mean household income	1331	1600	1871	2161	2534	2850	3240	3652	4058	5997	2928
Mean total expenditure	1507	1706	1932	2140	2385	2520	2867	3123	3203	3715	2509

Notes: deciles are constructed on the basis of household disposable income equalised with the modified OECD scale, allocating the same number of households to each decile.

Source: HBS 2014

2.3 Comparison of variable distributions in HBS and EUROMOD input data

The following subsection provides an overview of the comparability of HBS and the EUROMOD input data. Table 10 presents the comparison of sample descriptives of the datasets that are used in this project: HBS 2014 and SILC 2012. The HBS 2014 consists of 6135 households and 16093 individuals, and the survey response rate is 17,0% (Statistics Belgium, 2015). Table 10 presents the mean values of the covariates used to estimate (and impute) the Engel curves.

Table 10: Sample descriptives

	HBS	SILC
Household heads		
Mean age	47.8	51.9
Share of men	33.5	62.5
Secondary education	38.7	45.4
Higher education	35.3	39.4
Employed	42.6	56.6
Unemployed	9.6	6.2
Retired	27.2	30.9
Households		
Disposable income	2944.1	2775.6
Household size, mean	2.3	2.3
Number of children, mean	0.5	0.5

Number of employees	1.0	0.9
Region 1: Brussels	12.3	12.4
Region 2: Flanders	56.6	56.4
Region 3: Wallonia	32.1	32.2
Car ownership	83.1	77.2
Computer ownership	86.1	77.5

Note: variables presented in the table are self-reported

Source: HBS 2014, SILC 2012

Figure 1 provides further details on the distribution of values for the covariates age of the household head, the number of people in the household, number of children (less than 18 years) and number of people working in the household. The distribution of age is rather different for HBS and for the EUROMOD data. The HBS shows much more young people as household head, and has few persons older than 77 as head of the household.

Figure 1: Household head/household characteristics, HBS vs SILC

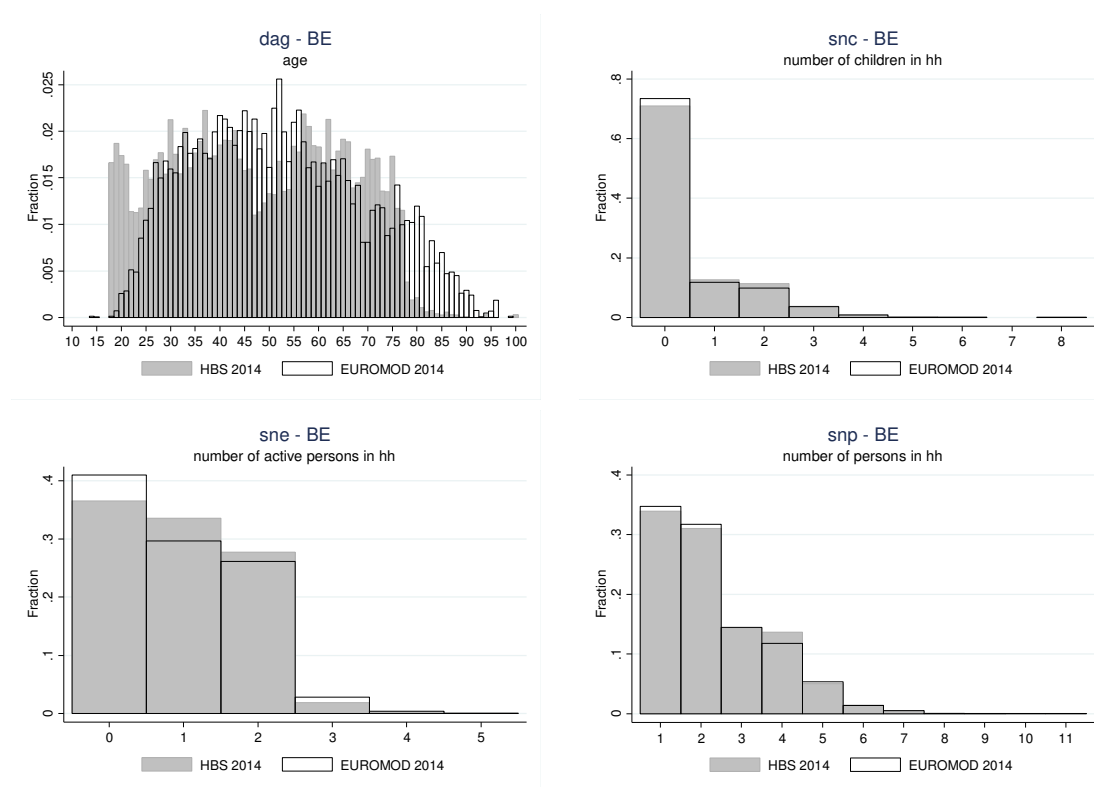
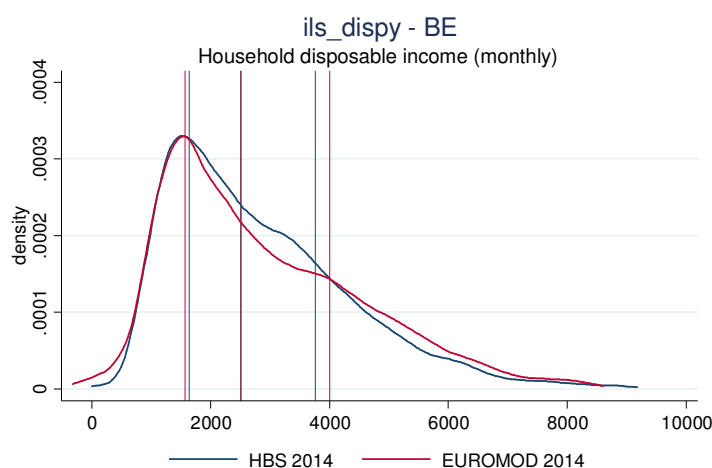


