

1 Jobs at the boundary

Let $s_j(o)$, $j \in \{H, M, L\}$ denote the share o -workers with education level j . Denote as $p_i(o)$ the i -th largest element of $\{s_H(o), s_M(o), s_L(o)\}$. A job is in the boundary iff:

$$p_1(o) - p_2(o) \leq 2(0.65 - 0.5)$$

Figure 1: Boundary jobs: 65% threshold

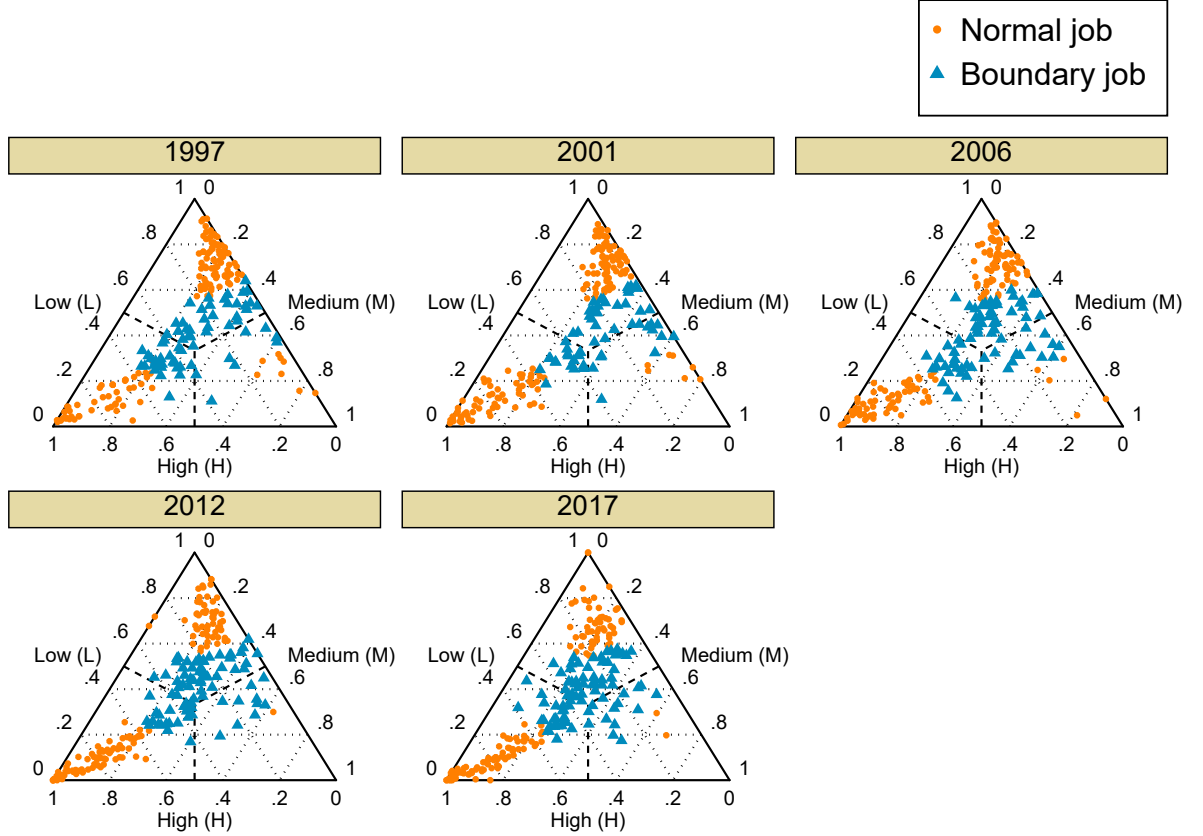


Table 1 shows the number of boundary jobs per year I am looking at. In principle all jobs can appear in all years, if the number is varying it is likely a sampling issue.

2 Skills

- I perform factor analysis on all the skill variables I have available. See this [file](#) for the complete description of the variables available.
- I extract 5 factors. Table 2 summarizes the makeup of each of the factors and assigns a rough label to them based on the variables with largest loadings.

