

## **Appendices**

### **The restructuring of the Belgian labour market, 1986-2020:**

**Nick Deschacht & Céline Detilleux**

**KU Leuven – Department of Economics**

#### **Appendix A – The EAK and EU-LFS data**

Between 1999 and 2004, Eurostat only publishes data for the second quarter while Statbel publishes the annual data. The distinction in the second period can be explained by the 2017 EAK's major reform after which the data have been collected using a rotating panel. Indeed, while respondents were only interviewed once until 2016, from 2017 on they were interviewed at 4 different times within a period of a year and an half. Respondents are interviewed for two consecutive quarters than are left out of the sample during the next two semesters and then are re-interviewed for two consecutive quarters (note that we cannot take advantage of this panel structure since the received data do not allow us to follow individual over time). The data published by Eurostat from 2017 on, on the other hand, only corresponds to respondents' first interview. For these two reasons, the EAK has a more precise representation of the Belgian population and we have thus decided to run our main analysis for Belgium using the EAK dataset. The EU-LFS data were used when studying the comparisons between Belgium and its neighboring countries.

Statbel and Eurostat provide weighting coefficients so that we can extrapolate our sample to the Belgian (or its neighboring countries) population. In order to calculate the weights, Statbel has, a posteriori, stratified the population and the sample based on provinces, sex and age (5 years categories) and has then computed the weighting coefficient within each of the groups based on the national register. These weighting coefficients also adjust for sample non-response.

#### **Appendix B – Harmonization of the sectoral classifications**

The sectors in the EAK and the EU-LFS datasets are defined based on the NACE classification which is the "statistical classification of economic activities in the European Community" (Eurostat, 2008). Over the years, the NACE classification has gone through several revisions which results in a number of breaks in the time series data about sectors in the EAK and EU-LFS (Tables B1). For example, the break between the NACE70 and the Belgian classification "NACE-BEL 1993", which is equivalent to the European classification "NACE-Rev. 1", corresponds to the revision drawn up in 1990 and established by Eurostat so that the code could be harmonized with the International Standard Industrial Classification (ISIC). Similarly, "NACE-BEL 2008", which is equivalent to "NACE-Rev. 2", describes the major revision work of the international integrated system of economic classifications which took place between 2000 and 2007. This revision was necessary to reflect the technological developments and structural changes of the economy. Finally,

“NACE-BEL 2003” is equivalent to the minor revision of the “NACE-Rev. 1” (the “NACE-Rev. 1.1”) which occurred in 2002.

*Table B1. Sectoral classifications in the EAK and EU-LFS, 1986-2020*

Year	86	90	95	00	05	10	15	20
EAK	NACE 70 (3 digits)		NACE-BEL 93 (3 digits)		NACE-BEL 2003 (2 digits)		NACE-BEL 2008 (2 digits)	
EU-LFS	NACE Rev. 1 (1 digits)				NACE Rev. 2 (1 digits)			

Notes: <sup>a</sup> In 2008 and 2009 the EAK contains both NACE-BEL 2003 (2 digits) and NACE-BEL 2008 (2 digits).

The NACE codes are defined at different levels: the most detailed sectoral information is the NACE code at the 4 digits levels (“classes”). The 4 digit classes can be aggregated to the 3 digits level (“groups”). The groups can be further aggregated to the 2 digits level (“divisions”) or to the less detailed level categorized by an alphabetic letter (“sections”). A listing of all European NACE codes is published at [https://ec.europa.eu/eurostat/ramon/index.cfm?TargetUrl=DSP\\_PUB\\_WELC](https://ec.europa.eu/eurostat/ramon/index.cfm?TargetUrl=DSP_PUB_WELC).

The changes in the sectoral classifications make it hard to study sectoral changes over time. We thus first needed to harmonize the different classifications to obtain consistent time series of sectoral information. There are correspondence tables which permit conversions between the different classifications, yet, conversions are only straightforward in case of 1-to-1 or many-to-1 changes from the old to the new classification: that is, when one or many groups from the old classification can be converted to a single group in the new classification. In the 1-to-many and the many-to-many cases, the conversion is more complex and requires researchers to make some choices on how to convert the codes. The following paragraph explains the various choices and assumptions that we made in order to harmonize the classifications.

In the EAK dataset, we first converted the NACE70 to the NACE-BEL 1993 (or NACE Rev. 1) 2 digits codes using Eurostat correspondence table (Eurostat, 1996). This correspondence table is given at the most detailed level, i.e. between the NACE70 5 digits and the NACE Rev. 1 4 digits codes, but we have aggregated the codes so that it applies to our time series. When there were no 1-to-1 correspondence between the two classifications, that is when one 3 digits NACE 70 code corresponded to many 2 digits NACE Rev.1 codes, we use the NACE-BEL 1993 2 digits code that most frequently appears as a correspondence of the NACE70 3 digits code. Table B2 shows the resulting correspondence table.