Figure 2 shows that household disposable income follows a very similar pattern in the two datasets. There are more incomes between 2000 and 4000 euro per month in HBS than in SILC, whereas there are more incomes the SILC data¹ that exceed 4000 euro per month. In general we can conclude that the two income distributions are very similar.

¹ From hereafter the term SILC data is used to indicate the EUROMOD input data that is based on the SILC data.

Figure 2: Household disposable income, HBS vs SILC

Notes: vertical lines show quartiles (25th percentiles); distributions truncated at the 99th percentile.

3. VALIDATION OF ESTIMATED ENGEL CURVES AND EXPENDITURES IMPUTED INTO EUROMOD

Table 14 presents the total expenditure and expenditures by category as observed in HBS, simulated in EUROMOD and observed in the National Account data (OECD). The distribution of imputed expenditures in the EUROMOD SILC is very close to the distribution of expenditures observed in HBS. The three biggest expenditure groups in HBS and EUROMOD are *food & non-alcoholic beverages*, *home fuels* and *durable goods*. However according to the OECD statistics the two largest expenditure groups after food are *other goods and services* and *private transport*. In the national account data the differences between different expenditure groups are somewhat smaller than what we see in the HBS.

Table 14. Total expenditures by category: HBS, EUROMOD (2014 simulations) and OECD

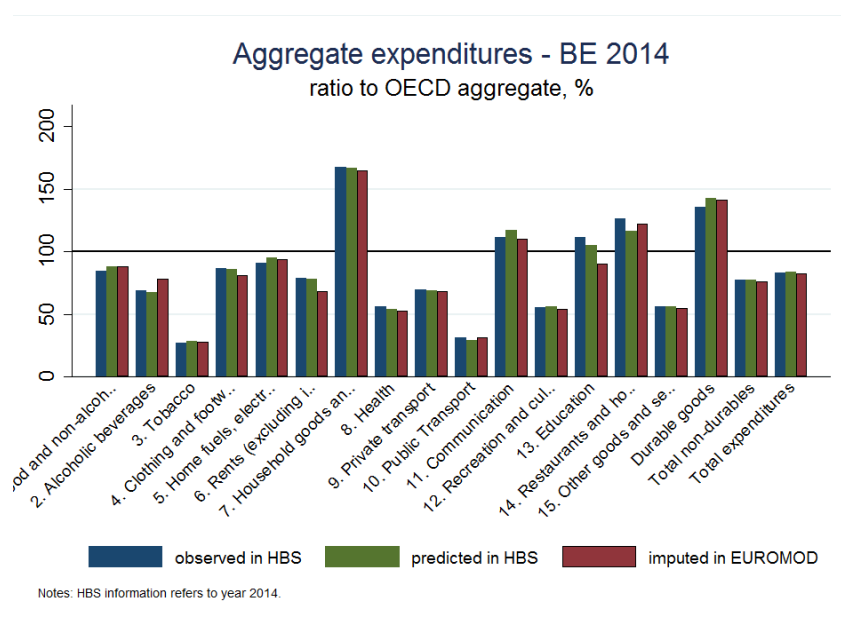
Expenditure category	Annual expenditure, mln. EUR			Share, %		
	HBS	EUROMOD	N.A.	HBS	EUROMOD	N.A.
1. Food & non-alcoholic beverages	21422	22326	25351	14.8	15.6	14.6
2. Alcoholic beverages	2217	2499	3206	1.5	1.7	1.8
3. Tobacco	1140	1165	4181	0.8	0.8	2.4
4. Clothing & footwear	7885	7399	9104	5.4	5.2	5.2
5. Home fuels, electricity & water	12188	12612	13436	8.4	8.8	7.7
6. Housing & rents	9854	8584	12518	6.8	6.0	7.2
7. Household goods & services	5596	5503	3348	3.9	3.8	1.9
8. Health	6883	6410	12248	4.8	4.5	7.0
9. Private transport	9799	9604	14135	6.8	6.7	8.1
10. Public transport	713	712	2247	0.5	0.5	1.3
11. Communication	5135	5081	4614	3.5	3.5	2.7
12. Recreation & culture	7920	7708	14217	5.5	5.4	8.2
13. Education	860	697	773	0.6	0.5	0.4
14. Restaurants & hotels	14965	14469	11863	10.3	10.1	6.8
15. Other goods & services	13985	13632	24789	9.7	9.5	14.3
Durable goods	24158	25127	17802	16.7	17.5	10.2
Total non-durables	120561	118402	156028	83.3	82.5	89.8
Total expenditures	144719	143529	173830	100.0	100.0	100.0

Sources: HBS 2014, OECD 2014, EUROMOD 2014

Next we look at how actual and imputed expenditure data compare across sources. From Figure 3 we can see that figures from the HBS (and imputed in SILC) can deviate quite substantially from the aggregates observed in the national account statistics (OECD). Total expenditures in the HBS make up to 83.3% of total expenditures in the national accounts. Lowest coverage is achieved by expenditure on *tobacco products* (27.3%), *public transport* (31.7%), and *recreation and culture* (55.7%). Underreporting of expenditures on sin goods as *alcoholic beverages* (69.2%) and *tobacco* is a well-documented phenomenon.