Table 1: Boundary jobs in SES by year

Border type	Year			
	2001	2006	2012	2017
Low-Mid	26	26	25	24
Low-High	12	19	19	23
Mid-High	7	11	10	11
Total jobs	173	172	165	169

- I also consider three indexes encompassing –or at least I think so– the skills that the original [Autor et al. \(2003\)](#) paper uses.
- Tables 5 to 9 in the appendix show examples of occupations with the top values of each of the indexes obtained in the factor analysis. Tables 10 to 12 show the corresponding examples for my attempt at the [Autor et al. \(2003\)](#) measures.
- All skill indexes go from 1 to 100. Higher values always denote higher skill requirements.

3 Skill requirements in jobs at the boundary

- Here I restrict the sample to **people employed in boundary jobs**.
- Suppose a job is in the low-high border. Then, I restrict the sample to people with low / high education levels and run the following regression:

$$y_i = \delta_o + \beta high_i + \varepsilon_i$$

where i indexes individuals, y is a placeholder for any of the skill indexes, $high$ is a high-education dummy, and δ_o is an occupation fixed-effect.

- I run similar regressions for each border-type and skill indexes. The results are shown in 3. Figures 2 and 3 show graphically what the regressions do.
- Table 4 shows similar regressions for my attempt at the ALM indexes.

Table 2: Factor analysis: variables with largest loadings per factor

Variable name	Description	Loadings
Factor 1: Verbal/analytical skills		
skverb	Literacy	0.77
skprofcom	Profesional communication skills	0.71
skplanning	Planning skills	0.68
cwritesh	importance of: writing short documents	0.64
skprobsol	Problem solving skills	0.63
cwritelg	importance of: writing long documents	0.62
Factor 2: manual / physical skills		
skphys	Physical Skills	0.88
cstrengt	importance of: physical strength	0.70
cstamina	importance of: physical stamina	0.68
chands	importance of: skill or accuracy in using hands/fingers	0.67
ctools	importance of: knowledge of use or operation of tools	0.63
Factor 3: control / discretion over job		
bme3	influence personally have on: how to do the task	0.60
bme2	influence personally have on: what tasks to do	0.57
bme4	influence personally have on: quality standards work to	0.48
bchoice	how much choice have over way in which do job	0.48
bme1	influence personally have on: how hard work	0.44
Factor 4: quantitative skills		
sknumber	Numeracy	0.52
cpercent	Importance of: using fractions	0.49
ccalca	importance of: basic arithmetics	0.43
Factor 5: Communication skills		
skclicom	Client Communication Skills	0.58
cselling	importance of: selling a product or service	0.49

Table 3: Skill requirements in border jobs

	(1)	(2)	(3)	(4)	(5)
	Analytical	Manual	Discretion	Quant.	Comm.
<i>Low-High jobs</i>					
High	8.97*** (1.23)	-8.79*** (1.12)	-0.56 (1.29)	-1.30 (1.25)	-1.10 (1.32)
Observations	1,863	1,863	1,863	1,863	1,863
<i>Mid-High jobs</i>					
High	7.94*** (1.78)	-8.90*** (1.93)	-2.55 (1.88)	2.41 (1.79)	-1.00 (1.95)
Observations	806	806	806	806	806
<i>Low-Mid jobs</i>					
Mid	4.23*** (1.13)	-2.42** (0.91)	-1.16 (1.20)	3.08** (1.08)	1.10 (1.16)
Observations	2,117	2,117	2,117	2,117	2,117

Note: robust standard errors in parenthesis. All regressions include occupation fixed-effects.

Table 4: Skill requirements in border jobs (ALM 2003 indexes)

	(1)	(2)	(3)
	Non-routine-cognitive	Routine-cognitive	Routine-manual
<i>Low-High jobs</i>			
High	5.90*** (1.25)	-0.27 (1.21)	-6.29*** (1.29)
Observations	1,863	1,863	1,863
<i>Mid-High jobs</i>			
High	5.50** (1.78)	1.85 (1.77)	-6.63*** (1.99)
Observations	806	806	806
<i>Low-Mid jobs</i>			
Mid	3.13** (1.14)	0.13 (1.10)	0.83 (1.13)
Observations	2,117	2,117	2,117

Note: robust standard errors in parenthesis. All regressions include occupation fixed-effects.

