

Supplementary Table 2. [enriched] KSCO code and high and low exposure proportions by occupation

KSCO code	KSCO unit-group title (Korean)	No.	UE/Neck pHigh/pLow (%)	Low back pHigh/pLow (%)	Lower extremity pHigh/pLow (%)
951	Domestic chores and infant rearing helpers	1,049	36.9/45.9	25.5/49.3	18.7/67.2
243	Nurses	1,930	38.8/47.4	17.0/61.7	40.4/50.4
274	Appraisers, technical sales representatives, brokers and related workers	3,674	20.4/73.0	5.60/91.1	7.2/88.6
942	Building concierges and ticket examiners	2,571	19.9/63.7	10.3/71.6	19.0/58.1
782	Construction related technical workers	442	76.2/6.6	52.7/23.8	76.5/15.6
910	Construction and mining laborers	2,082	68.5/8.8	59.2/15.3	72.1/8.3
875	Construction and mining machines operators	724	77.9/8.4	39.4/44.8	30.0/58.6
141	Construction, electricity and production related managers	744	33.1/45.6	10.3/76.3	19.8/66.9
781	Construction structure related technical workers	61	73.8/8.2	44.3/29.5	62.3/8.2
783	Construction finishing related technical workers	2,265	64.7/13.9	45.5/25.2	55.8/17.8
231	Architectural practitioners, construction engineers and technicians	1,653	37.4/48.2	12.8/77.1	15.5/75.0
312	Business administration and office clerks	14,710	28.8/61.1	7.2/86.4	7.7/85.0
411	Police, fire fighting and prison related workers	846	27.2/55.0	11.9/69.0	13.9/71.2
412	Guards and security related workers	392	34.4/53.8	13.3/81.1	48.2/46.2
992	Gauge reading, money collecting and parking control related workers	570	42.5/43.9	15.4/77.4	46.3/48.9
399	Customer service and other office clerks	1,100	39.7/55.5	9.8/87.1	6.3/91.5
152	Customer service managers	182	37.9/51.1	14.8/72.5	31.3/53.8
791	Craftsmen and metalsmiths	286	61.2/19.6	25.2/50.1	17.8/67.8
851	Metal work machinery operators	1,071	72.5/10.7	34.3/38.3	58.2/21.6
233	Metal and material engineers and technicians	60	35.0/50.0	15.0/80.0	18.3/71.7
855	Metal machinery parts assemblers	185	71.9/10.8	36.2/42.2	48.1/31.4
272	Finance and insurance professionals	213	37.1/59.2	6.1/90.1	2.8/95.8
320	Finance clerks	2,419	42.9/50.1	9.5/87.5	4.2/92.9
741	Die and mold makers, metal casting workers and forge hammersmiths	177	68.9/14.1	37.9/40.1	53.7/23.7
235	Mechanical and robot engineers and technicians	1,162	35.6/49.4	8.5/83.9	9.2/83.4
753	Machinery equipment fitters and mechanics	1,201	51.9/20.3	24.0/46.0	36.0/36.6
112	Senior corporate officers	60	18.3/65.0	3.3/85.0	1.7/91.7
149	Other construction, electricity and production related managers	66	21.2/71.2	9.1/83.3	12.1/84.8
239	Other engineering professionals and related workers	338	42.3/43.8	11.8/81.7	8.0/82.8
259	Other educational professionals	174	29.9/59.8	7.5/92.0	16.1/82.2
899	Other machine operators	233	73.8/12.4	30.5/50.6	53.2/30.9
799	Other technical workers	336	54.8/25.6	27.4/55.7	43.2/41.1
429	Other caregiving, health and personal service workers	383	24.5/65.0	6.3/89.8	11.0/86.2
999	Other service related elementary workers	1,202	45.6/40.1	20.3/65.9	47.3/39.0
819	Other food processing related machine operators	110	61.8/19.1	30.9/44.5	49.1/25.5