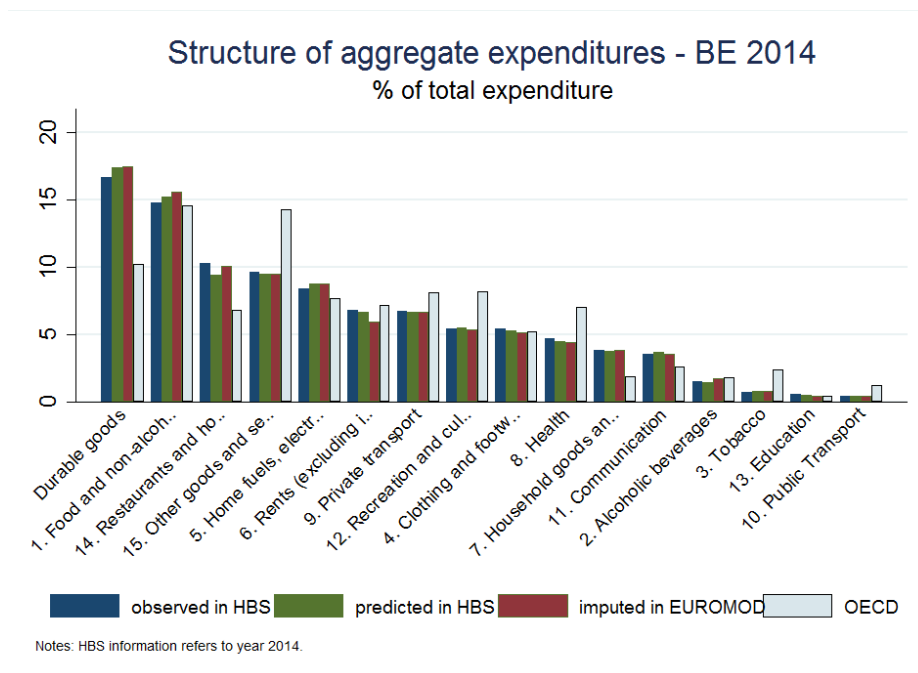
The match between actual HBS data and predictions into HBS (i.e. the within sample prediction) is very good with almost no noticeable differences. Imputation into EUROMOD also matches up well with the actual HBS data. Total imputed expenditure covers around 99.1% of actual expenditure in the HBS. Biggest difference can be seen in *education* expenditures with the simulated expenditure reaching 81% of what is observed in HBS, and *alcoholic beverages*, being 13% higher than the HBS total.

Figure 3: Aggregate observed and imputed household expenditures by category, ratio to the National Account total, %



The most important expenditure category is *durable goods*, followed by *food & non-alcoholic beverages*, and *restaurant and hotel services*. From figure 4 we can also see that in addition to the previously highlighted differences in expenditure figures there are also noticeable differences in the structure of expenditures when comparing with the National Account data. Although the differences in the structure are not as big as was the case with aggregate expenditure.

Figure 4: Share of expenditures in HBS (2014), EUROMOD (2014 simulations) and OECD (2014) by expenditure category, % of total expenditure



Finally, Figure 5 shows for each non-durable expenditure category its share in total non-durable expenditure and the share of durable expenditure in total expenditure by ventile of household equivalised disposable income, comparing observed and predicted values in HBS 2014 with imputed values in SILC.

Figure 5: Observed, predicted and imputed expenditure shares by ventiles of household equivalised disposable income, %

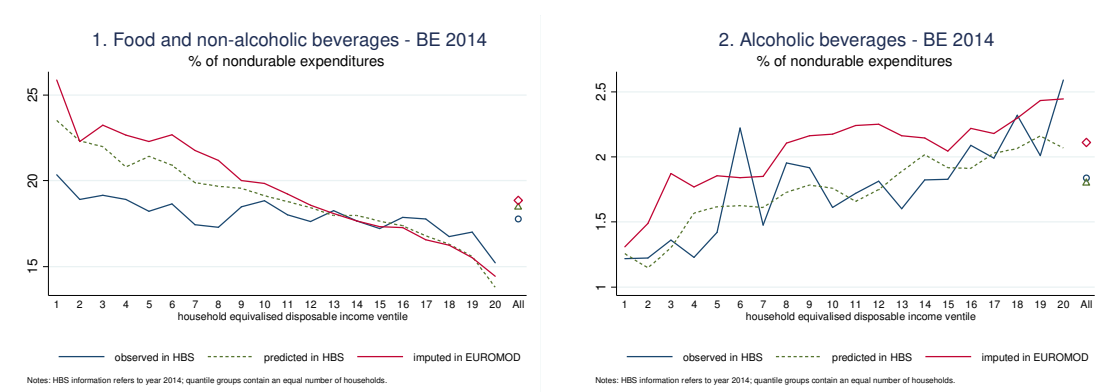


Figure 5: Observed, predicted and imputed expenditure shares by ventiles of household equivalised disposable income, %