References

Autor, D. H., Levy, F., and Murnane, R. J. (2003). The Skill Content of Recent Technological Change: An Empirical Exploration. *The Quarterly Journal of Economics*, 118(4):1279–1333.

Figure 2: Analytical and manual skills

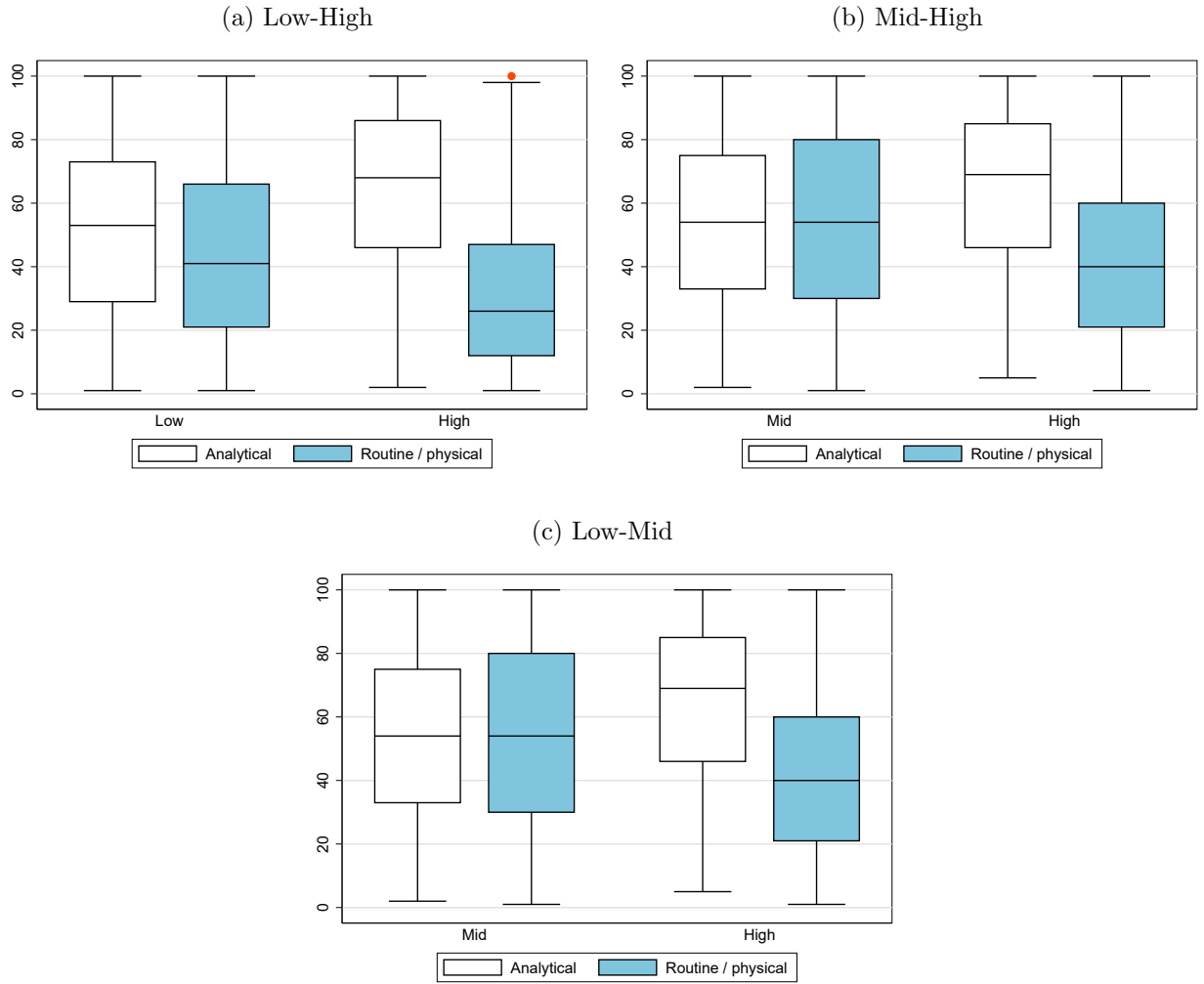


Table 5: Top occupations: Analytical

bsoc00Agg	No.
1112 directors & chief execs of maj orgs	1.0
1114 sen. officials spec interest orgs	1.0
2212 psychologists	1.0
2311 higher educ teaching prfsnals	1.0
2313 educ officers,school inspectrs	1.0
2314 secondary eductn teaching prfsnals	1.0
2317 registrs & sen admins ed establish	1.0
2321 scientific researchers	1.0
2411 solic & lawyers, judges & coroners	1.0
2443 probation officers	1.0
Total	10.0