*Table B2. Correspondence table between NACE70 and NACE-BEL 1993 (2 digits)*

NACE-BEL 1993 (2 digits)	Description	NACE70
1	Agriculture, hunting and forestry	11-13
2	Forestry, logging and related service activities	21-22
5	Fishing, operation offish hatcheries and fish farms: service activities incidental to fishing	31-34
10	Mining of coal and lignite; extraction of peat	111-112

11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying	131-134
12	Mining of uranium and thorium ores	151
13	Mining of metal ores	211-212
14	Other mining and quarrying	231-239
15	Manufacture of food products and beverages	411-428
16	Manufacture of tobacco products	429
17	Manufacture of textiles	431-439 455
18	Manufacture of wearing apparel: dressing and dyeing of fur	453-454 456
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	441-452
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	461-466
21	Manufacture of pulp, paper and paper products	471-472
22	Publishing, printing and reproduction of recorded media	473-474
23		120
	Manufacture of coke, refined petroleum products and nuclear fuel	140 152
24	Manufacture of chemicals and chemical products	252-260
25	Manufacture of rubber and plastic products	481-483
26	Manufacture of other non-metallic mineral products	241-248
27	Manufacture of basic metals	221-224 311
28	Manufacture of fabricated metal products, except machinery and equipment	312-319
29	Manufacture of machinery and equipment n.e.c.	321-328 346
30	Manufacture of office machinery and computers	330
31	Manufacture of electrical machinery and apparatus n.e.c.	341-343 347-348
32	Manufacture of radio, television and communication equipment and apparatus	344-345
33	Manufacture of medical, precision and optical instruments, watches and clocks	371-374
34	Manufacture of motor vehicles, trailers and semi-trailers	351-353
35	Manufacture of other transport equipment	361-365
36		467
	Manufacture of furniture; manufacturing n.e.c.	491-492 494-495
37	Recycling	621-622
40	Electricity, gas, steam and hot water supply	161-163
41	Collection, purification and distribution of water	170
45	Construction	500-504
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	651-652
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	611-619 631-639
52	Retail trade, except of motor vehicles and motorcycles: repair of personal and household goods	641-649 653-656 671-675

55	Hotels and restaurants	661-667
60	Land transport; transport via pipelines	710-725
61	Water transport	730-742
62	Air transport	750
63	Supporting and auxiliary transport activities; activities of travel agencies	761-773
64	Post and telecommunications	790
65	Financial intermediation, except insurance and pension funding	811-813
66	Insurance and pension funding, except compulsory social security	821-823
67	Activities auxiliary to financial intermediation	831-832
70	Real estate activities	833-834 850
71	Renting of machinery and equipment without operator and of personal and household goods	841-847
72	Computer and related activities	839
73	Research and development	940
74	Other business activities	835-838 923 983
75	Public administration and defence; compulsory social security	911-919
80	Education	931-936
85	Health and social work	951-962
90	Sewage and refuse disposal, sanitation and similar activities	921
91	Activities of membership organizations n.e.c.	963-968
92	Recreational, cultural and sporting activities	493 922 971-979
93	Other service activities	981-982 984
95	Private households with employed persons	990-998
99	Extra-territorial organizations and bodies	0

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After this first step, we obtained a harmonized time series between 1986 and 1998 in terms of the NACE-BEL 1993 two digits level. These codes were then easily converted to the NACE-BEL 2003 2 digits since these classifications do not differ at the 2 digit level.

There is no 1-to-1 correspondence between the NACE-BEL 2003 and NACE-BEL 2008 classifications at the two digits level. Even at the most detailed levels, about 45% of the NACE-BEL 2003 codes correspond to many NACE-BEL 2008 groups. Following the Eurostat method (Eurostat, 2008) we aggregated both NACE-BEL 2003 and NACE-BEL 2008 to their largest common denominator. Table B3 presents the rough 1-to-1 correspondence table between the sections. The first two columns of the table contain the new (aggregated) classification which is very similar to the NACE-BEL 2003 (1 digit) classification and the next two columns contain the corresponding NACE-BEL 2003 and 2008 (2 digits) groups. For the EU-FLS, only the NACE codes at the 1 digit are given. We thus follow the same procedure and aggregate the two classifications according to the last two columns of Table B3. This is a rough correspondence because some of the changes at the more detailed level (at the 4 digits levels) involve groups (3 digits) that shifted between divisions (2 digits) and occasionally between sections (1 digit). For example, NACE-BEL 2008

codes "01.620", "78.100", "79.909", "93.299" correspond all partly to the NACE-BEL 2003 code "92.724" so that section 14 is not identical in the NACE-BEL 2003 and 2008 classifications.