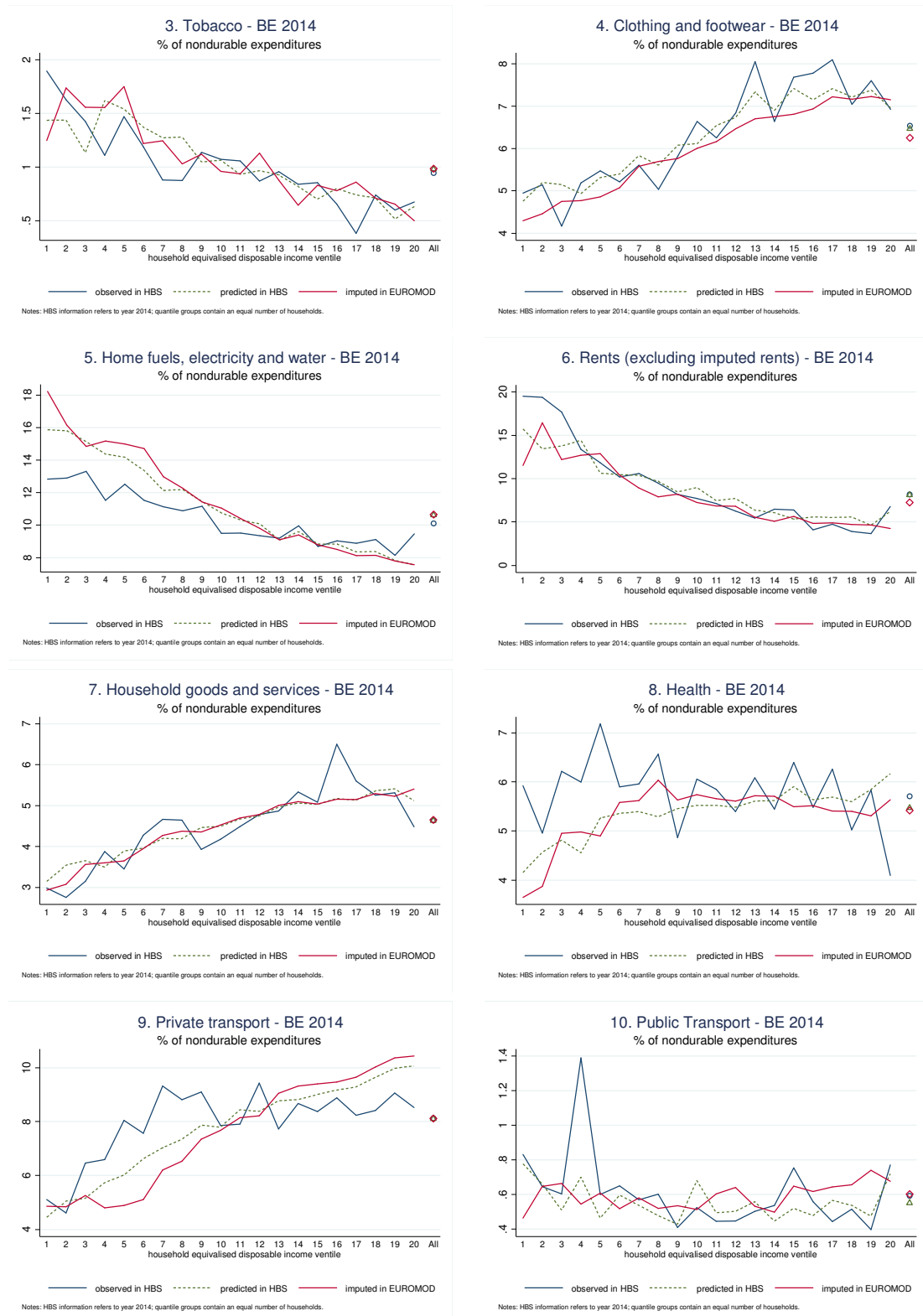
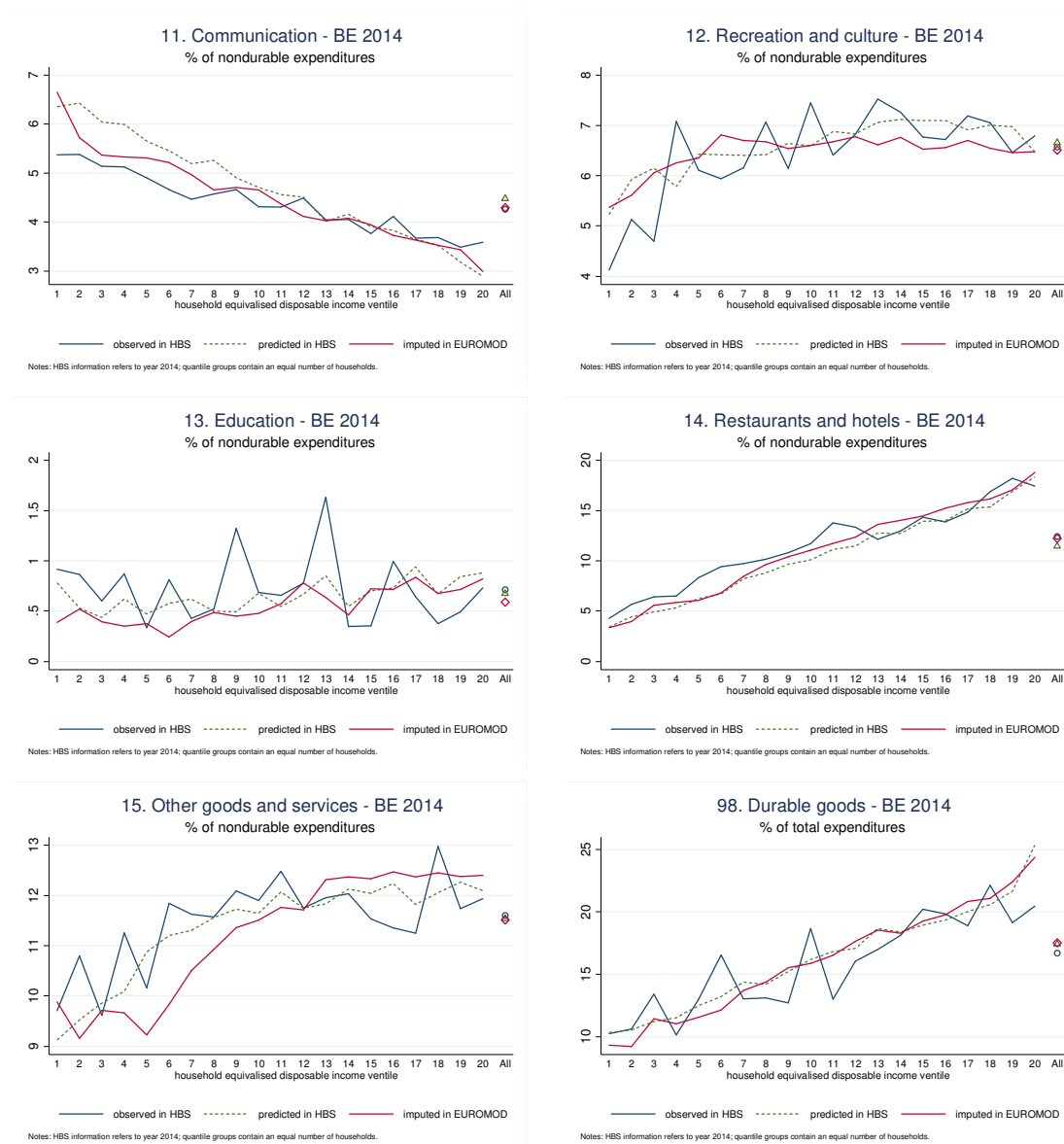