Figure 3: Discretion, quantitative and communication skills

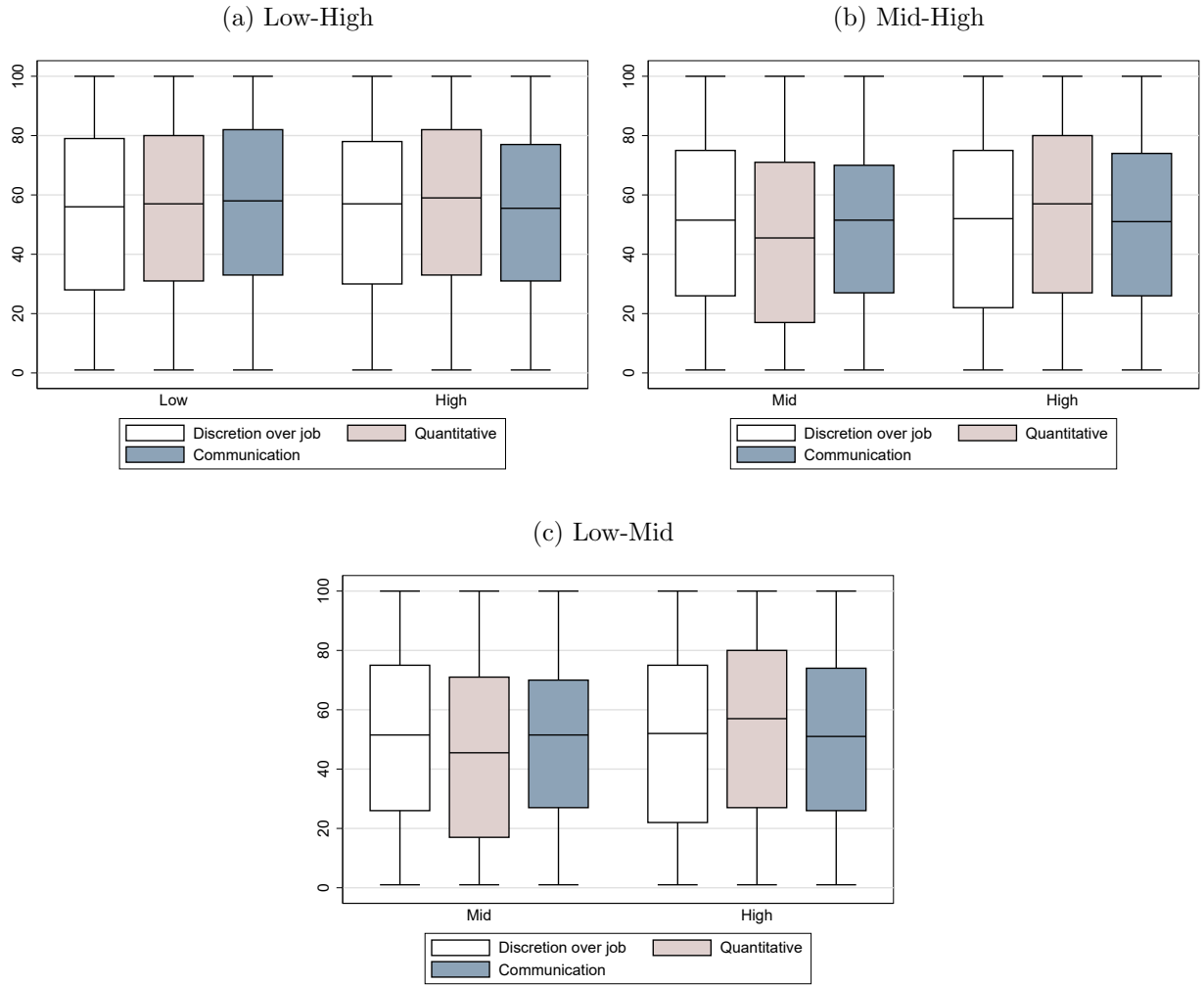


Table 6: Top occupations: Manual

bsoc00Agg	No.
5119 agricult and fishing trades n.e.c.	1.0
5312 bricklayers, masons, roofers	1.0
5321 building trades	1.0
5431 butchers, meat cutters	1.0
5433 fishmongers, poultry dressers	1.0
5492 Skill trades nec	1.0
8119 process operatives n.e.c.	1.0
8135 tyre, exhaust and windscrn fitters	1.0
8141 scaffolders, staggers, riggers	1.0
9129 lab oth const trades n.e.c.	1.0
Total	10.0

Table 7: Top occupations: Discretion

bsoc00Agg	No.
1163 retail and wholesale managers	1.0
1234 shopkprs, wholesale & retail dealrs	1.0
2444 clergy	1.0
3229 therapists n.e.c.	1.0
3442 Sports And Fitness Occupations	1.0
5119 agricult and fishing trades n.e.c.	1.0
5321 building trades	1.0
6221 Hairdressers And Related Occupations	1.0
8215 Transport operatives nec	1.0
9231 window cleaners	1.0
Total	10.0

Table 8: Top occupations: Quant

bsoc00Agg	No.
2111 chemists	1.0
2126 design, development, production and process engineers	1.0
2132 software professionals	1.0
2321 scientific researchers	1.0
2422 management accountants	1.0
2434 chartrd surveyors (not qntity surv)	1.0
3422 product, clothing & related dsgrs	1.0
4121 Credit controllers, accnts wages clark, bookkeeper	1.0
5412 upholsterers	1.0
8134 weighers, graders, sorters	1.0
Total	10.0

Table 9: Top occupations: Communication

bsoc00Agg	No.
1163 retail and wholesale managers	1.0
2213 pharmacists & pharmacologists	1.0
4123 counter clerks	1.0
