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An analysis of the demand for skills in the labour market in 2035 - Revised tables and figures

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The Skills Imperative 2035

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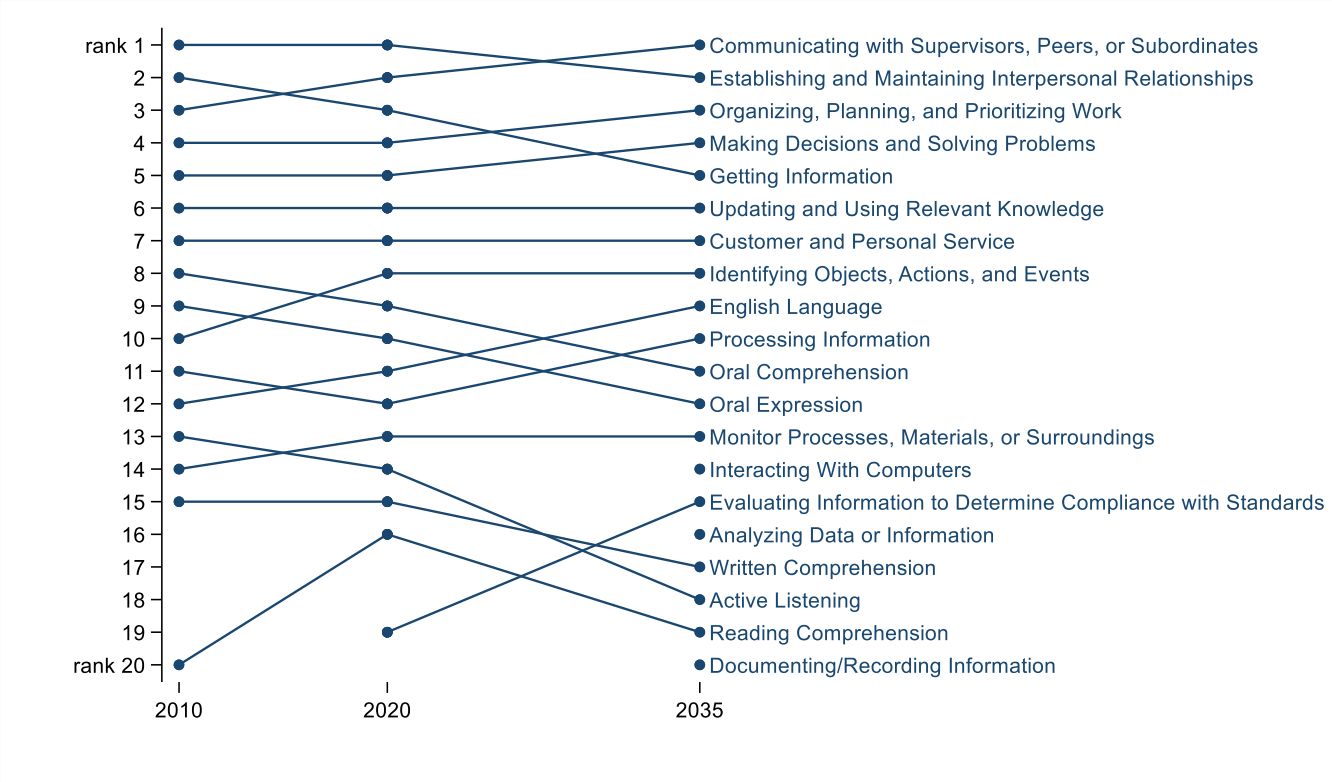

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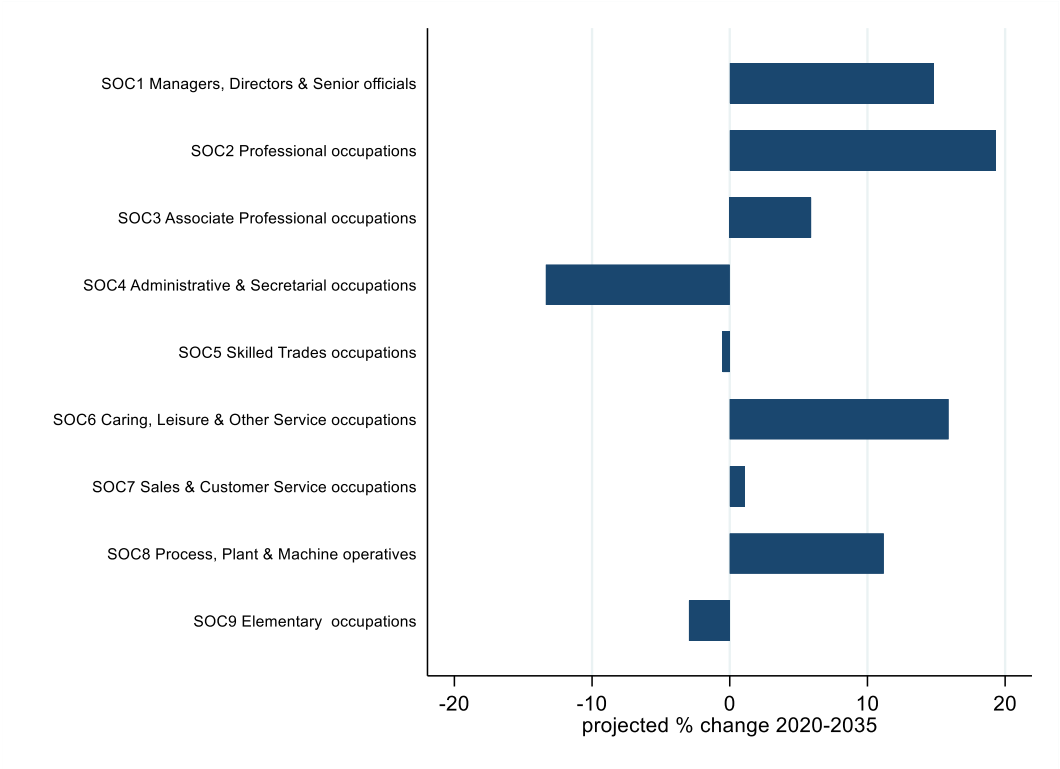

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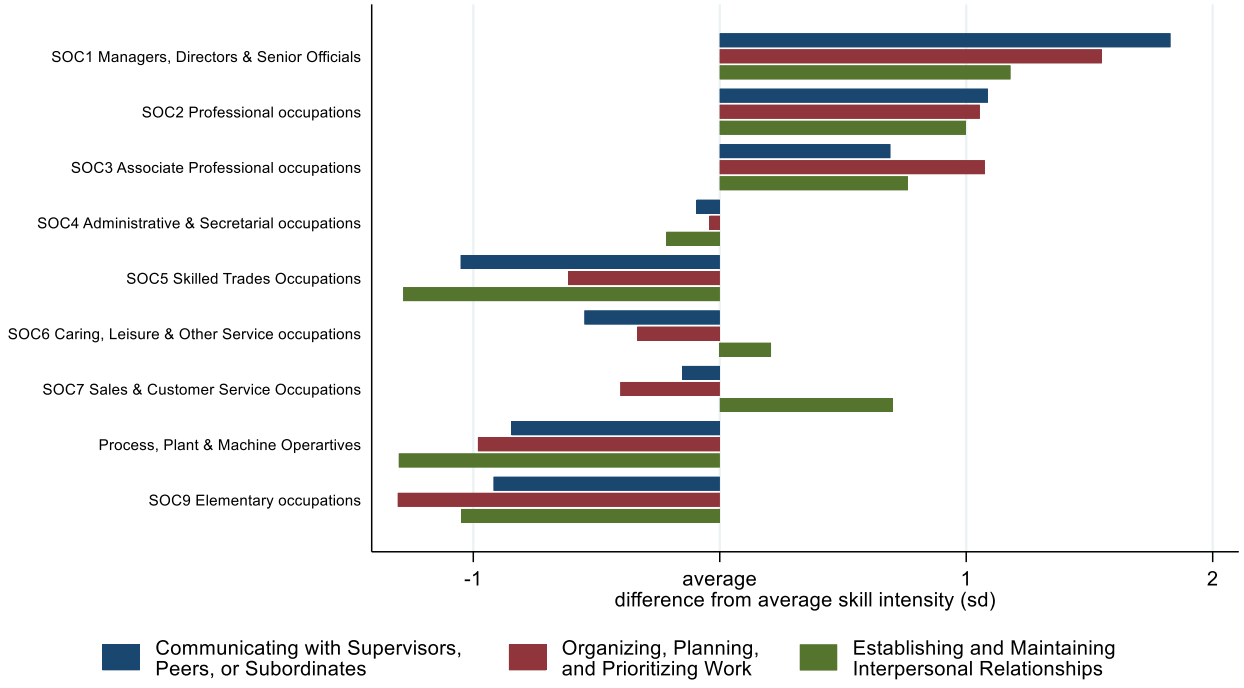


Figure IV: Occupational skills profiles for 2020 and 2035 for Developing and Building Teams, and Finger Dexterity