Figure 5: Observed, predicted and imputed expenditure shares by ventiles of household equivalised disposable income, %



Source: authors' calculations

Household expenditures are simulated in real terms, i.e. on the basis of 2011-2016 incomes up- or backrated to 2014. To obtain nominal expenditures and calculate indirect taxes for a given year, simulated real expenditures are then updated with the same index. The index is based on actual year-on-year nominal growth of household consumption in 2012-2015 and forecasted nominal growth of private consumption in 2016.

4. VALIDATION OF INDIRECT TAX SIMULATIONS IN EUROMOD

Table 15 presents the implicit tax rate by expenditure category. Because VAT rates have remained unchanged during the observed period we only see changes in the implicit tax rates in categories that are subject to some type of excises. The highest taxed items are tobacco products, the second highest category is alcoholic beverages followed by private transport. In

all these categories the relevant excises have been increased over the years and therefore we can see a rise in the implicit tax rate.

Table 15. Implicit indirect tax rate by expenditure category, %, 2011-2016

Expenditure category	2011	2012	2013	2014	2015	2016
1. Food & non-alcoholic beverages	6.1	6.1	6.1	6.1	6.1	6.1
2. Alcoholic beverages	39.6	42.3	44.8	45.3	43.9	52.6
3. Tobacco	250.8	248.3	254.4	260.0	260.1	274.6
4. Clothing & footwear	21.0	21.0	21.0	21.0	21.0	21.0
5. Home fuels, electricity & water	20.6	20.4	20.5	15.2	15.5	21.1
6. Housing & rents	0.0	0.0	0.0	0.0	0.0	0.0
7. Household goods & services	17.5	17.5	17.5	17.5	17.5	17.5
8. Health	1.8	1.8	1.8	1.8	1.8	1.8
9. Private transport	48.5	42.7	43.7	45.1	50.3	56.0
10. Public transport	6.0	6.0	6.0	6.0	6.0	6.0
11. Communication	20.5	20.5	20.5	20.5	20.5	20.5
12. Recreation & culture	14.8	14.8	14.8	14.8	14.8	14.8
13. Education	0.0	0.0	0.0	0.0	0.0	0.0
14. Restaurants & hotels	8.2	8.2	8.2	8.2	8.2	8.2
15. Other goods & services	2.6	2.8	2.8	3.1	3.1	3.1
Durable goods	20.2	20.2	20.2	20.2	20.2	20.2

Source: EUROMOD

For 2014 the total indirect tax amount estimated by EUROMOD made up 51% of the total relevant indirect taxes collected in Belgium. The coverage of VAT is 53%, whereas it is lower for excises: 47% for energy excises, 43% for alcohol excises and only 28% for tobacco excises.