7111 sales and retail assistants	1.0
7112 retail cashiers/check-out operators	1.0
7113 telephone salespersons	1.0
7211 Customer sevice occupations	1.0
224 waiters, waitresses	1.0
9225 bar staff	1.0
9226 leisure and theme park attendants	1.0
Total	10.0

Table 10: Top occupations: Non-routine-cognitive

bsoc00Agg	No.
1112 directors & chief execs of maj orgs	1.0
1122 managers in construction, mining and energy	1.0
1131 financial managers & chartered secs	1.0
1133 purchasing managers	1.0
1211 farm managers	1.0
1239 mngrs and prop. in other srvcs nec	1.0
2321 scientific researchers	1.0
2422 management accountants	1.0
2433 quantity surveyors	1.0
3422 product, clothing & related dsgrs	1.0
Total	10.0

Table 11: Top occupations: Routine-cognitive

bsoc00Agg	No.
2111 chemists	1.0
2112 bio scientists and biochemists	1.0
2213 pharmacists & pharmacologists	1.0
2422 management accountants	1.0
2443 probation officers	1.0
3511 Transport Associate Professionals	1.0
5241 Electrical trades	1.0
5412 upholsterers	1.0
8141 scaffolders, staggers, riggers	1.0
9133 printing machine minders and assist	1.0
Total	10.0

Table 12: Top occupations: Routine-manual

bsoc00Agg	No.
2215 dental practitioners	1.0
2216 veterinarians	1.0
3422 product, clothing & related dsgrs	1.0
5412 upholsterers	1.0
5492 Skill trades nec	1.0
6221 Hairdressers And Related Occupations	1.0
8134 weighers, graders, sorters	1.0
8135 tyre, exhaust and windscrn fitters	1.0
8137 sewing machinists	1.0
8141 scaffolders, staggers, riggers	1.0
Total	10.0