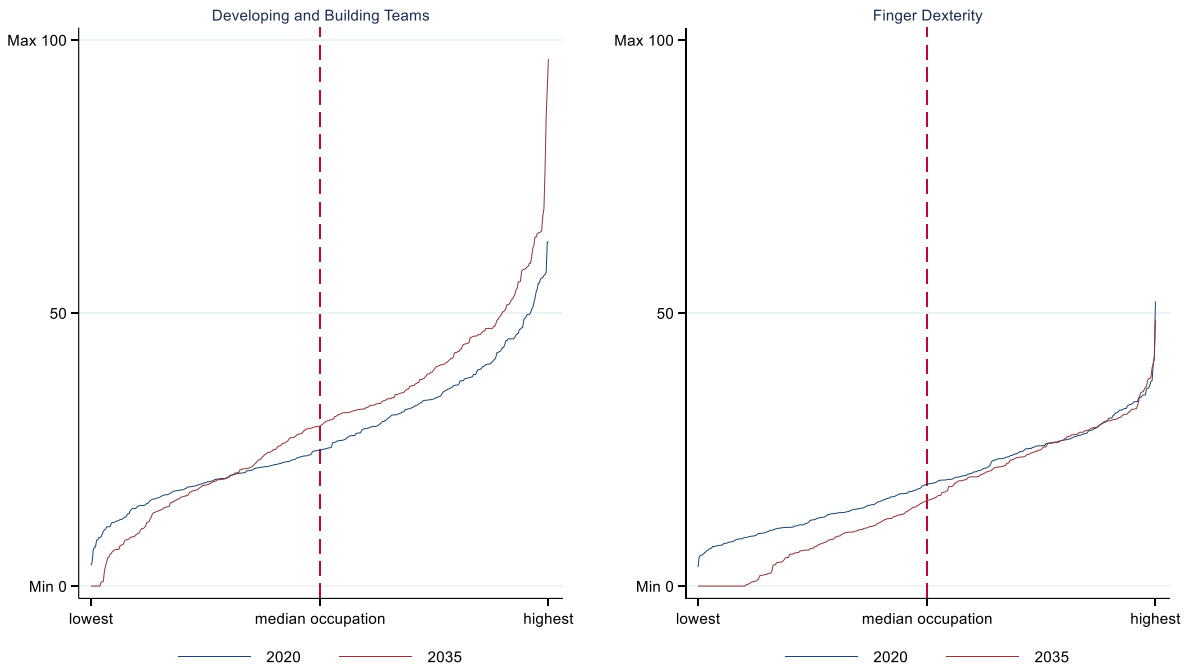


Table 1: Description of the 161 O*NET 'skills' elements

Domain: Abilities	Domain: Knowledge	Domain: Skills	Domain: Work Activities
Arm-Hand Steadiness	Administration and Management	Active Learning	Analyzing Data or Information
Auditory Attention	Biology	Active Listening	Assisting and Caring for Others
Category Flexibility	Building and Construction	Complex Problem Solving	Coaching and Developing Others
Control Precision	Chemistry	Coordination	Communicating with Persons Outside Organization
Deductive Reasoning	Clerical	Critical Thinking	Communicating with Supervisors, Peers, or Subordinates
Depth Perception	Communications and Media	Equipment Maintenance	Controlling Machines and Processes
Dynamic Flexibility	Computers and Electronics	Equipment Selection	Coordinating the Work and Activities of Others
Dynamic Strength	Customer and Personal Service	Installation	Developing Objectives and Strategies
Explosive Strength	Design	Instructing	Developing and Building Teams
Extent Flexibility	Economics and Accounting	Judgment and Decision Making	Documenting/Recording Information

Domain: Abilities	Domain: Knowledge	Domain: Skills	Domain: Work Activities
Far Vision	Education and Training	Learning Strategies	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment
Finger Dexterity	Engineering and Technology	Management of Financial Resources	Establishing and Maintaining Interpersonal Relationships
Flexibility of Closure	English Language	Management of Material Resources	Estimating the Quantifiable Characteristics of Products, Events, or Information
Fluency of Ideas	Fine Arts	Management of Personnel Resources	Evaluating Information to Determine Compliance with Standards
Glare Sensitivity	Food Production	Mathematics (Skill)	Getting Information
Gross Body Coordination	Foreign Language	Monitoring	Guiding, Directing, and Motivating Subordinates
Gross Body Equilibrium	Geography	Negotiation	Handling and Moving Objects
Hearing Sensitivity	History and Archeology	Operation Monitoring	Identifying Objects, Actions, and Events
Inductive Reasoning	Law and Government	Operation and Control	Inspecting Equipment, Structures, or Material

Domain: Abilities	Domain: Knowledge	Domain: Skills	Domain: Work Activities
Information Ordering	Mathematics	Operations Analysis	Interacting With Computers
Manual Dexterity	Mechanical	Persuasion	Interpreting the Meaning of Information for Others
Mathematical Reasoning	Medicine and Dentistry	Programming	Judging the Qualities of Things, Services, or People
Memorization	Personnel and Human Resources	Quality Control Analysis	Making Decisions and Solving Problems
Multilimb Coordination	Philosophy and Theology	Reading Comprehension	Monitor Processes, Materials, or Surroundings
Near Vision	Physics	Repairing	Monitoring and Controlling Resources
Night Vision	Production and Processing	Science	Operating Vehicles, Mechanized Devices, or Equipment
Number Facility	Psychology	Service Orientation	Organizing, Planning, and Prioritizing Work
Oral Comprehension	Public Safety and Security	Social Perceptiveness	Performing Administrative Activities
Oral Expression	Sales and Marketing	Speaking	Performing General Physical Activities

Domain: Abilities	Domain: Knowledge	Domain: Skills	Domain: Work Activities
Originality	Sociology and Anthropology	Systems Analysis	Performing for or Working Directly with the Public
Perceptual Speed	Telecommunications	Systems Evaluation	Processing Information
Peripheral Vision	Therapy and Counseling	Technology Design	Provide Consultation and Advice to Others
Problem Sensitivity	Transportation	Time Management	Repairing and Maintaining Electronic Equipment
Rate Control		Troubleshooting	Repairing and Maintaining Mechanical Equipment
Reaction Time		Writing	Resolving Conflicts and Negotiating with Others
Response Orientation			Scheduling Work and Activities
Selective Attention			Selling or Influencing Others
Sound Localization			Staffing Organizational Units
Spatial Orientation			Thinking Creatively
Speech Clarity			Training and Teaching Others
Speech Recognition			Updating and Using Relevant Knowledge

Domain: Abilities	Domain: Knowledge	Domain: Skills	Domain: Work Activities
Speed of Closure			
Speed of Limb Movement			
Stamina			
Static Strength			
Time Sharing			
Trunk Strength			
Visual Color Discrimination			
Visualization			
Wrist-Finger Speed			
Written Comprehension			
Written Expression			

Source: O*NET Center https://www.onetcenter.org/content.html

Note: The definitions for each of these elements can be found in the O*NET Content Reference Manual

Table 2: UK SOC2020 major groups

SOC	SOC2020 Major groups
SOC 1	Managers, directors and senior officials
SOC 2	Professional occupations
SOC 3	Associate professional occupations
SOC 4	Administrative and secretarial occupations
SOC 5	Skilled trades occupations
SOC 6	Caring, leisure and other service occupations
SOC 7	Sales and customer service occupations
SOC 8	Process, plant and machine operatives
SOC 9	Elementary occupations

Source: SOC2020 Volume 1: structure and descriptions of unit groups
https://www.ons.gov.uk/methodology/classificationsandstandards/standardoccupationalclassificationsoc/soc2020/soc2020volume1structureanddescriptionsofunitgroups

Table 3: Skill levels and the sub-major group structure of UK SOC2020

Skill level	UK SOC2020 sub-major groups
Level 4	11 Corporate managers and directors
(highest)	21 Science, research, engineering and technology professionals
	22 Health professionals
	23 Teaching and other educational professionals
	24 Business, media and public service professionals
Level 3	12 Other managers and proprietors
	31 Science, engineering and technology associate professionals
	32 Health and social care associate professionals
	33 Protective service occupations
	34 Culture, media and sports occupations
	35 Business and public service associate professionals
	51 Skilled agricultural and related trades
	52 Skilled metal, electrical and electronic trades
	53 Skilled construction and building trades
	54 Textiles, printing and other skilled trades
Level 2	41 Administrative occupations
	42 Secretarial and related occupations
	61 Caring personal service occupations
	62 Leisure, travel and related personal service occupations
	63 Community and civil enforcement occupations
	71 Sales occupations
	72 Customer service occupations
	81 Process, plant and machine operatives
	82 Transport and mobile machine drivers and operatives
Level 1	91 Elementary trades and related occupations
(lowest)	92 Elementary administration and service occupations

Source: SOC2020 Volume 1: structure and descriptions of unit groups
https://www.ons.gov.uk/methodology/classificationsandstandards/standardoccupationalclassificationsoc/soc2020/soc2020volume1structureanddescriptionsofunitgroups

Table 4: Top 20 skills ranking 2010-2020-2035 – Skills Prevalence measure, linear skills projections

Rank	2010	2020	2035
1	Establishing and Maintaining Interpersonal Relationships	Establishing and Maintaining Interpersonal Relationships	Communicating with Supervisors, Peers, or Subordinates
2	Getting Information	Communicating with Supervisors, Peers, or Subordinates	Establishing and Maintaining Interpersonal Relationships
3	Communicating with Supervisors, Peers, or Subordinates	Getting Information	Organizing, Planning, and Prioritizing Work
4	Organizing, Planning, and Prioritizing Work	Organizing, Planning, and Prioritizing Work	Making Decisions and Solving Problems
5	Making Decisions and Solving Problems	Making Decisions and Solving Problems	Getting Information
6	Updating and Using Relevant Knowledge	Updating and Using Relevant Knowledge	Updating and Using Relevant Knowledge
7	Customer and Personal Service	Customer and Personal Service	Customer and Personal Service
8	Oral Comprehension	Identifying Objects, Actions, and Events	Identifying Objects, Actions, and Events
9	Oral Expression	Oral Comprehension	English Language
10	Identifying Objects, Actions, and Events	Oral Expression	Processing Information
11	Processing Information	English Language	Oral Comprehension
12	English Language	Processing Information	Oral Expression

13	Active Listening	Monitor Processes, Materials, or Surroundings	Monitor Processes, Materials, or Surroundings
14	Monitor Processes, Materials, or Surroundings	Active Listening	Interacting With Computers
15	Written Comprehension	Written Comprehension	Evaluating Information to Determine Compliance with Standards
16	Communicating with Persons Outside Organization	Reading Comprehension	Analyzing Data or Information
17	Speaking	Speaking	Written Comprehension
18	Problem Sensitivity	Communicating with Persons Outside Organization	Active Listening
19	Near Vision	Evaluating Information to Determine Compliance with Standards	Reading Comprehension
20	Reading Comprehension	Problem Sensitivity	Documenting/Recording Information

Table 5: Between-Within decomposition of total skill change – Skills Prevalence, linear projections

Skill elements:	Observation 2010-20 % between : % within	Forecast 2020-35 % between : % within	Whole period 2010-35 % between : % within
All 161 skill elements	58 : 42	22 : 78	37: 63
Abilities (52)	65 : 35	11 : 89	47 : 53
Knowledge (33)	39 : 61	32 : 68	24 : 76
Skills (35)	77 : 23	41 : 59	54 : 46
Work Activities (41)	42 : 58	17 : 83	28 : 72

Note: The pairs of numbers in the table are the median between : within shares of the total change in skill demand over the period in the column heading. Hence for 2010-2020, calculated across all 161 skill elements, the average 'between' share was 58% and the average 'within' share was 42%. The interpretation is that, on average, 58% of the total change in skills demand was due to changes in skill utilisation *between* occupations, while 42% was due to changes *within* occupations.