The issue about actual tax amounts is that they represent tax revenues from all sources. It is not possible to break the tax revenue down by taxes paid by the households and businesses. Low coverage of alcohol and tobacco excises can primarily be explained by the underreporting of alcohol and tobacco expenditures, but also by cross-border shopping of foreigners. Low coverage of energy excise most likely the result of a larger share paid by businesses and by foreigners. In the case of VAT it would make sense to assume that households would be responsible for the majority of collected VAT.

Table 11 Indirect tax amounts 2011-2016, million EUR

		2011	2012	2013	2014	2015	2016
VAT	EUROMOD	14420.5	14849.7	15028.1	14616.6	14709.0	15556.0
	Actual	25978.8	26843.9	27250.0	27517.8	27546.6	
	Coverage	0.56	0.55	0.55	0.53	0.53	
Alcohol excise	EUROMOD	263.1	303.6	337.5	346.4	331.1	438.3
	Actual	624.0	635.1	689.8	738.3	778.2	
	Coverage	0.42	0.48	0.49	0.47	0.43	
Tobacco excise	EUROMOD	597.6	610.9	624.9	639.3	637.5	663.4
	Actual	1695.8	1909.2	2197.2	2183.8	2261.7	
	Coverage	0.35	0.32	0.28	0.29	0.28	
Energy excise	EUROMOD	1873.3	1652.9	1731.0	1805.4	2071.7	2373.2
	Actual	4142.9	4012.2	3875.1	4136.5	4413.1	
	Coverage	0.45	0.41	0.45	0.44	0.47	
Total indirect taxes	EUROMOD	17160.4	17422.6	17727.0	17413.4	17755.2	19036.9
	Actual	32511.8	33468.3	34084.7	34648.2	35069.4	
	Coverage	0.53	0.52	0.52	0.50	0.51	

Sources: EUROMOD, National Bank of Belgium

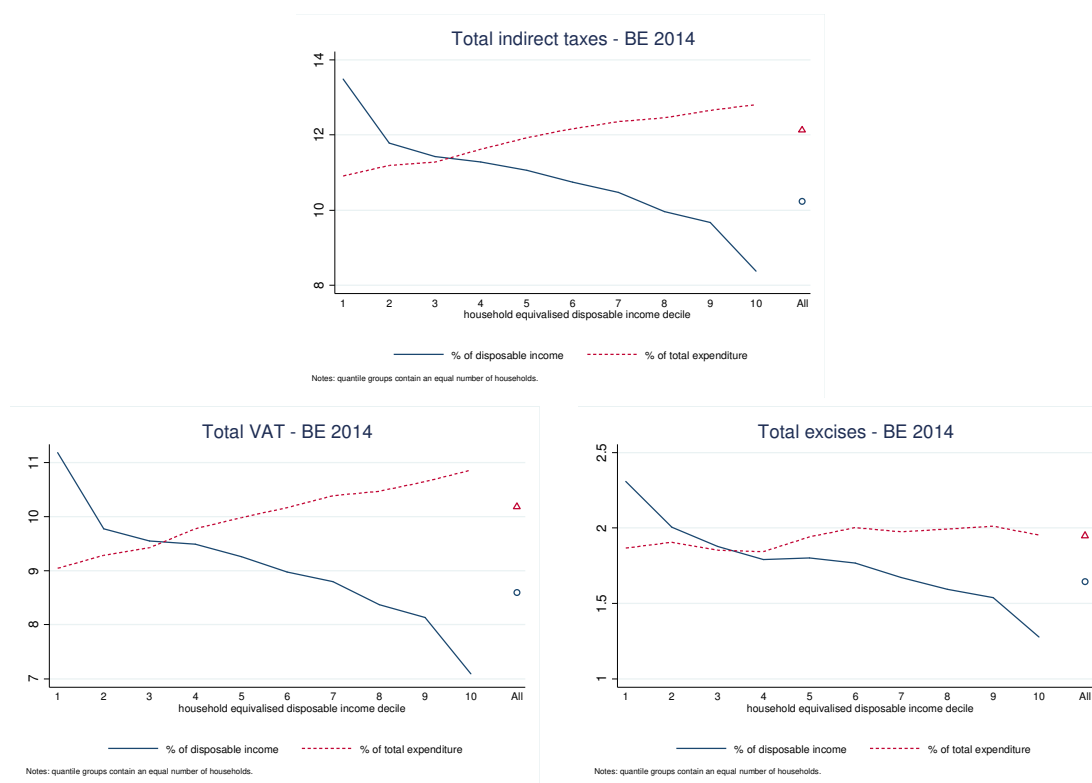
From Table 12 we can see the distribution of expenditure and indirect taxes across income deciles. It is expected that households with lower income spend a bigger share of their income and also pay a larger share of their income as indirect taxes. Both VAT and excises are regressive with respect to income: the households in the bottom decile pays 13.5% of their income on indirect taxes (11.2 on VAT and 2.3 on excises), while the top decile pays only 8.4% of their income (8.6 on VAT and 1.6 on excises).