139	Other professional services managers	152	9.2/82.2	2.6/94.1	3.9/90.8
159	Other sales and customer service managers	16	25.0/62.5	0.0/81.2	0.0/93.8
852	Cooling and heating related equipment operators	77	46.8/28.6	18.2/67.5	28.6/58.4
991	Agriculture, forestry and fishery related elementary workers	665	72.5/15.0	51.7/29.5	36.2/43.0
251	College professors and instructors	439	27.3/62.6	7.1/92.3	41.5/57.6
223	Data and network specialists	283	42.8/49.5	7.8/89.0	5.3/91.9
842	Painting and coating machine operators	169	71.6/8.9	41.4/39.1	57.4/22.5
421	Caregiving and health service workers	2,711	33.7/50.4	24.1/46.3	20.0/65.8
285	Designers	1,064	43.3/44.9	12.7/80.3	6.6/85.3
122	Marketing, advertising and public relations managers	4	25.0/50.0	0.0/100	0.0/100
521	Store sales workers	26,724	36.7/48.6	18.7/61.4	42.4/35.6
891	Wood and paper related machine operators	328	70.1/8.5	39.0/31.1	58.2/20.7
730	Wood and furniture, musical instrument and signboard related trade occupations	491	56.0/11.4	38.9/28.1	49.5/16.9
254	Liberal arts, technical and arts instructors	4,520	38.2/52.2	8.9/87.4	35.0/62.4

134	Cultural art planners and agents	20	20.0/80.0	10.0/85.0	5.0/85.0
288	Broadcasting, publishing and video related managers	27	33.3/63.0	3.7/88.9	18.5/74.1
874	Freight-handling equipment operators	691	69.6/12.2	49.1/36.2	44.4/42.8
422	Hairdressing related service workers	6,040	70.5/14.0	31.5/59.9	63.1/32.5
861	Power generation and distribution equipment operators	87	37.9/35.6	6.9/77.0	17.2/67.8
532	Door to door and street sales related workers	1,635	36.8/50.6	23.1/58.8	36.3/44.7
772	Broadcasting and telecommunications equipment related fitters and repairers	1,609	66.5/13.4	45.7/25.7	58.0/19.8
792	Plumbers	565	58.6/13.1	37.2/27.8	50.6/18.9
922	Deliverers	2,271	47.4/35.0	42.1/39.0	49.1/32.0
330	Legal and inspection clerks	267	31.5/61.8	5.6/92.5	2.2/95.9
261	Legal professionals	132	27.3/66.7	5.3/92.4	2.3/94.7
133	Health and social welfare service related managers	45	22.2/73.3	13.3/80.0	4.4/86.7
246	Health and medical service related workers	1,270	35.2/47.0	13.1/72.0	36.7/56.0
132	Insurance and finance managers	154	22.1/71.4	5.2/92.2	4.5/94.2
843	Non-metal products production machine operator	183	65.6/31.1	31.1/47.0	46.4/36.1
314	Secretaries and administrative assistants	1,238	34.1/57.5	6.9/87.3	7.5/86.2
247	Social welfare service related workers	2,922	29.4/57.1	14.8/65.7	15.2/74.5
273	Product planning, public relations and survey professionals	223	30.9/56.1	9.4/79.8	7.2/82.1
522	Rental sales workers	282	29.1/61.0	11.3/76.2	13.5/60.5
881	Water treatment plant operators	54	42.6/42.6	18.5/68.5	22.2/55.6
213	Biological and natural science related technicians	327	33.3/56.0	6.1/88.1	10.7/82.6
831	Petroleum and chemical material processing machine operators	132	53.0/26.5	24.2/46.2	39.4/40.2
876	Ship workers and related workers	11	81.8/9.1	54.5/18.2	81.8/9.1
721	Textile and leather related workers	1,331	80.5/8.6	43.1/41.5	23.2/65.4
821	Textile production and processing machine operators	174	72.4/9.2	37.4/41.4	63.8/21.3