Table 6: Top 20 skills ranked by absolute increase in skill utilisation 2020-2035

Rank	Skill	Score (2020)	Score (2035)	Δ Score
1	Interacting With Computers	12.5	14.2	1.7
2	English Language	14.4	16.0	1.6
3	Analyzing Data or Information	12.4	13.9	1.5
4	Making Decisions and Solving Problems	16.8	18.2	1.5
5	Training and Teaching Others	11.4	12.9	1.5
6	Computers and Electronics	10.7	12.2	1.5
7	Evaluating Information to Determine Compliance with Standards	12.8	14.2	1.4
8	Organizing, Planning, and Prioritizing Work	17.1	18.4	1.3
9	Developing and Building Teams	9.9	11.2	1.3
10	Provide Consultation and Advice to Others	10.0	11.2	1.2
11	Communications and Media	5.9	7.1	1.2
12	Updating and Using Relevant Knowledge	16.5	17.7	1.2
13	Coaching and Developing Others	11.2	12.3	1.1
14	Monitor Processes, Materials, or Surroundings	13.6	14.7	1.1
15	Processing Information	14.3	15.4	1.1
16	Interpreting the Meaning of Information for Others	10.6	11.6	1.0
17	Communicating with Supervisors, Peers, or Subordinates	17.7	18.8	1.0
18	Developing Objectives and Strategies	9.8	10.8	1.0
19	Guiding, Directing, and Motivating Subordinates	9.7	10.6	1.0
20	Geography	3.2	4.1	0.9

Note: The skill scores are scaled by total employment, and so can be interpreted as the average skill prevalence per job 2020 and 2035.

Table 7: Top 20 skills ranked by percentage increase in skill utilisation 2020-2035

Rank	Skill	Score (2020)	Score (2035)	% Change
1	Explosive Strength	0.7	1.3	78.2
2	Dynamic Flexibility	0.1	0.2	49.6
3	Geography	3.2	4.1	29.7
4	Food Production	1.3	1.6	29.0
5	Wrist-Finger Speed	1.8	2.2	23.6
6	Foreign Language	1.8	2.2	23.0
7	History and Archeology	1.4	1.7	22.1
8	Engineering and Technology	4.5	5.4	20.6
9	Communications and Media	5.9	7.1	20.2
10	Repairing and Maintaining Electronic Equipment	3.1	3.6	18.4
11	Fine Arts	1.0	1.1	17.5
12	Dynamic Strength	2.1	2.5	17.3
13	Design	3.8	4.3	14.1
14	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	2.9	3.3	14.1
15	Interacting With Computers	12.5	14.2	14.0
16	Gross Body Equilibrium	1.7	2.0	14.0
17	Biology	2.3	2.6	13.8
18	Repairing and Maintaining Mechanical Equipment	3.4	3.8	13.7
19	Computers and Electronics	10.7	12.2	13.5
20	Staffing Organizational Units	5.3	6.0	13.5

Note: The skill scores are scaled by total employment, and so can be interpreted as the average skill prevalence per job 2020 and 2035.

Table 8: Top 20 skills ranked by absolute decrease in skill utilisation 2020-2035

Rank	Skill	Score (2020)	Score (2035)	Δ Score
1	Finger Dexterity	5.9	4.6	-1.3
2	Operations Analysis	3.7	2.4	-1.3
3	Science	2.3	1.6	-0.7
4	Hearing Sensitivity	4.0	3.4	-0.6
5	Operation Monitoring	4.7	4.1	-0.6
6	Selective Attention	8.6	8.1	-0.6
7	Speed of Limb Movement	1.2	0.7	-0.5
8	Depth Perception	3.1	2.6	-0.5
9	Psychology	6.9	6.5	-0.4
10	Control Precision	4.1	3.7	-0.4
11	Communicating with Persons Outside Organization	12.8	12.5	-0.3
12	Management of Personnel Resources	7.6	7.2	-0.3
13	Visual Color Discrimination	5.4	5.1	-0.3
14	Arm-Hand Steadiness	4.8	4.5	-0.3
15	Multilimb Coordination	3.7	3.5	-0.2
16	Response Orientation	1.8	1.6	-0.2
17	Performing for or Working Directly with the Public	10.8	10.6	-0.2
18	Manual Dexterity	4.5	4.3	-0.2
19	Auditory Attention	4.8	4.6	-0.2
20	Negotiation	8.0	7.8	-0.2

Note: The skill scores are scaled by total employment, and so can be interpreted as the average skill prevalence per job 2020 and 2035.

Table 9: Top 20 skills ranked by percentage decrease in skill utilisation 2020-2035

Rank	Skill	Score (2020)	Score (2035)	% Change
1	Speed of Limb Movement	1.2	0.7	-42.0
2	Operations Analysis	3.7	2.4	-34.4
3	Science	2.3	1.6	-31.0
4	Finger Dexterity	5.9	4.6	-22.2
5	Depth Perception	3.1	2.6	-16.3
6	Hearing Sensitivity	4.0	3.4	-14.9
7	Glare Sensitivity	0.8	0.7	-12.6
8	Operation Monitoring	4.7	4.1	-12.5
9	Response Orientation	1.8	1.6	-12.2
10	Control Precision	4.1	3.7	-9.3
11	Night Vision	0.6	0.5	-7.0
12	Multilimb Coordination	3.7	3.5	-6.7
13	Selective Attention	8.6	8.1	-6.5
14	Gross Body Coordination	2.3	2.2	-6.3
15	Psychology	6.9	6.5	-6.1
16	Visual Color Discrimination	5.4	5.1	-5.7
17	Arm-Hand Steadiness	4.8	4.5	-5.7
18	Equipment Selection	1.3	1.2	-5.6
19	Troubleshooting	2.5	2.4	-5.5
20	Management of Personnel Resources	7.6	7.2	-4.4

Table A1: Respondent types for the O*NET domains

Domain	No. Elements	Respondents
Abilities	52	Job Analysts
Knowledge	33	Job Incumbents & Occupational Experts
Skills	35	Job Analysts
Work Activities	41	Job Incumbents & Occupational Experts
TOTAL	161	

Table B1: Example of 'new mapping' for UK SOC2020 1123 Production Managers and Directors in Mining and Energy

SOC2020	SOC2020 Title	O*NET2019	O*NET2019 Title
1123	Production managers and directors in mining and energy	11-3051.02	Geothermal Production Managers
		11-3051.03	Biofuels Production Managers
		11-3051.04	Biomass Power Plant Managers
		11-3051.06	Hydroelectric Production Managers
		11-9199.09	Wind Energy Operations Managers

Table B2: Example of 'complete' and 'restricted mapping' for UK SOC2020 1123 Production Managers and Directors in Mining and Energy

ONS SOC crosswalk				O*NET crosswalk			
SOC2020	SOC2020 Title	SOC2010	SOC2010 Title	O*NET2010	O*NET2010 Title	O*NET2019	O*NET2019 Title
1123	Production managers and directors in mining and energy	1121	Production managers and directors in manufacturing	11-1021.00	General and Operations Managers	11-1021.00	General and Operations Managers
				11-3051.00	Industrial Production Managers	11-3051.00	Industrial Production Managers

		SOC2010-2020 share: 0.018	11-3051.03	Biofuels Production Managers	11-3051.03	Biofuels Production Managers
			11-9041.00	Architectural and Engineering Managers	11-9041.00	Architectural and Engineering Managers
	1123	Production managers and directors in mining and energy	11-3051.02	Geothermal Production Managers	11-3051.02	Geothermal Production Managers
			11-3051.03	Biofuels Production Managers	11-3051.03	Biofuels Production Managers
		SOC2010-2020 share: 0.982	11-3051.04	Biomass Power Plant Managers	11-3051.04	Biomass Power Plant Managers
			11-3051.06	Hydroelectric Production Managers	11-3051.06	Hydroelectric Production Managers
			11-9199.09	Wind Energy Operations Managers	11-9199.09	Wind Energy Operations Managers

Table D1: Between-Within decomposition of total skill change – Skills Prevalence, logarithmic projections

Skill elements:	Observation 2010-20 % between : % within	Forecast 2020-35 % between : % within	Whole period 2010-35 % between : % within
All 161 skill elements	58 : 42	71 : 29	62: 38
Abilities (52)	65 : 35	65 : 35	64 : 36
Knowledge (33)	39 : 61	90 : 10	57 : 43
Skills (35)	77 : 23	90 : 10	83 : 17
Work Activities (41)	42 : 58	60 : 40	48 : 52

Note: The pairs of numbers in the table are the median between : within shares of the total change in skill demand over the period in the column heading. Hence for 2010-2020, calculated across all 161 skill elements, the average 'between' share was 58% and the average 'within' share was 42%. The interpretation is that, on average, 58% of the total change in skills demand was due to changes in skill utilisation *between* occupations, while 42% was due to changes *within* occupations.

Table E1: ONS SOC2020 Skill Level Classification

Skill Level	Description
Skill Level 1 (lowest)	The first skill level equates with the competence associated with a general education, usually acquired by the time a person completes his/her compulsory education and signalled via a satisfactory set of school-leaving examination grades. Competent performance of jobs classified at this level will also involve knowledge of appropriate health and safety regulations and may require short periods of work-related training. Examples of occupations defined at this skill level within the SOC 2020 include postal workers, hotel porters, cleaners and catering assistants.
Skill Level 2	The second skill level covers a large group of occupations, all of which require the knowledge provided via a good general education as for occupations at the first skill level, but which typically have a longer period of work-related training or work experience. Occupations classified at this level include machine operation, driving, caring occupations, retailing, and clerical and secretarial occupations.
Skill Level 3	The third skill level applies to occupations that normally require a body of knowledge associated with a period of post-compulsory education but not normally to degree level. Several technical occupations fall into this category, as do a variety of trades occupations and proprietors of small businesses. In the latter case, educational qualifications at sub-degree level or a lengthy period of vocational training may not be a prerequisite for competent performance of tasks, but a significant period of work experience is typical.
Skill Level 4 (highest)	The fourth skill level relates to what are termed “professional” occupations and high-level managerial positions in corporate enterprises, or national or local government. Occupations at this level normally require a degree or equivalent period of relevant work experience.