*Table B3. Correspondence table between NACE-BEL 2003 and NACE-BEL 2008*

Common denominator	Description	NACE-BEL 2003 (2 digits)	NACE-BEL 2008 (2 digits)	NACE-BEL 2003 (1 digit)	NACE-BEL 2008 (1 digit)
1	Agriculture, hunting, forestry and fishing	1-2 5	1-3	A B	A
2	Mining and quarrying	10-14	5-9	C	B
3	Manufacturing industries	15-37	10-33	D	C
4	Electricity, gas and water supply	40-41	35 36-39	E	D E
5	Construction	45	41-43	F	F
6	Wholesale and retail trade; repair of motor vehicles and motorcycles and household goods	50-52	45-47	G	G
7	Hotels and restaurants	55	55-56	H	I
8	Transport, storage and communication	60-64	49-53 58-63	I	H J
9	Financial intermediation	65-67	64-66	J	K
10	Real estate, renting and business activities	70-74	68 69-75 77-82	K	L M N
11	Public administration	75	84	L	O
12	Education	80	85	M	P
13	Health and social work	85	86-88	N	Q
14	Community, social and personal services	90-93	90-93 94-96	O	R S
15	Domestic services	95-97	97-98	P	T
16	Extra-territorial organizations and bodies	99	99	Q	U

## Appendix C. – Harmonization of the occupational classifications (NIS/INS and ISCO codes)

The occupations in the EAK and the EU-LFS datasets are defined based on the NIS (or INS) classification of the Belgian statistical office Statbel and on the ISCO (International Standard Classification of Occupations). Occupations are classified in the ISCO based on skill levels and skill specialization. Occupations are first divided in major groups (1 digit level) based on jobs skill levels which describe “the complexity and range of tasks and duties to be performed” and next, within each major group, they are further classified into sub-major (2 digits), minor (3 digits) and unit (4 digits) groups based on the skill specialization which is based on the field of knowledge required, on the tools and machinery used, on the materials worked on or used and on the goods and services produced.

The occupational classifications in the EAK and the EU-LFS have encountered several breaks over time which complicates the construction of homogeneous times series. Table C1 gives an overview of the different occupational classifications in the EAK and the EU-LFS since 1986 and 1993 respectively. The major break in the occupational classifications occurs in 2011 and corresponds to the introduction of the ISCO08 classification in the Labor Force Survey in a large majority of European countries. The revision of ISCO88 was necessary because over the 20 years that elapsed between the two classifications, there had been major economic developments and occupations needed to be re-defined to address the changes resulting from the impact of developments in information and communications technologies on the workforce (ILO, 2012). A listing of all ISCO88 and ISCO08 occupational groups can be found on the ILO website: <https://www.ilo.org/public/english/bureau/stat/isco/intro.htm>.

*Table C1. Occupational classifications in the EAK and EU-LFS, 1986-2020*

Year	86			90				95				00				05				10				15				20
EAK	INS81 (3 digits)				INS91 (3 digits) (pseudo-coded to ISCO88 3 digits)												a	ISCO08 (4 digits) <sup>b</sup>										
EU-LFS													ISCO88 (3 digits)					ISCO08 (3 digits)										

Notes: <sup>a</sup> For 2010 the EAK contains both the surveyed INS91 (3 digits), pseudo-coded ISCO88 (3 digits) and post-hoc coded ISCO08 (4 digits). <sup>b</sup> In 2011 ISCO08 only contains 3 digits in the EAK.

Although a conversion from ISCO88 to ISCO08 is possible in theory through the ILO correspondence table (ILO, 2012), the case of Belgium is particularly challenging since ISCO88 codes were never used directly in the Belgian version of the Labour Force Survey (EAK). Until 2010, the coding of occupations in the EAK was done using the Belgian NIS classification. The NIS codes were subsequently mapped (“pseudo-coding”) onto ISCO88 at three-digit level using a one-to-one correspondence table NIS-ISCO88 (3 digits) that has remained fixed over time, but was only a very rough approximation of what would have resulted from a direct coding of occupations following ISCO88-rules (Mucaj 2017). Because of this pseudo-coding procedure, using the ILO correspondence table from ISCO88 to ISCO08 (Ganzeboom, \*\*\*; Jann, 2019) leads to very poor results for time series of Belgian occupational data.

To better understand the shifts that occurred, Statbel has – at the request of the Federal Planning Bureau (FPB) – recoded the existing descriptive information regarding occupations for the year 2010 in ISCO08 unit groups. That is, the EAK data for the year 2010 contain occupational information both in terms of the surveyed INS codes, pseudo-coded ISCO88 codes and post-hoc coded ISCO08 codes. As we explain in more detail below, we rely on this 2010 information to map the old NIS codes onto the ISCO08 classification.