Table 12 Mean household income, expenditure and indirect taxes by income decile, in 2014 Euro/month

Income decile	Disposable income	Expenditure	VAT	Excises	Share of exp. in income (%)	Share of VAT in income (%)	Share of excises in income (%)
1	1057.6	1308.0	118.3	24.4	123.7	11.2	2.3
2	1586.6	1670.2	155.0	31.8	105.3	9.8	2.0
3	1695.3	1717.4	161.9	31.8	101.3	9.5	1.9
4	2141.3	2079.3	203.3	38.3	97.1	9.5	1.8
5	2558.6	2372.9	236.9	46.1	92.7	9.3	1.8
6	3021.7	2667.7	271.2	53.4	88.3	9.0	1.8
7	3442.1	2915.1	302.8	57.6	84.7	8.8	1.7
8	3958.2	3163.4	331.2	63.0	79.9	8.4	1.6
9	4417.5	3374.7	359.3	67.9	76.4	8.1	1.5
10	5897.6	3852.0	418.4	75.2	65.3	7.1	1.3
All	2977.2	2511.9	255.8	48.9	84.4	8.6	1.6

Notes: deciles are constructed on the basis of household disposable income equivalised with the modified OECD scale, allocating the same number of households to each decile.

Source: EUROMOD

Figure 6: Incidence of indirect taxes by income decile, % of income and expenditure

Notes: deciles are constructed on the basis of household disposable income equivalised with the modified OECD scale, allocating the same number of households to each decile.

Source: EUROMOD

Table 13 presents the same information by expenditure deciles and relative to total expenditure. We can see from the table that the share of VAT in expenditure is slightly progressive along the expenditure distribution: the lowest expenditure decile pays 9% of their expenditures as VAT, the highest 11%. Excises are near proportional to expenditures, households in all expenditure deciles paying on average 2% of expenditures in excises.

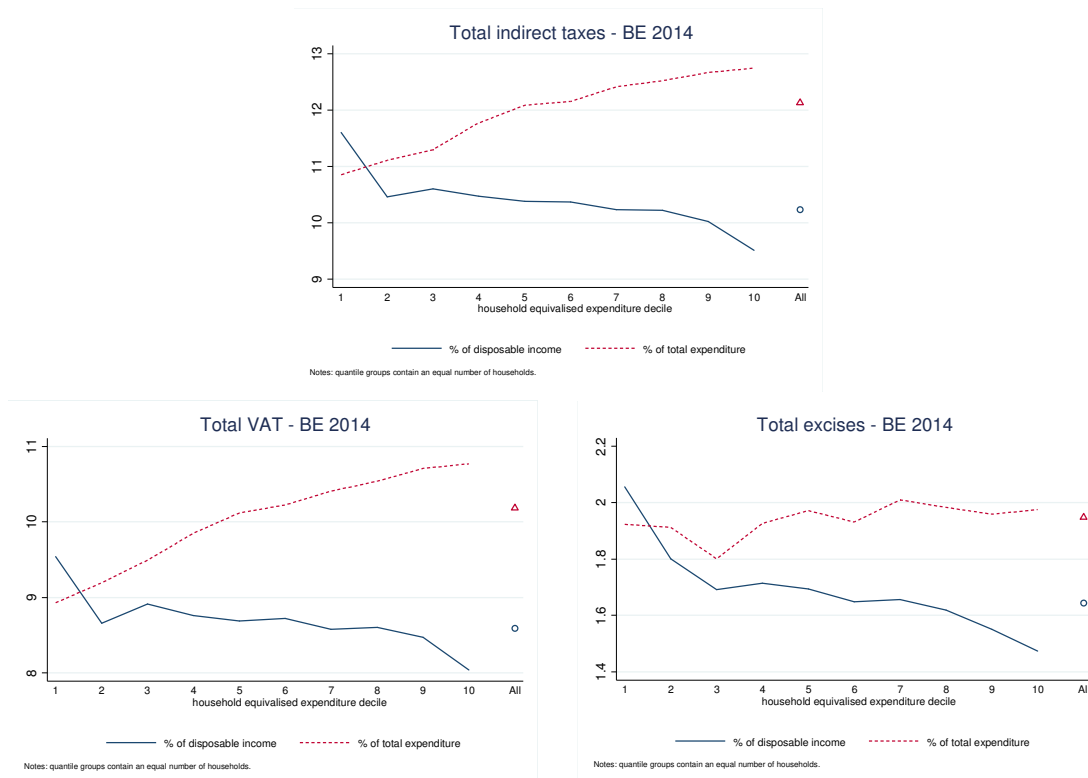
Table 13: Mean household income, expenditure and indirect taxes by expenditure decile, in 2014 Euro/month

Expenditure decile	Disposable income	Expenditure	VAT	Excises	Share of VAT in expenditure (%)	Share of excises in expenditure (%)
1	1257.9	1344.3	120.1	25.9	8.9	1.9
2	1786.5	1682.5	154.7	32.2	9.2	1.9
3	2042.4	1917.2	182.0	34.5	9.5	1.8
4	2528.7	2249.0	221.5	43.3	9.8	1.9
5	2960.2	2541.4	257.1	50.1	10.1	2.0
6	3199.0	2728.8	279.0	52.7	10.2	1.9
7	3507.1	2890.3	300.8	58.1	10.4	2.0
8	3745.6	3057.4	322.2	60.6	10.5	2.0
9	4055.0	3208.1	343.6	62.9	10.7	2.0
10	4695.8	3503.6	377.4	69.2	10.8	2.0
All	2977.2	2511.9	255.8	48.9	10.2	1.9

Notes: deciles are constructed on the basis of household total expenditure equivalised with the modified OECD scale, allocating the same number of households to each decile.