Source: SOC2020 Volume 1: structure and descriptions of unit groups
https://www.ons.gov.uk/methodology/classificationsandstandards/standardoccupationalclassificationsoc/soc2020/soc2020volume1structureanddescriptionsofunitgroups

Figure 1: Skill Profile: Establishing and Maintaining Interpersonal Relationships

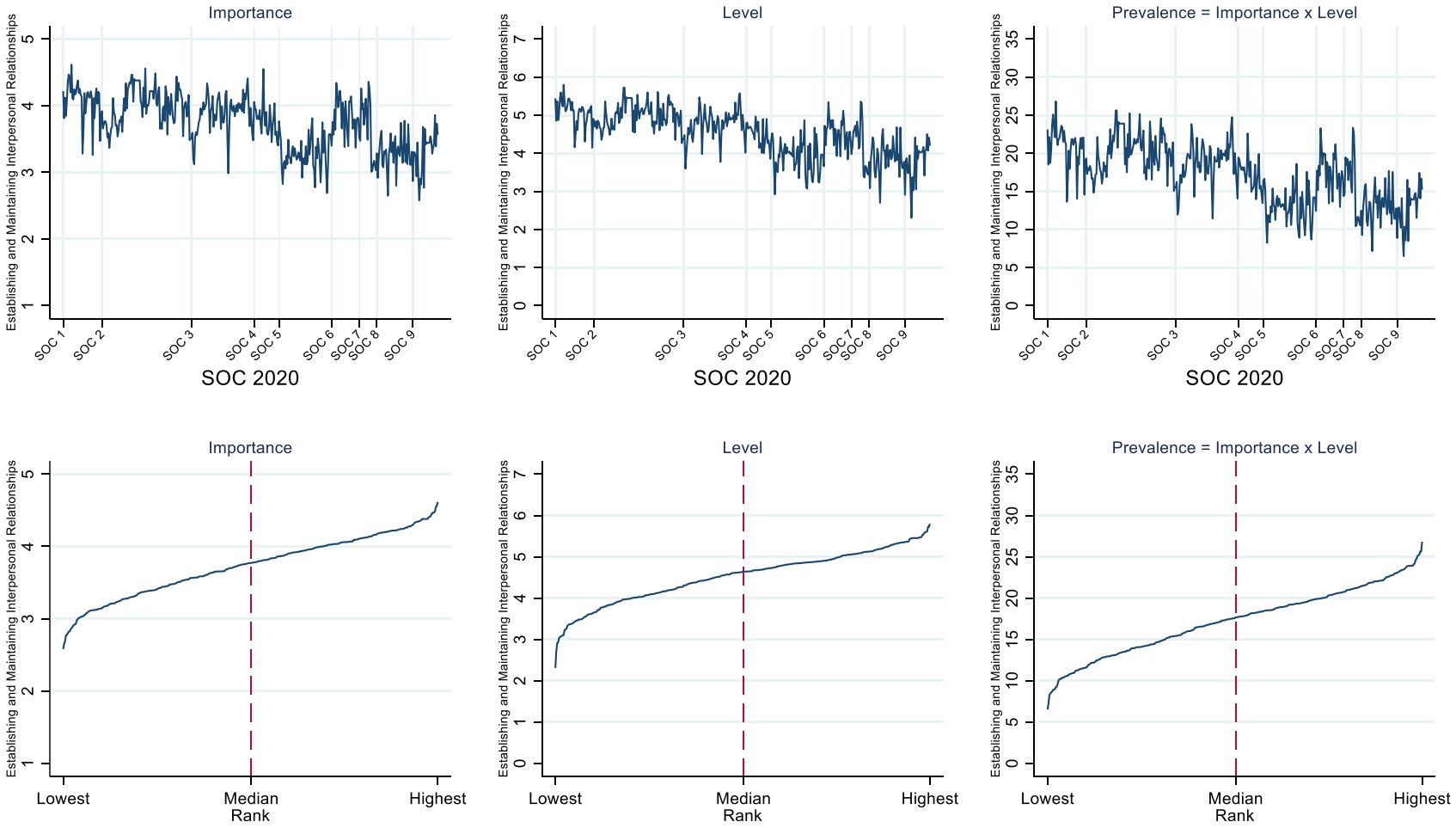