As a first step, we harmonized the EAK data for the period 1986 to 2010 in terms of the INS nomenclature. Although there is no many-to-1 correspondence between the INS81 and INS91 codes at the 3 digits level, the two classifications are very similar at the 2 digits level. We have thus first converted the INS81 (2 digits) and the INS91 (2 digits) codes to their largest common denominator by constructing the correspondence table shown in table C4 at the end of this appendix. We created this correspondence table based on the more detailed correspondence table that we have received from Statbel and by aggregating (sub-)major groups when necessary, e.g. INS91 major group 0 and 5 have been merged because there is no distinction between the two in the INS81. This exercise led to an harmonized occupational classification in terms of this (aggregated) new INS classification at the 2 digits level between 1986 and 2010.

The second and more challenging step was to harmonize the NIS classification with the ISCO08 classification that was introduced in 2011. An exact harmonization via aggregation proved to be undesirable because so much aggregation would be required that too much information would be lost. Thus, we were forced to adopt a statistical harmonization approach. We rely on the 2010 EAK data that contain both the survey NIS codes and post-hoc ISCO08 codes and build on a harmonization method that was developed at the Federal Planning Bureau and described in Muçaj (2017). This method contains two-steps:

- (1) We calculate how employment in each INS 2 digits category is distributed over the ISCO08 categories in 2010. This results in a transition matrix between NIS and ISCO08 codes. Part of this transition matrix is shown in the Figure C1 (the complete matrix is available upon request). The second column contains the total number of workers within each NIS 2 digits category in 2010. The second row contains the total number of workers for each ISCO08 unit group in 2010. The matrix contains row frequencies that describe how each NIS category is distributed over the ISCO08 groups. For example in INS group 10, 27% of the 90587 workers have an occupation that corresponds to ISCO08 group 1120, 1% to ISCO08 group 1211 and 1213, etcetera.

*Figure C1: Transition matrix between INS (2 digits) and ISCO08 (4 digits)*

		ISCO08 (4 digits)											
		1111	1112	1114	1120	1211	1212	1213	1219	1221	1222	1223	...
INS (2 digits)		2678.993	7818.723	1551.471	40066.64	10036.42	19786.63	6663.572	9071.232	43809.21	4605.904	7275.651	
00	83848.68									0.01			
01	3533.009												0.14
02	9785.438				0.01			0.01					0.03
03	309585.4												
04	324125.8												
05	3118.422												
06	39980.29												
07	37840.99									0.01			
08	581604						0.01						0.01
10	90587.4				0.27	0.01		0.01	0.01	0.02			
11	172603.4		0.01		0.06	0.04	0.07	0.02	0.04	0.14	0.01	0.01	
12	90079.71	0.03	0.10	0.01	0.02		0.03	0.01	0.01	0.01	0.01		
20	219011.5						0.01			0.02			
...													

Note: Shares below 1% are not shown in the figure.

- (2) We then apply the transition matrix to the entire period 1986 to 2010 in order to backward-extrapolate the occupational distribution according to the ISCO08 classification. Mathematically, this means that we multiply the (transposed) transition matrix with another matrix containing the number of workers in each INS group in each year between 1986 and 2010 (part of this matrix is shown in Figure C2) to obtain the estimated employment distribution in terms of ISCO08. For example, employment in ISCO08 group 1120 in 1986 is obtained by vector multiplying the “1120” column in Figure C1 with the “1986” column in Figure C2 (that is, multiply employment in NIS group 02 (5505) by 1%, employment in NIS group 10 (59872) by 27%, ... and then adding these products).

*Figure C2. Matrix with employment by INS (2 digits) for the period 1986-2010*

INS (2 digits)	Years						
	1986	1987	1988	1989	1990	1991	...
00	47252.2	56534.2	56690.8	60030.4	63475.4	75332.7	
01	4080.8	2230.2	3090.4	2197.1	6570.3	5727.8	
02	5505.2	5449.5	4576.2	4791	5841.6	5710.9	
03	178855	190322.4	198229	205696	219643	227002.9	
04	249379	264884.6	272584.1	267816.1	271125.6	288602.8	
05	5582.4	7366.2	5730.9	7394.8	5155.4	6361.5	
06	15778.5	15715.5	19823.2	19772.5	21519.5	19394.5	
07	14164.5	16196.8	16596.6	20671	18565.1	17837.9	
08	128283.7	126406.8	136211.5	144697.5	144263.7	150845.1	
10	59872.4	67728.2	69460.3	86197.6	72571.5	86891.5	
11	78214.8	71758	73433.2	77395.4	82717.7	97440.9	
12	31184	28740.7	30043.1	35534.3	28941.4	35453.5	
20	74461.5	76550.2	58065.5	54680.2	57066.4	65629.7	
....							

This procedure results in a harmonized times series according to the ISCO08 classification for the entire period 1986-2020. In this harmonized time series, data for the years 2011-2020 are based on directly observed ISCO08 codes, data for 2010 is largely based on post-hoc coding by researchers and data for the preceding years 1986-2009 are estimated based on the NIS codes and the estimated transition matrix. Thus, the main assumption of this methodology is that we assume that the distribution of NIS categories across ISCO08 categories is constant over the period 1986-2010.