823	Laundry related machine operators	1,809	61.9/15.3	28.7/49.1	55.7/28.1
236	Fire and emergency management engineers and safety professionals	343	34.7/47.5	13.1/77.6	27.7/63.3
286	Sports and recreation related professionals	812	49.1/41.7	16.0/73.8	46.2/48.2
284	Visual and performing artists	362	45.9/43.4	14.1/77.9	22.9/70.4
287	Culinary arts related professionals	3	33.3/66.7	66.7/33.3	100.0/0
442	Food and beverage service workers	4,618	51.6/32.9	30.6/47.5	63.0/21.2
811	Food processing related machine operators	540	61.5/13.9	32.6/36.1	48.3/22.4
242	Pharmacists and oriental pharmacists	458	38.2/50.4	12.0/82.3	40.6/52.2
630	Fishery related workers	525	69.9/11.8	46.3/10.2	47.2/20.0
432	Leisure services workers	1,518	31.2/57.2	11.9/78.6	20.6/69.6
392	Travel agent, information and reception clerks	885	35.1/55.4	11.3/82.8	19.1/74.6
131	Research, education and legal services related managers	122	16.4/74.6	2.5/91.8	4.9/92.6
283	Drama, film and moving image professionals	262	35.1/50.4	11.8/77.5	26.7/63.7
244	Dietitians	253	21.3/58.9	9.1/78.7	17.4/66.0
510	Sales representatives	5,705	21.8/68.2	8.6/84.7	14.7/76.8
743	Welders	976	77.9/6.0	48.9/26.6	38.0/32.9
431	Transport services workers	69	49.3/26.1	18.8/63.8	44.9/42.0
752	Transport equipment mechanics	324	53.4/21.0	21.3/43.5	34.3/35.8
854	Transportation vehicle and machine related assemblers	2,240	71.5/10.8	30.5/47.0	52.2/31.1
612	Horticultural and landscape workers	435	56.3/18.9	37.5/30.8	45.7/26.4
253	Kindergarten teachers	566	35.0/52.1	13.8/68.2	23.7/67.0
812	Beverage product related machine operators	31	51.6/32.3	19.4/58.1	35.5/45.2
952	Food preparation related elementary workers	1,787	63.4/21.0	37.0/40.6	67.4/17.5
241	Medical diagnosis and treatment professional	514	40.7/45.1	13.2/76.3	14.0/78.4
722	Garment related workers	1,107	68.5/14.1	29.2/60.5	12.4/79.0
111	Legislators, senior government officials and senior officials of public organization	7	14.3/85.7	0.0/100	0.0/100
212	Liberal arts and social science professionals	56	41.1/55.4	10.7/83.9	12.5/83.9
271	Hr & business administrations professional	292	28.1/66.8	6.5/91.4	5.5/91.8

892	Printing and photo development related machine operators	442	59.5/23.3	29.9/45.9	44.8/33.9
620	Forestry related workers	78	56.4/23.1	41.0/34.6	50.0/25.6
853	Automated assembly line operators and industrial robot operators	39	71.8/15.4	38.5/43.6	56.4/28.2
873	Automobile drivers	6,288	65.5/22.2	40.7/46.7	16.5/73.2
751	Automobile mechanics	2,004	59.5/11.3	32.0/33.4	40.8/27.4
281	Writers, journalists, and related professionals	240	36.2/56.7	10.8/85.0	9.2/86.2
611	Crop growers	18702	55.6/36.7	36.7/28.5	31.0/30.0
882	Recycling machine and incinerator operators	30	53.3/30.0	23.3/66.7	30.0/53.3
862	Electrical and electronic equipment operators	418	32.1/41.9	8.9/74.2	17.9/51.5
863	Electrical, electronic parts and products production equipment operators	503	58.8/19.9	20.3/60.2	36.6/48.3
864	Electrical, electronic parts and products assemblers	1,236	68.4/15.9	25.1/58.4	33.7/52.7
234	Electrical, electronic engineers and technicians	357	31.9/60.5	7.0/86.8	9.0/85.2