Figure 2: Skill Profile: Interacting with Computers

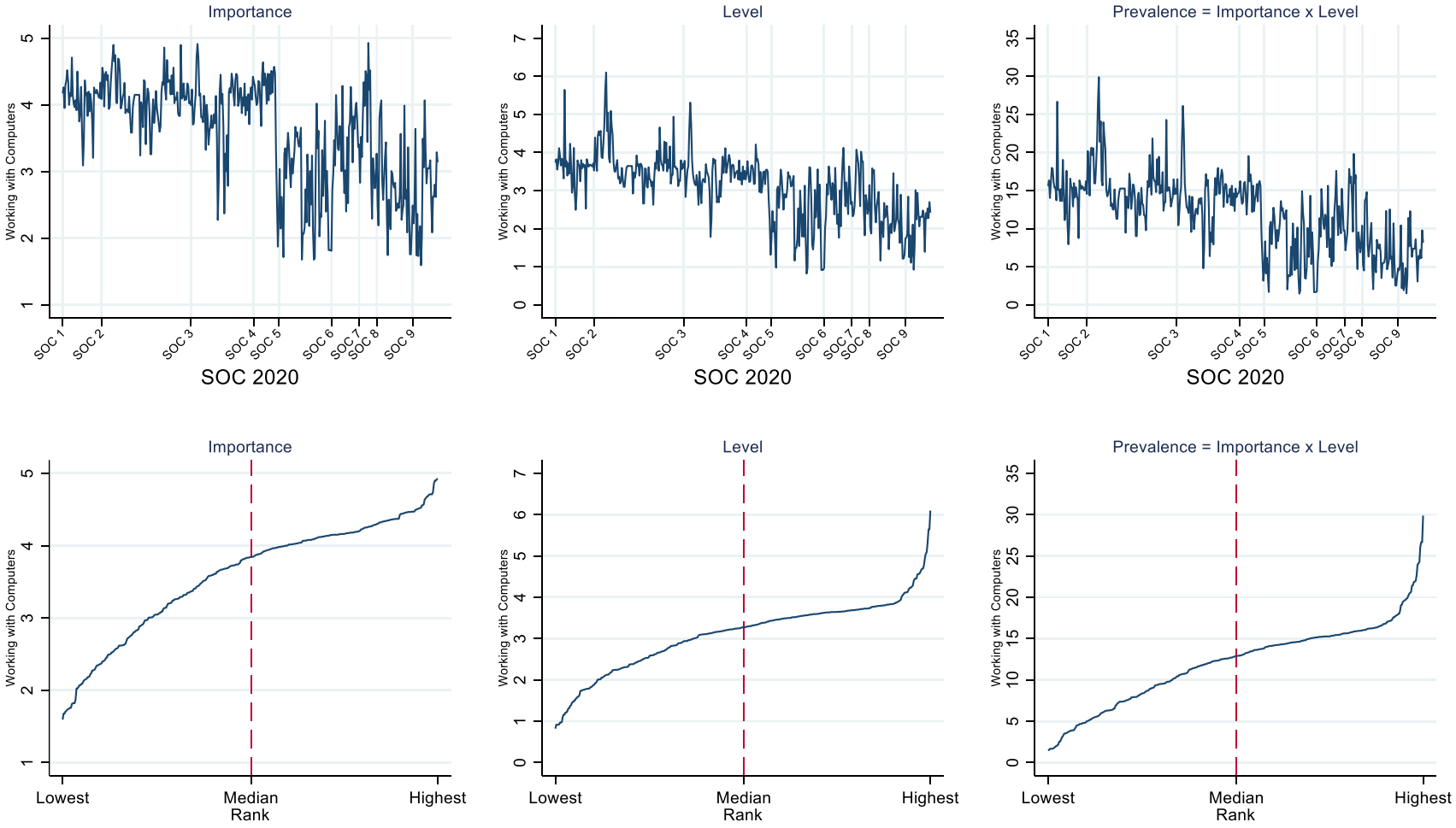


Figure 3: Skill Profile: Making Decisions and Solving Problems

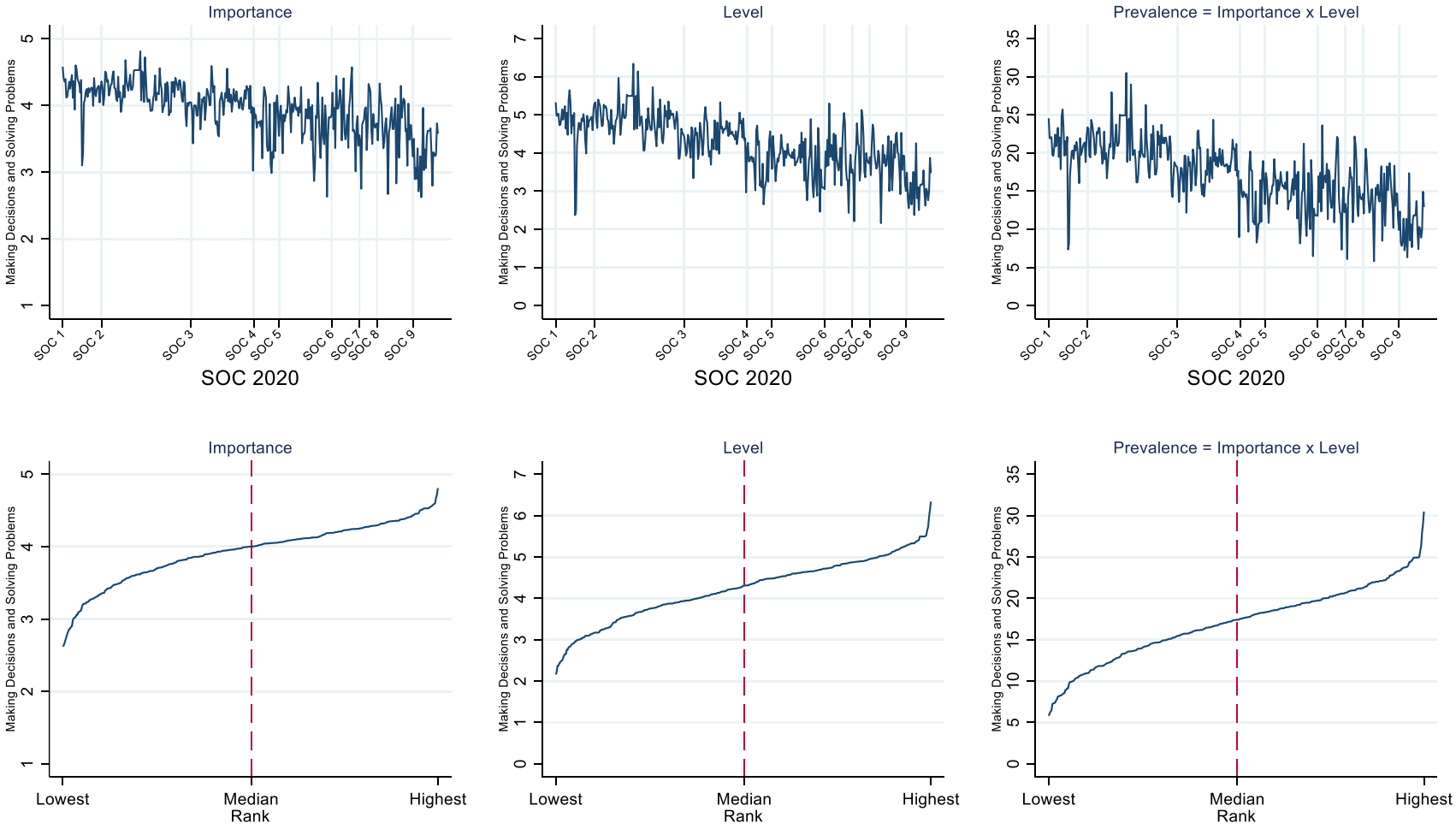


Figure 4: Skill Profile: Mathematics

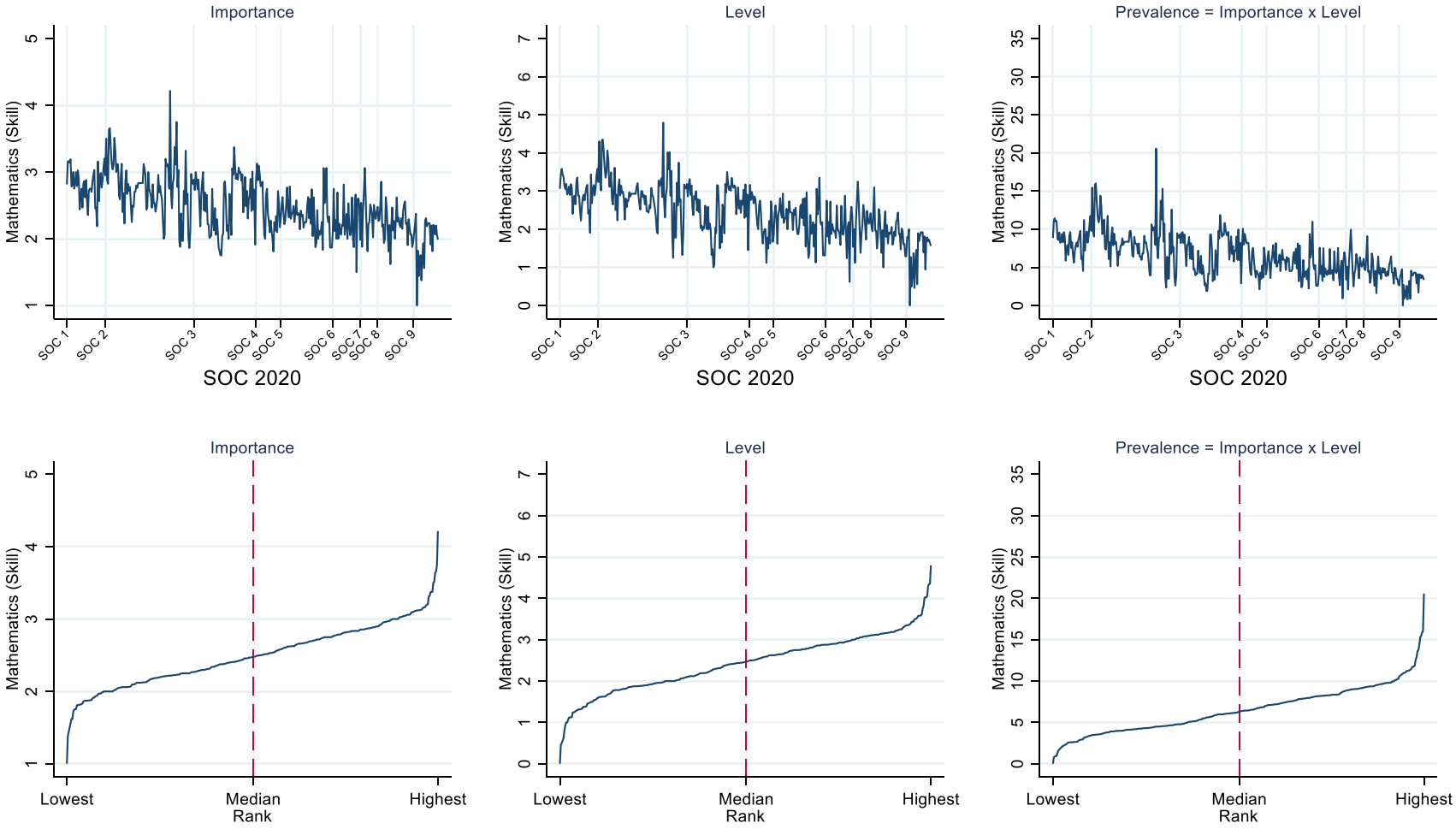


Figure 5: Skill Profile: Programming

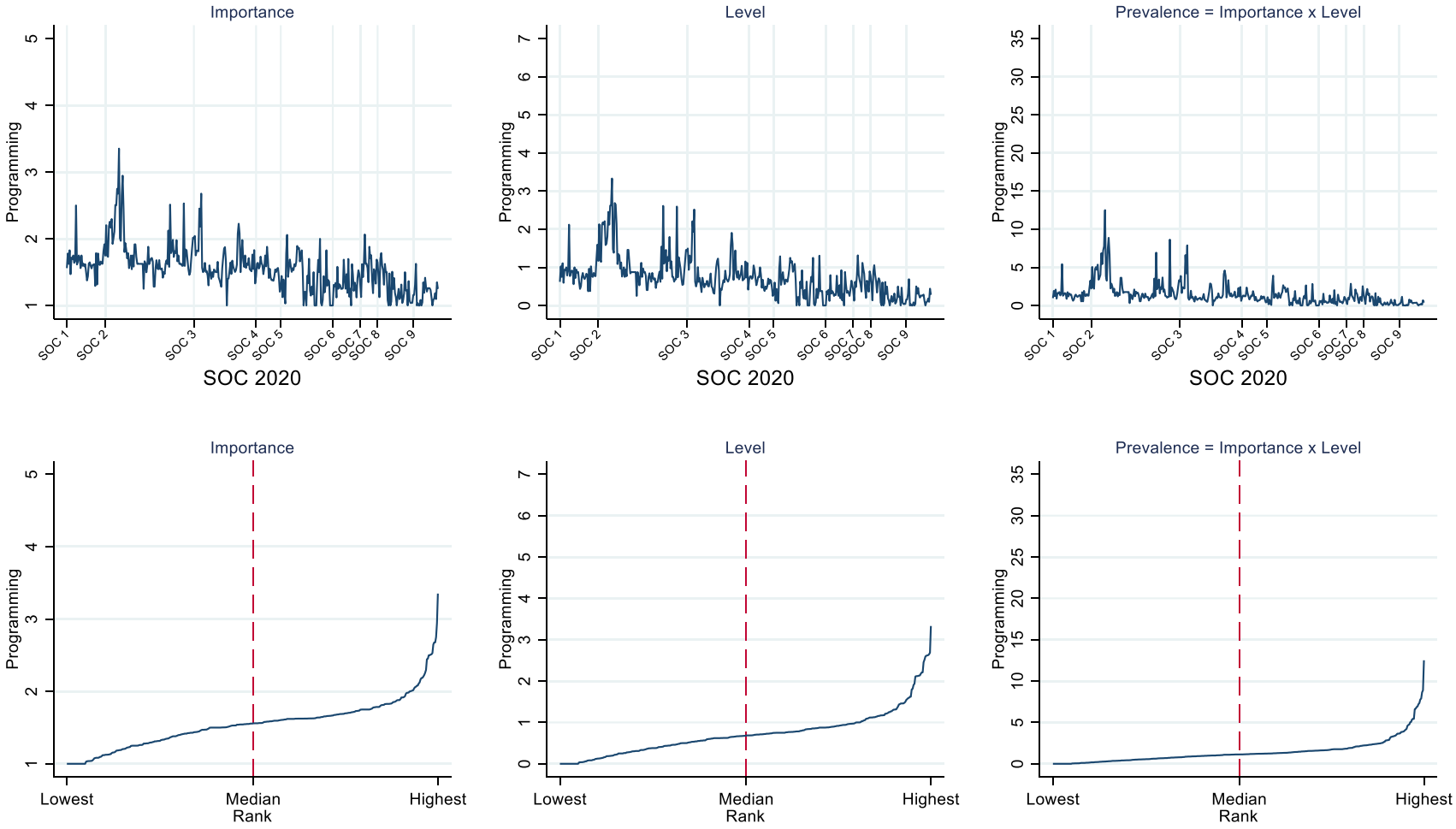