Other assumptions have been made to estimate the transition matrix. First, we had to exclude the population that could not be recorded in ISCO08 by Statbel in 2010 from this harmonization exercise (10.8



percent of the employed population in 2010). In other words, we assume that the distribution over ISCO08 occupations for the population that was not recorded by Statbel is identical to the observed distribution for the recorded population. Next, the ISCO08 group 4419 (“Clerical support workers not elsewhere classified”) was removed from the analysis because it has a significant employment share in almost every INS group. Apparently, this ISCO08 group has been used as default when no sufficient information was available on the INS group to find its corresponding ISCO08 group. That is, “too many” workers were attributed to this group in 2010 and harmonizing the series including this group resulted in a huge drop at the time of the break in major group 4. The shares for this group are better be categorized as ‘not coded’ were given to that group. Finally, the armed forces occupation was removed from the analysis because no INS code refer to that group. Indeed, this groups was recorded as missing in our dataset hence we could not distinguish the different armed forces occupations from other missing values.

Note that, the transition matrix has been re-calculated when studying the relations between occupational change and worker characteristics by restricting the sample to the subgroup that is being studied. For example, when looking at the gender difference in occupational evolution, we first restricted the sample to the male or female sample and then re-run steps 1 and 2 to obtain harmonized occupational time series for men or women, respectively.

When using the Eurostat this harmonization could not be achieved because we do not have information about two classifications simultaneously in one year. Yet, at the 1 digit the groups between ISCO88 and ISCO08 are nominally identical (Table 2.5) , hence, we do not make any correction and harmonize the two classifications directly at the 1 digit. This is not perfect because even so the two classifications are nominally identical, there is in fact changes in the variable contents. Indeed, some of the changes at the more detailed level involve that minor groups are shifted between major groups: despite nominal equivalence at the major and sub-major level, this implies changes in underlying contents. The reader should therefore know that jumps between 2010 and 2011 in the EU-LFS survey may be the result of the change in nomenclature rather than an actual employment change.

Table C3. ISCO classification at the 1 digit level

	<b>ISCO88 (1 digit)</b>	<b>ISCO08 (1 digit)</b>
<b>1</b>	Legislators, senior officials and managers	Managers
<b>2</b>	Professionals	Professionals
<b>3</b>	Technicians and associate professionals	Technicians and associate professionals
<b>4</b>	Clerks	Clerical support workers
<b>5</b>	Service workers and shop and market sales workers	Service and sales workers
<b>6</b>	Skilled agricultural and fishery workers	Skilled agricultural, forestry and fishery workers
<b>7</b>	Craft and related trades workers	Craft and related trades workers
<b>8</b>	Plant and machine operators and assemblers	Plant and machine operators, and assemblers
<b>9</b>	Elementary occupations	Elementary occupations
<b>0</b>	Armed forces	Armed forces occupations

*Table C4. Correspondence table between INS81 and INS91 (2 digits)*

Common denominator "INS 2 digits"	Description	INS81 (2 digits)	INS91 (2 digits)
<u>0. PROFESSIONS SCIENTIFIQUES, LIBERALES ET ASSIMILEES &amp; 5. TECHNICIENS</u>			
00	ARCHITECTES, INGENIEURS ET GEOMETRES	00	00
01	CHIMISTES, PHYSICIENS ET SPECIALISTES EN PHYSICO-CHIMIE	01	01
02	BIOLOGISTES, VETERINAIRES, AGRONOMES ET SPECIAL. ASSIMILES	02	02 53
	- MEDECINS, ASSIMILES ET CADRE INFIRMIER		
03	- AIDE-PHARMACIENS	03	03
	- PERSONNEL SOIGNANT NON DIPLOMES		54; 55; 56
	- TECHNICIENS PARAMEDICAUX		
04	PERSONNEL DE L'ENSEIGNEMENT	04	04 58
04	PROFESSIONS INTERMEDIAIRES DE L'ENSEIGNEMENT	04	
05	MINISTRES DU CULTE, MEMBRES DU CLERGE	05	05
06	PROFESSIONS JURIDIQUES	06	06
07	ARTISTES, ECRIVAINS, JOURNALISTES ET ASSIMILES	07	07
	- SPECIALISTES DES FONCTIONS ADMINISTRATIVES + PERSONNES EXERCANT UNE PROF. LIBERALE, SCIENTIFIQUE N.C.A.		
08	- PERSONNES EXERCANT UNE PROF. LIBERALE, SCIENTIFIQUE N.C.A.	09 70	08 09
	- DESSINATEURS		51; 52; 57; 59
	- CHIMISTES NON UNIVERSITAIRES		
	- TECHNICIENS DE L'INFORMATIQUE		
	- AUTRES TECHNICIENS N.C.A.		
<u>1. CHEFS D'ENTREPRISE, PROPRIETAIRES-EXPLOITANTS, DIRECTEURS</u>			
10	CHEFS D'ENTREPRISE (PRIVE) NON LIE PAR CONTRAT (SAUF 0.6)	10	10
11	DIRECTEURS ET CADRES (PRIVE) LIES PAR CONTRAT (SAUF 0,6)	11	11
12	DIRECTEURS ET CADRES DE L'ADMINISTRATION PUBLIQUE	12	12
<u>2. EMPLOYES DE BUREAU</u>			
	- AIDES-COMPTABLES, CAISSIERS,		
20	DACTYLOGRAPHES ET OPERATEURS	20	20 22
	- AUTRES EMPLOYES N.C.A		
21	EMPLOYES	21	21
<u>3. COMMERCANTS, PERSONNEL COMMERCIAL, VENDEURS ET ASSIMILES</u>			
30	COMMERCANTS	30	30
31	AGENTS D'ASSURANCES, IMMOBILIERS, DE VENTE DE SERVICES	31	31