Source: EUROMOD

Figure 7: Incidence of indirect taxes by expenditure decile, % of income and expenditure



Notes: deciles are constructed on the basis of household total expenditure equivalised with the modified OECD scale, allocating the same number of households to each decile. Source: EUROMOD

5. REFERENCES

National Bank of Belgium Online Statistics: <https://stat.nbb.be/>

OECD.Stat: <https://stats.oecd.org/>

Tax Survey 2011-2016: http://finance.belgium.be/en/figures_and_analysis/analysis/tax_survey

Price Observatory 2011-2016:

<http://economie.fgov.be/nl/fod/structuur/Observatoria/Prijzenobservatorium/#.WHzinxvhCU>

APPENDIX

Table 14: Overview of reduced VAT product categories (2011)

Standard rate	All goods and services, except when mentioned below.
Super-reduced (6%)	<p>The following goods:</p> <ul style="list-style-type: none"> • live animals (for instance: bovine, swine, sheep, goats, some horses, poultry, etc.) • meat and meat offal • fish, crustaceans, shellfish and molluscs, with the exception of caviar and caviar • substitutes, spiny lobsters, lobsters, crabs, crayfish and oysters, and preparations and ready-made meals containing spiny lobsters, lobsters, crabs, crayfish and oysters • milk and dairy products; eggs; honey • edible vegetables, plants, roots and tubers • edible fruit; peel of citrus fruit or melons • vegetable products (for instance: cereals, seeds, live trees, bulbs, corms, roots and other plants for ornamental horticulture, fresh cut flowers and fresh ornamental foliage, etc.), with the exception of goods offered for sale as dog, cat and some other animals food • products of the milling industry; malt; starches, with the exception of goods offered for sale as dog, cat and some other animals food • fats and oils (animal or vegetable fats and oils, and prepared edible fats with the exception of margarine) • other foodstuffs (for instance: coffee, tea, spices, sugars, chocolate, etc., with the exception of beer with an alcoholic strength by volume exceeding 0.5% or any other beverage with an alcoholic strength by volume exceeding 1.2%) • animal fodder and waste; fertiliser; animal products with the exception of goods offered for sale as dog, cat and some other animals food • water supply • medicines and medical appliances • newspapers, periodicals and books, with the exception of works published for advertising purposes or essentially focused on advertising • works of art, collectors' pieces and antiques (only for importation of certain works of art, collectors' pieces and antiques specified, as well as for certain supplies and intra-Community acquisitions of works of art specified, under certain conditions) • should not be considered as an administrative circular, no rights can be founded on it. • motor cars for invalids; spare parts, equipment and accessories for those cars, see also hereafter. Under certain conditions, the invoiced VAT on the acquisition or importation of motor cars for invalids, is refunded to those persons (Art. 77, § 2, VAT Code) • miscellaneous goods (for instance: coffins, orthopaedic appliances, walking frames, wheel chairs and similar vehicles for invalids or sick people, etc.) • supplies of goods by institutions for social promotion <p>The following services:</p> <ul style="list-style-type: none"> • motor agricultural services, with the exception of a selection of services relating to animals, and of gardening companies • transport of persons, and unchecked luggage and animals accompanying passengers • maintenance and repair of motor cars for invalids and most of goods mentioned • establishments for culture, sports and entertainment, with the exception of granting the right to make use of automated recreation devices and providing movable goods

	<ul style="list-style-type: none"> • copyrights; performing concerts and shows, with the exception of services relating to advertising • hotels and camping sites construction work relating to private dwellings which are at least 15 years old • private dwellings for handicapped persons • institutions for handicapped persons • miscellaneous services (hire of selected goods, services performed by funeral directors, with some exceptions) • services supplied by institutions for social promotion • housing in the framework of social policy, by regional housing companies, social housing companies agreed by them and by the funds agreed by the regional Housing Codes • demolition and rebuilding of dwellings in urban territories • renovation and repair of private dwellings • small repair services (repair of bicycles, shoes and leather goods, repair and alteration of clothing and household linen)
Reduced (12%)	<ul style="list-style-type: none"> • restaurant and catering services, with the exception of the supply of drinks • margarine • tyres and tubes for wheels of agricultural machines and tractors, with the exception of tyres and tubes for wheels of forestry tractors and pedestrian-controlled tractors • certain solid fuels (i.e. notably coal, brown coal and coke, etc.) • housing in the framework of social policy, by notably provinces, municipalities, public social assistance centres and certain other persons governed by public or private law, such as housing supplied by public social assistance centres, managers of accommodation facilities for elderly, residential schools, youth protection centres, refuges for people with major difficulties, psychiatric nursing homes, "habitations protégées" (i.e. refuges for persons with psychiatric difficulties)
Exempted	Supplies, intra-Community acquisitions and importations of daily papers and periodicals containing general information and published at least 48 times a year, are exempted from VAT but keep the deduction right from their supply by the publisher until their arrival to the reader

Source: Tax Survey 2016

Table 15 Index factor used for imputing expenditures

Year	Index factor (2011=100)
2011	100.0
2012	102.8
2013	104.1
2014	104.4
2015	105.0
2016	107.3

Source: FPS Economy