Figure 6: Skill Profile: Science

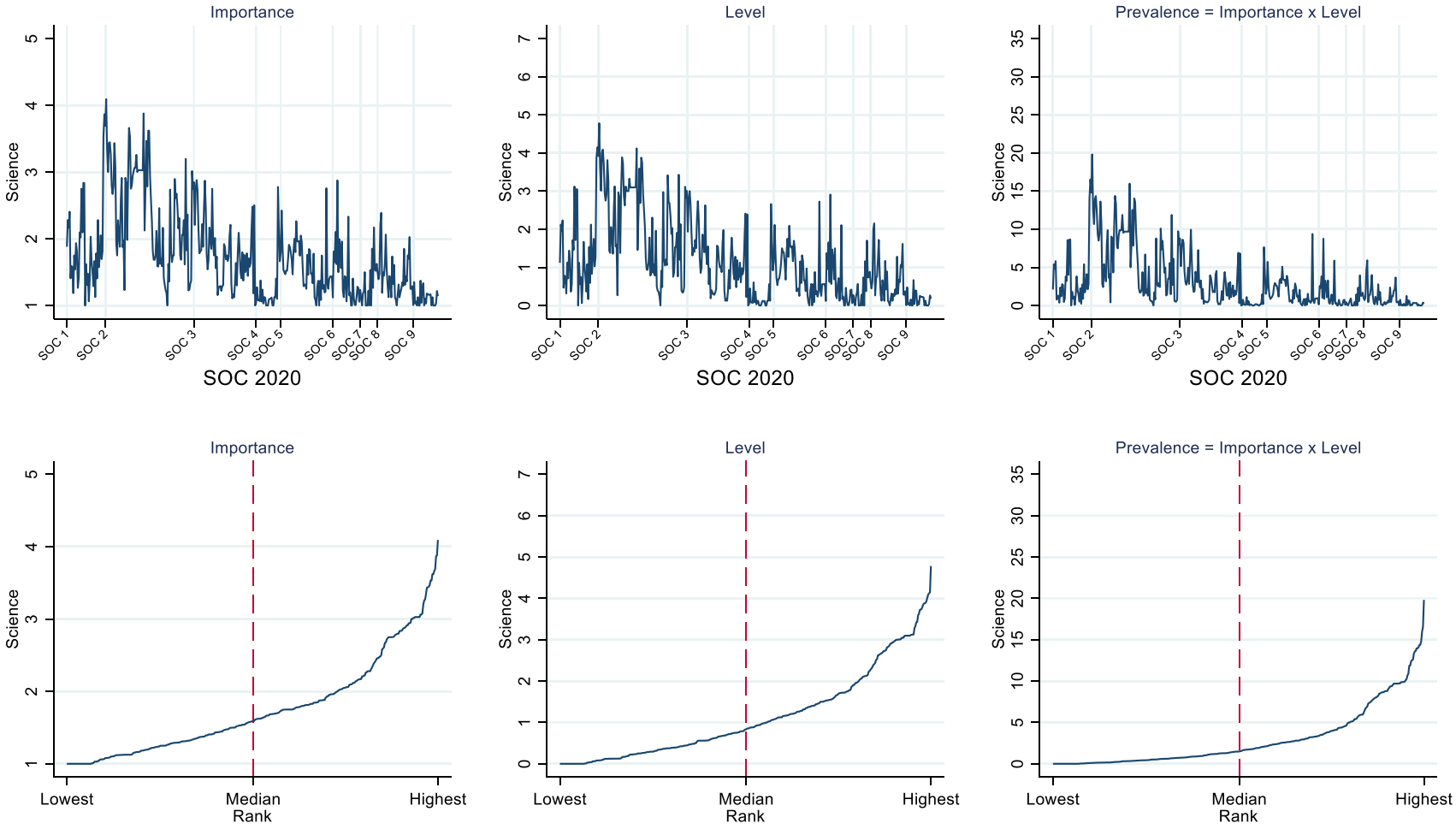


Figure 7: Skill Profile: Service Orientation

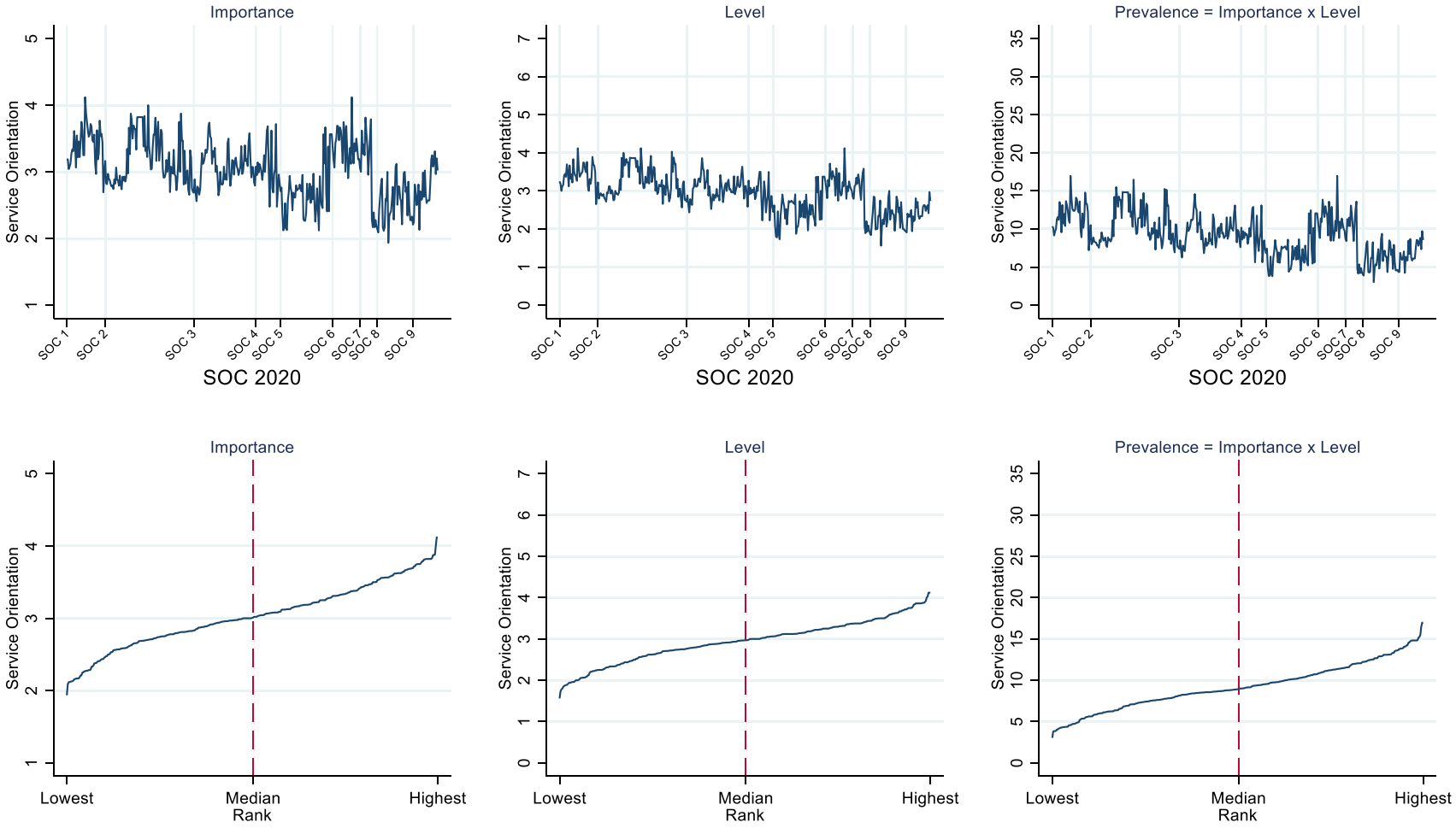


Figure 8: Skill Profile: Social Perceptiveness

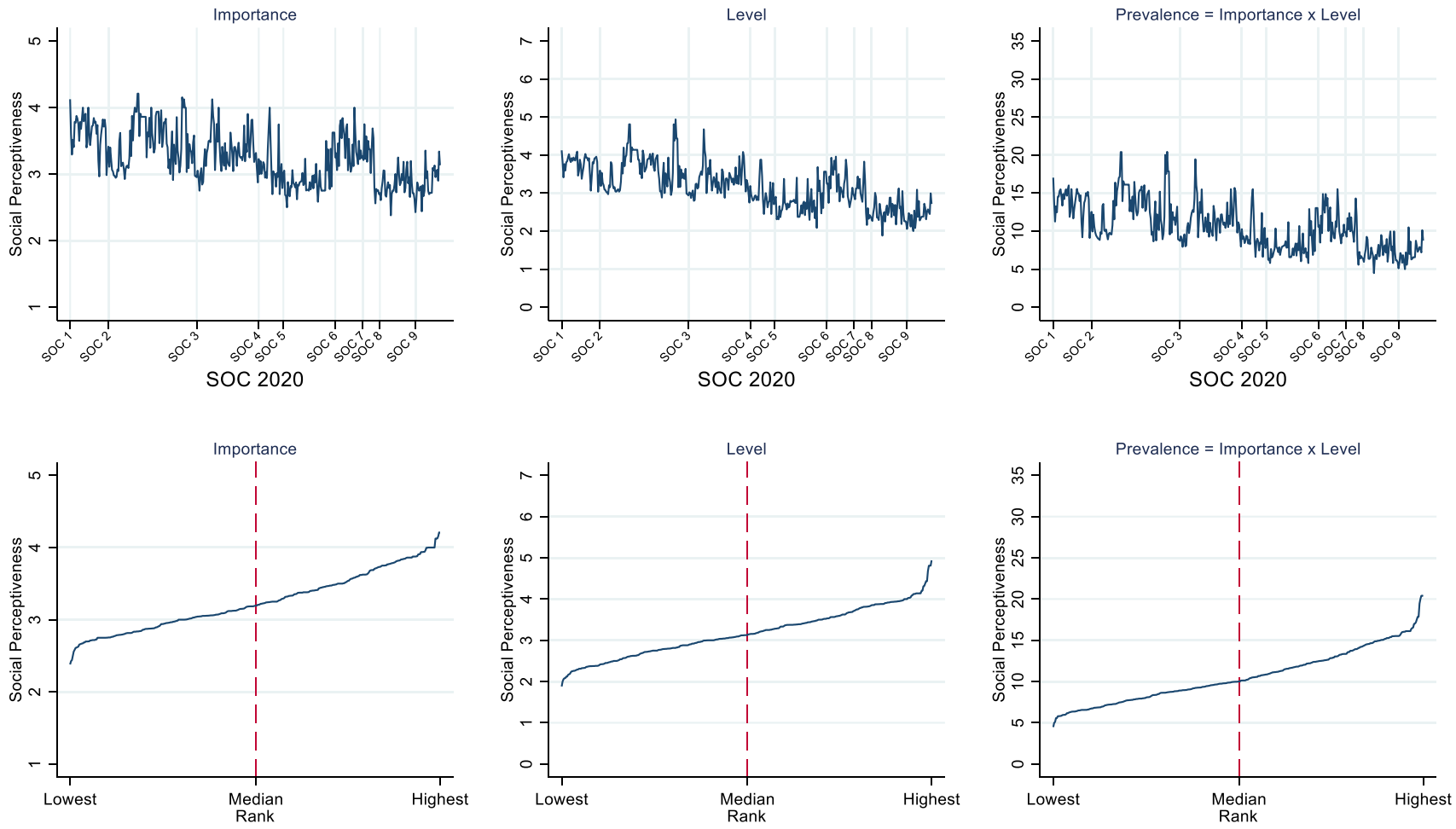


Figure 9: Historic and future skill projections – Establishing and Maintaining Interpersonal Relationships