32	VOYAGEURS ET REPRESENTANTS DE COMMERCE	32	32
33	VENDEURS ET TRAVAILLEURS ASSIMILES	33	33
40	DIRECTEURS ET CHEFS D'EXPLOITATIONS AGRICOLES, HORTICOLES	40	40
41	AGRICULTEURS, HORTICULTEURS ET ELEVEURS NON LIE PAR CONTRAT	41	41
42	TRAVAILLEURS DANS L'AGRICULTURE, L'HORTICULTURE ET L'ELEVAGE	42	42
43	PECHEURS ET TRAVAILLEURS ASSIMILES	43	43
44	BUCHERONS ET AUTRES TRAVAILLEURS FORESTIERS	44	44

#### 6. PROFESSIONS DES TRANSPORTS ET DES COMMUNICATIONS

60	OFFICIERS, PILOTES ET COMMANDANTS DE BATEAU	60	60
61	MATELOTS ET MACHINISTES DE NAVIRE (NAVI. MARI. ET FLUVIALE)	61	61
62	PILOTES D'AVION, NAVIGATEURS ET MECANICIENS DE BORD	62	62
63	CONDUCTEURS ET CHAUFFEURS (TRANSPORTS PAR RAIL ET PAR ROUTE)	63	63
64	INSPECTEURS, CONTROLEURS (TRANSPORTS)	64	64
65	AUTRES TRAVAILLEURS DES TRANSPORTS N.C.A.	65	65
66	TRAVAILLEURS DES COMMUNICATIONS N.C.A.	66	66

#### 7. ARTISANS, OUVRIERS DE METIER, A LA PRODUCTION ET MANOEUVRES

70	MINEURS, CARRIERES ET TRAVAILLEURS ASSIMILES	50	70
71	FILEURS, TISSERANDS, TRICOTEURS, TEINTURIERS ET ASSIMILES	71	71
72	TAILLEURS, COUPEURS, FOUREURS ET ASSIMILES	72	72
73	CORDONNIERS ET AUTRES TRAVAILLEURS DU CUIR	73	73
74	CONDUCTEURS DE FOUR, LAMINOIR, TREFILEURS, MOULEURS ET ASSI.	74	74
75	MECANICIENS EN INSTRUMENTS, HORLOGERS, ORFEVRES ET ASSIMILES	75	75
76	AJUSTEURS, OUTILLEURS, PLOMBIERS, SOUDEURS, TOLIERES ET ASSI.	76	76
77	ELECTRICIENS ET ASSIMILES	77	77
78	CHARPENTIERES, MENUISIERS, EBENISTES, TRAVAILLEURS DU BOIS	78	78
79	PEINTRES, COLLEURS DE PAPIERS PEINTS ET ASSIMILES	79	79

#### 8. ARTISANS, OUVRIERS DE METIER, A LA PRODUCTION ET MANOEUVRES

80	OUVRIERS ET ARTISANS DE LA CONSTRUCTION	80	80
81	TRAVAILLEURS DE L'IMPRIMERIE, DE L'EDITION ET DE LA RELIURE	81	81

82	VERRIERS, POTIERS, AUTRES TRAVAILLEURS DU VERRE ET CERAMIQUE	82	82
83	TRAVAILLEURS DE L'INDUSTRIE ALIMENTAIRE	83	83
84	TRAVAILLEURS DE L'INDUSTRIE CHIMIQUE ET DU PAPIER	84	84
85	OUVRIERS ET TRAVAILLEURS ASSIMILES EN TABAC	85	85
86	ARTISANS, OUVRIERS DE METIER ET OUVRIERS A LA PRODUCTION NCA	86	86
87	EMBALLEURS, CAPSULEURS, ETIQUETEURS ET ASSIMILES	87	87
88	CONDUCTEURS DE MACHINES FIXES, D'EXCAVATION ET DE LAVAGE	88	88
89	DOCKERS ET MANUTENTIONNAIRES, MANOEUVRES N.C.A.	89	89