761	Electric and electronic machine fitters and repairers	981	42.2/33.9	22.9/52.5	25.7/50.7
762	Electricians	1,169	50.0/19.7	24.6/45.1	41.7/33.2
224	Information system developers and web masters	196	40.8/54.1	6.1/87.8	5.6/88.8
135	Information and communications related managers	46	30.4/54.3	6.5/87.0	4.3/93.5
771	Information and communications technology equipment fitters and repairers	246	61.4/18.3	35.8/41.1	38.2/35.8
742	Pipe and sheet metal makers	44	59.1/27.3	43.2/45.5	52.3/38.6
930	Production related elementary workers	1,708	75.8/11.1	37.3/41.4	41.9/41.6
441	Cooks	12,599	55.9/26.1	27.4/49.6	59.8/24.3
248	Religious activities related workers	391	19.9/74.2	4.3/93.4	18.2/79.0
841	Metal casting and metal processing related operators	383	68.4/11.7	41.0/43.7	55.6/25.3
822	Textile and shoe related machine operators and assemblers	261	73.9/11.1	35.2/41.0	43.7/38.7
784	Mining and civil engineering related technical workers	84	72.6/8.3	47.6/25.0	56.0/19.0
871	Locomotive and electric train drivers	66	72.7/13.5	15.2/81.8	16.7/80.3
872	Freight train related workers	6	16.7/33.3	0.0/100	0.0/100
941	Cleaners and sanitation workers	7,469	58.2/26.1	32.1/51.3	56.7/30.3
613	Livestock and stockbreeding related workers	502	42.2/28.5	32.1/33.1	43.6/23.1
245	Therapists, pathologists and medical technologists	931	49.3/32.5	19.8/65.3	29.1/61.2
222	Computer system and application software developers	1,115	42.6/51.2	10.3/87.7	3.0/95.7
221	Computer hardware and telecommunication engineering professionals	102	40.2/50.0	2.9/94.1	3.9/91.2
391	Statistical service related clerks	93	41.9/50.5	10.8/86.0	25.8/73.1
531	Mobile telecommunication related sales workers and telesales workers	2,673	32.8/57.2	8.3/84.4	21.0/71.5
953	Sales related elementary workers	1,151	55.0/30.9	32.0/50.0	58.4/26.2
151	Sales and transport managers	272	27.9/62.9	10.7/80.9	17.3/71.0
921	Loading and lifting elementary workers	479	66.8/19.8	59.5/25.7	69.9/14.6
252	School teachers	2,991	35.8/53.1	11.2/84.8	52.7/45.0
282	Curators, librarians and archivists	132	33.3/55.3	10.6/77.3	12.1/76.5
238	Aircraft pilots, ship engineers, controllers	22	45.5/31.8	9.1/77.3	9.1/77.3
121	Public and business administration managers	187	14.4/74.9	2.7/94.1	1.6/95.7
311	Administrative clerks	2,840	34.3/74.9	8.3/94.1	5.3/95.7
262	Administration professionals	70	31.4/64.3	11.4/87.1	1.4/95.7
423	Wedding ceremony and funeral service workers	130	25.4/58.5	15.4/67.7	30.8/55.4
832	Chemical, rubber and plastic production machine operators	909	72.2/11.3	32.8/47.4	48.6/34.4
232	Chemical engineers and technicians	189	26.5/56.1	3.2/92.1	10.1/83.6
153	Environmental, cleaning, and protective service related manager	92	19.6/63.0	3.3/85.9	4.3/84.8
237	Environment, gas and energy engineers and technicians	158	50.0/28.5	19.6/67.7	19.6/65.2
313	Accounting and book-keeping clerks	6,356	31.2/60.8	6.3/89.5	3.7/92.7

$p_{\text{Moderate}} (\%) = 100 - p_{\text{High}} (\%) - p_{\text{Low}} (\%)$.

KSCO: Korean Standard Classification of Occupations; UE: upper extremity.