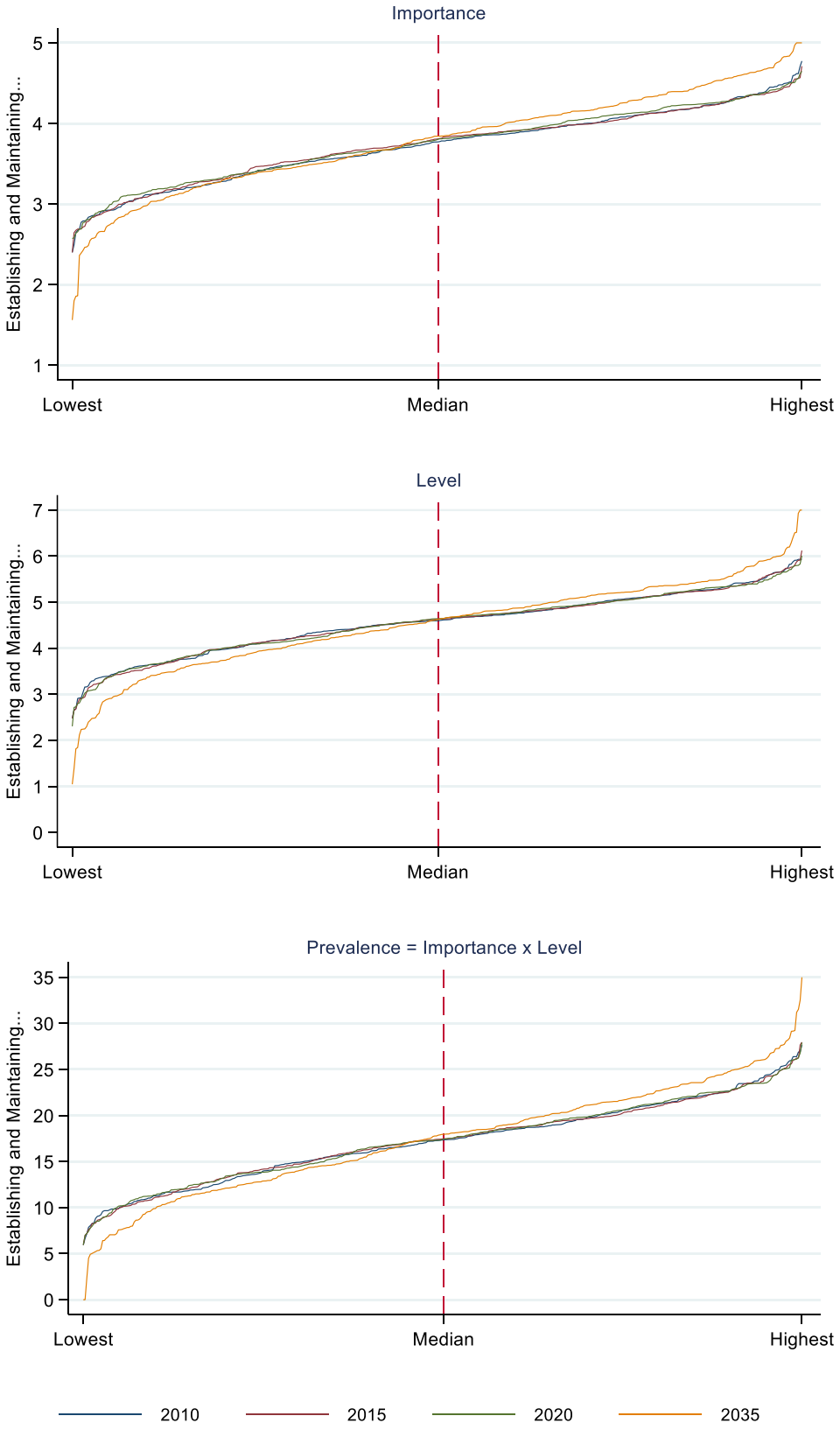


Figure 10: Historic and future skill projections – Interacting with Computers

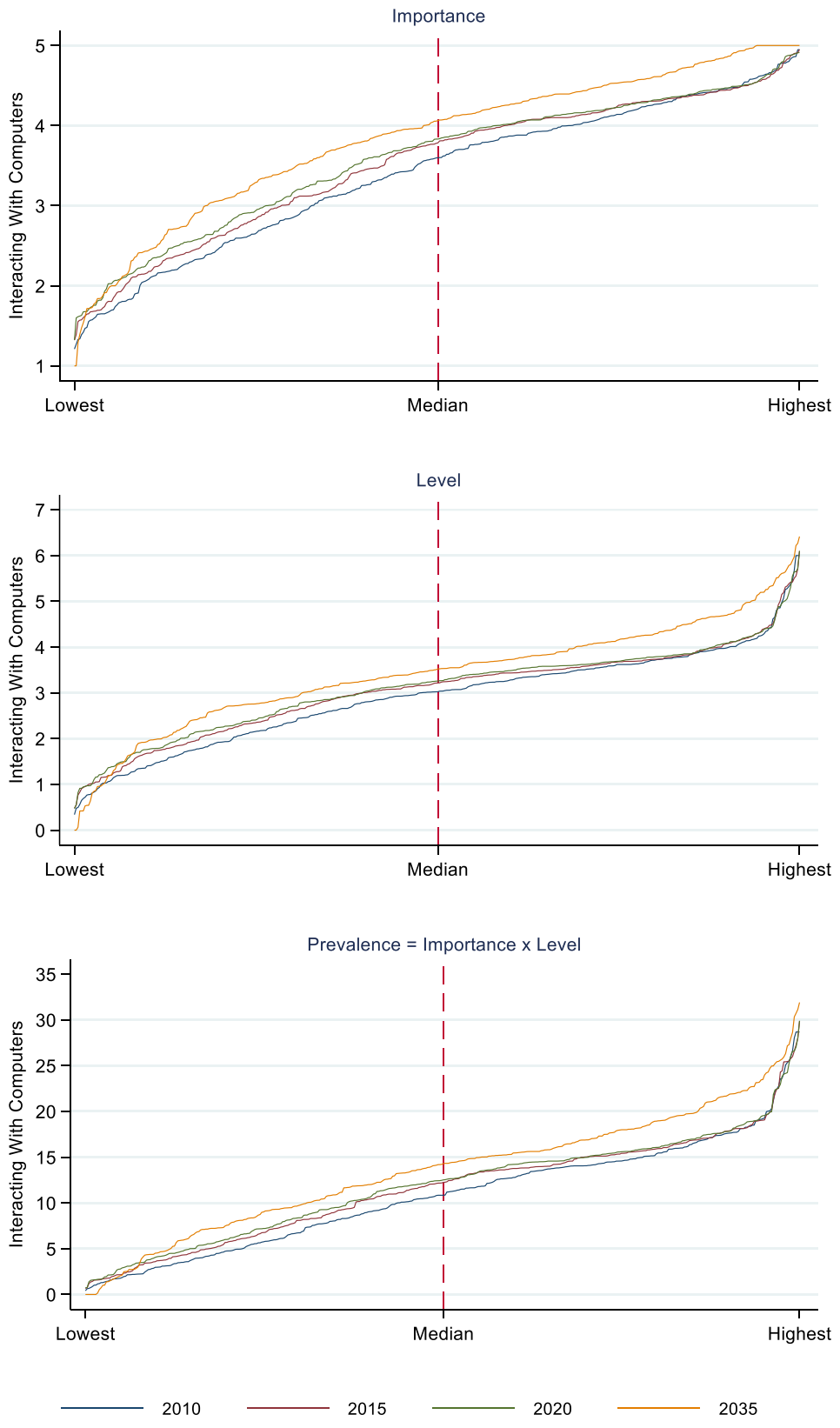


Figure 11: Historic and future skill projections – Making Decisions and Solving Problems