9. TRAVAILLEURS DES SERVICES, SPORTS ET ACTIVITES RECREATIVES

90	POMPIERS, POLICIERS, GARDIENS ET ASSIMILES	90	90
91	PERSONNEL DES SERVICES DOMESTIQUES, HORECA,...	91	91
92	TRAVAILLEURS DES SERVICES PERSONNELS	92	92
93	ATHLETES, SPORTIFS ET ASSIMILES	93	93
94	AUTRES PROFESSIONS DES SERVICES	94	94

Appendix D. Sectoral and occupational change in Belgium and its neighboring countries

Figure D1. Sectors' share evolution in Belgium and its neighboring countries (1995-2018)

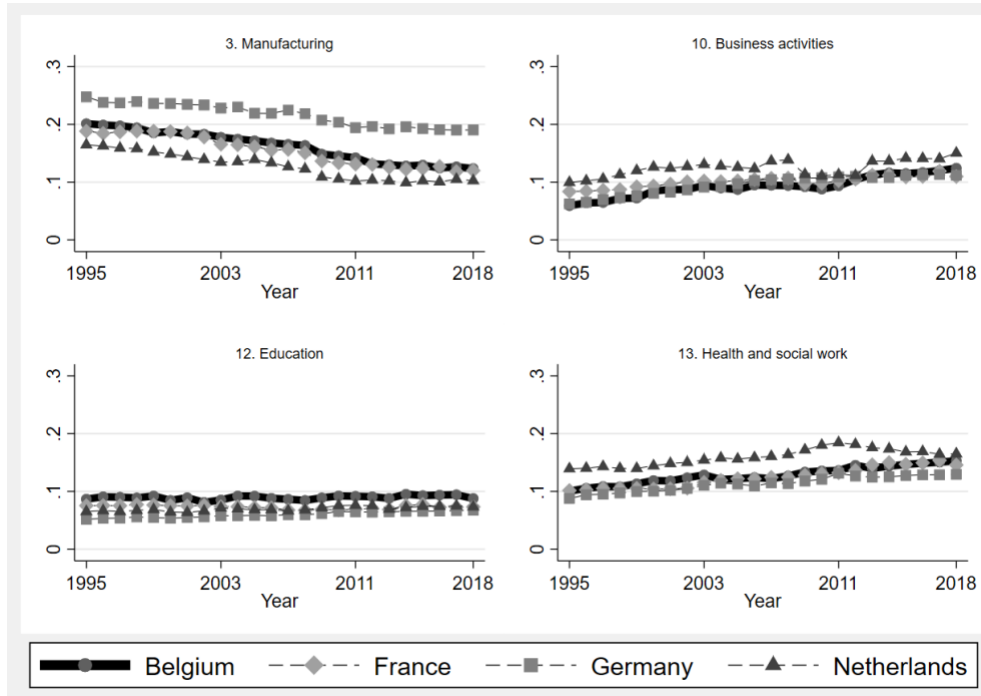
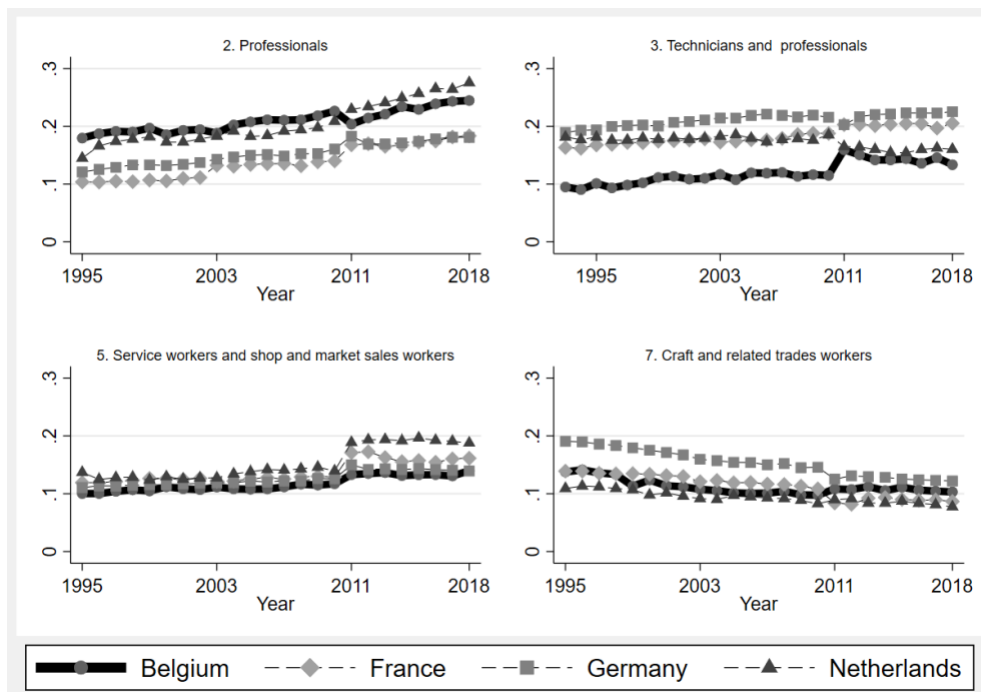


Figure D2. Occupations' share evolution in Belgium and its neighboring countries (1995-2018)



## Appendix E. Correspondence tables for the job polarization analyses

### Correspondence table for high, middle-high, middle-low and low skill occupations

High-paying occupations are

11. Chief executives, senior officials and legislators
12. Administrative and commercial managers
13. Production and specialized services managers
21. Science and engineering professionals
22. Health professionals
23. Teaching professionals
24. Business and administration professionals
25. Information and communications technology professionals
26. Legal, social and cultural professionals

Middle-high paying jobs are

14. Hospitality, retail and other services managers
31. Science and engineering associate professionals
32. Health associate professionals
33. Business and administration associate professionals
34. Legal, social, cultural and related associate professionals
35. Information and communications technicians

Middle-Low paying jobs are

41. General and keyboard clerks
42. Customer services clerks
43. Numerical and material recording clerks
44. Other clerical support workers
51. Personal service workers
52. Sales workers
53. Personal care workers
54. Protective services workers
61. Market-oriented skilled agricultural workers
62. Market-oriented skilled forestry, fishery and hunting workers
63. Subsistence farmers, fishers, hunters and gatherers
71. Building and related trades workers, excluding electricians
72. Metal, machinery and related trades workers
73. Handicraft and printing workers
74. Electrical and electronic trades workers
75. Food processing, wood working, garment and other craft and related trades workers
81. Stationary plant and machine operators
82. Assemblers
83. Drivers and mobile plant operators

Low paying occupation

91. Cleaners and helpers
92. Agricultural, forestry and fishery labourers
93. Laborers in mining, construction, manufacturing and transport
94. Food preparation assistants
95. Street and related sales and service workers
96. Refuse workers and other elementary workers

## Correspondence table for manual, routine and abstract occupations

Manual occupations are

- 53. personal care,
- 75. Food services
- 91. Cleaning service
- 54. protective services.

Routine occupations are

- 81. Operators
- 92-93. Laborers, production,
- 4. office/administrative
- 52. sales.

Abstract occupations are

- 3. technicians,
- 2. professionals
- 1. managers.



## Appendix F – Transition matrices between occupations and non-employment

*Table F1. Transitions between ISCO-08 1 digit occupations and non-employment, 2012-2018*

Status in year t-1	Status in year t			Total
	Same occupation	Other occupations	Non-employment	
Armed forces	92.52%	1.36%	6.12%	100.00%
Other occupations	0.00%	93.56%	6.44%	100.00%
Non-employment	0.01%	6.06%	93.93%	100.00%
Managers	91.09%	3.64%	5.27%	100.00%
Other occupations	0.28%	92.92%	6.80%	100.00%
Non-employment	0.22%	5.86%	93.93%	100.00%
Professionals	93.61%	1.78%	4.62%	100.00%
Other occupations	0.67%	91.65%	7.68%	100.00%
Non-employment	1.25%	4.83%	93.93%	100.00%
Technicians and associate prof.	88.50%	4.33%	7.18%	100.00%
Other occupations	0.51%	92.42%	7.07%	100.00%
Non-employment	0.66%	5.41%	93.93%	100.00%
Clerks	88.36%	3.46%	8.18%	100.00%
Other occupations	0.42%	92.87%	6.70%	100.00%
Non-employment	0.67%	5.40%	93.93%	100.00%
Service and sales workers	85.17%	2.89%	11.94%	100.00%
Other occupations	0.36%	93.57%	6.07%	100.00%
Non-employment	1.23%	4.84%	93.93%	100.00%
Skilled agricultural and fishery workers	87.85%	1.21%	10.93%	100.00%
Other occupations	0.01%	93.59%	6.40%	100.00%
Non-employment	0.07%	6.00%	93.93%	100.00%
Craft and related trades workers	88.29%	2.69%	9.02%	100.00%
Other occupations	0.20%	93.39%	6.41%	100.00%
Non-employment	0.58%	5.50%	93.93%	100.00%
Plant and machine operators and assemblers	86.13%	4.83%	9.03%	100.00%
Other occupations	0.18%	93.39%	6.43%	100.00%
Non-employment	0.34%	5.73%	93.93%	100.00%
Elementary occupations	82.82%	3.23%	13.95%	100.00%
Other occupations	0.26%	93.74%	6.00%	100.00%
Non-employment	1.04%	5.03%	93.93%	100.00%

Note: EU-SILC data 2012-2019. N=21,195 (see Table 19 for sub-sample sizes).