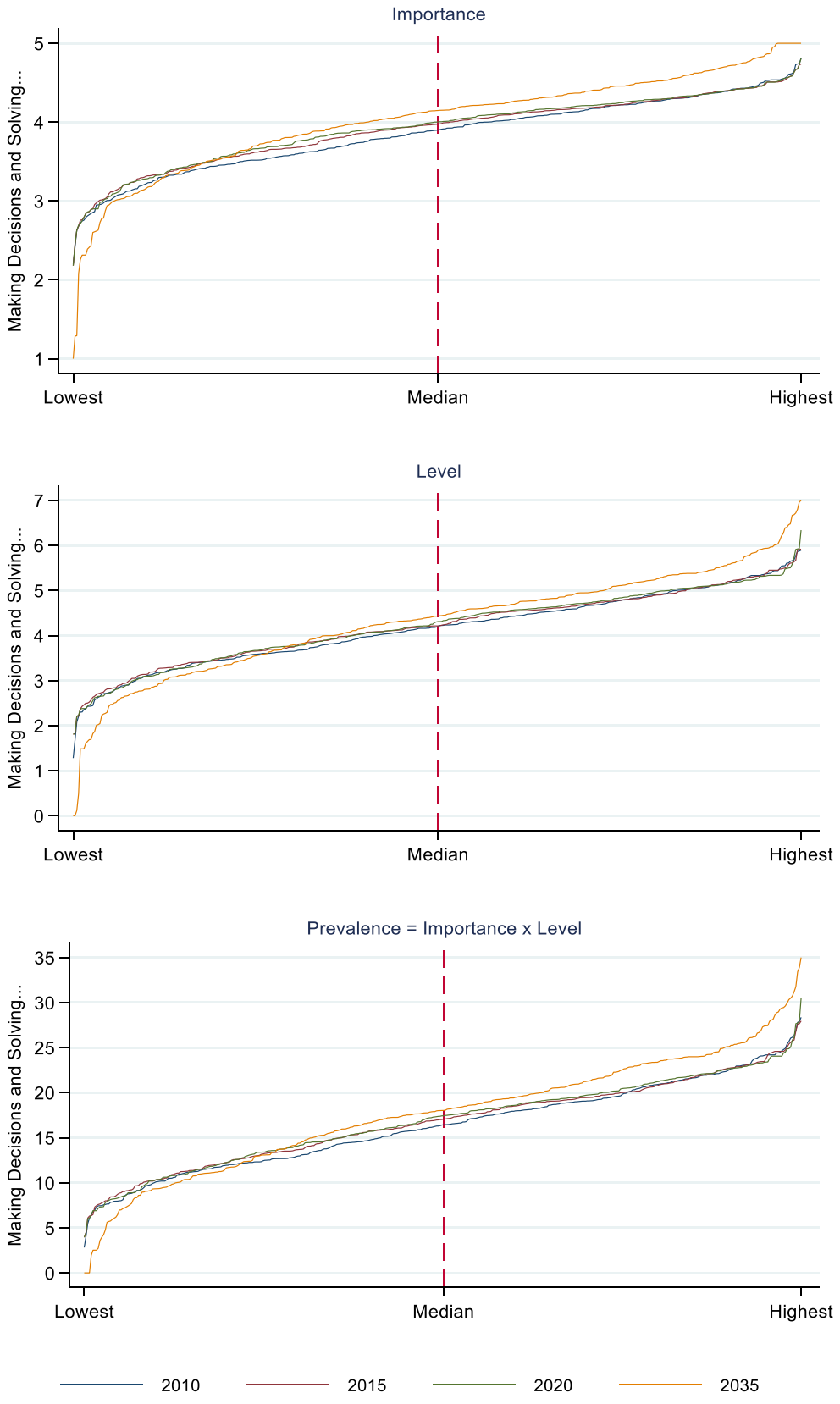


Figure 12: Historic and future skill projections – Mathematics

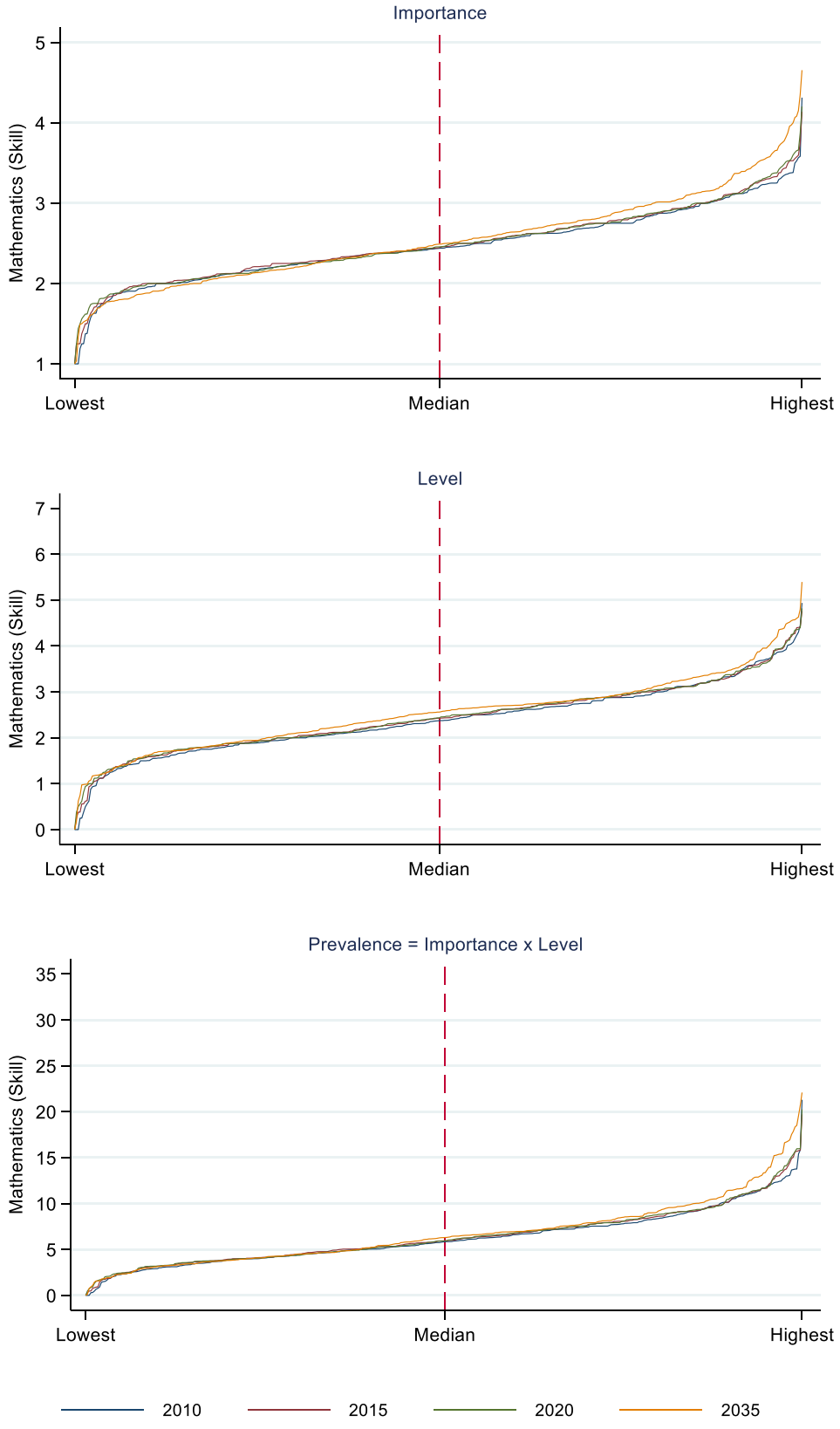


Figure 13: Historic and future skill projections – Programming

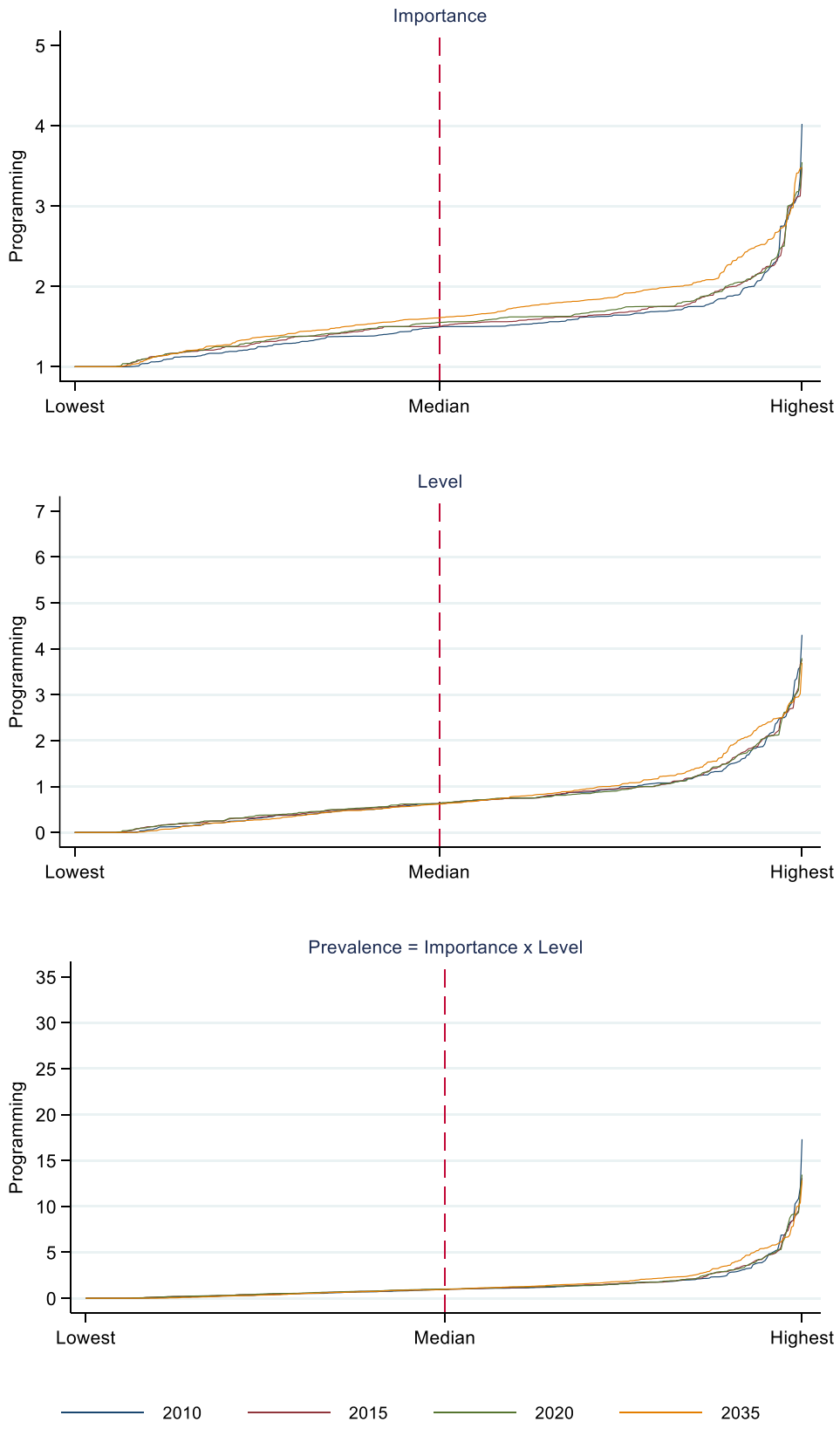


Figure 14: Historic and future skill projections – Science

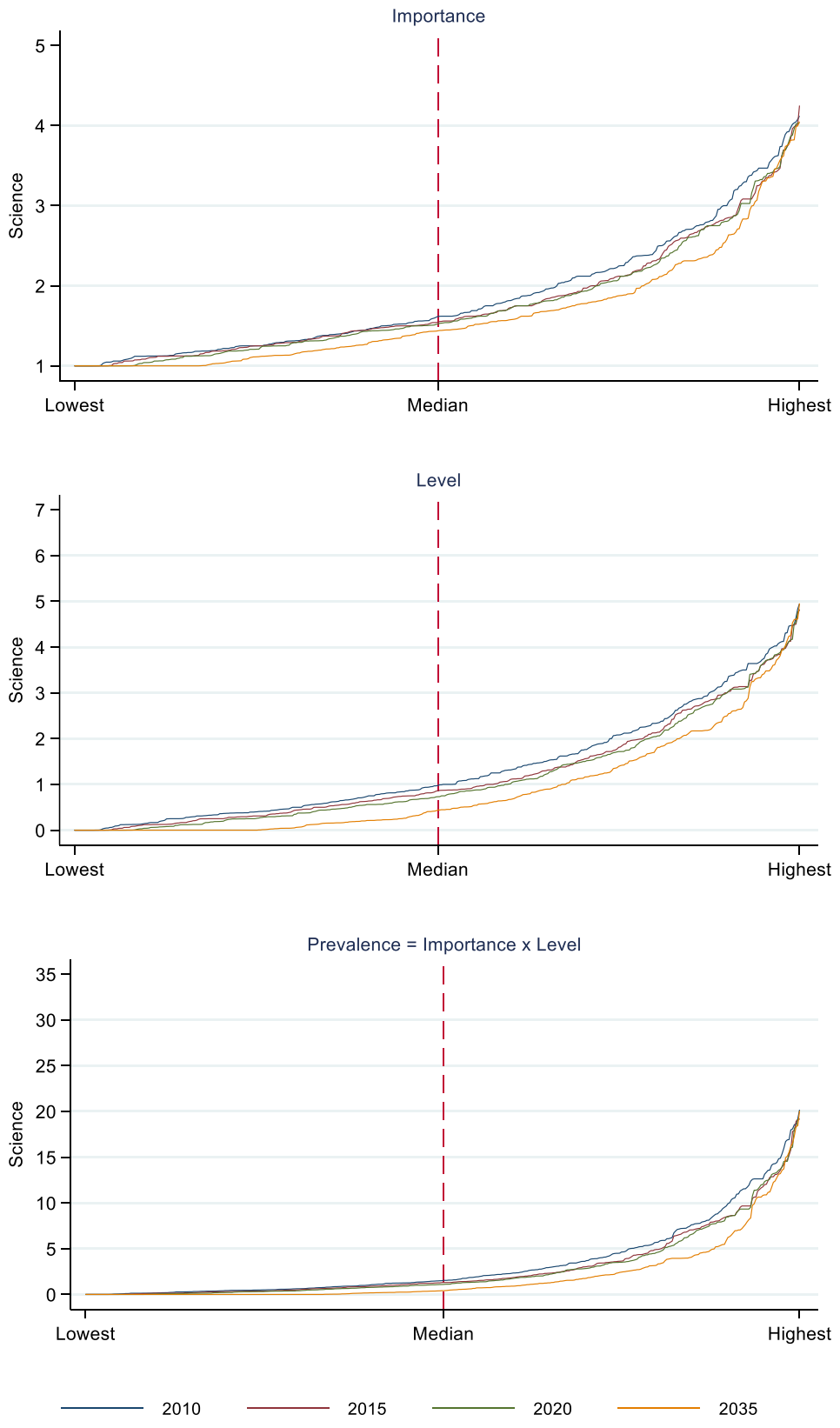


Figure 15: Historic and future skill projections – Service Orientation

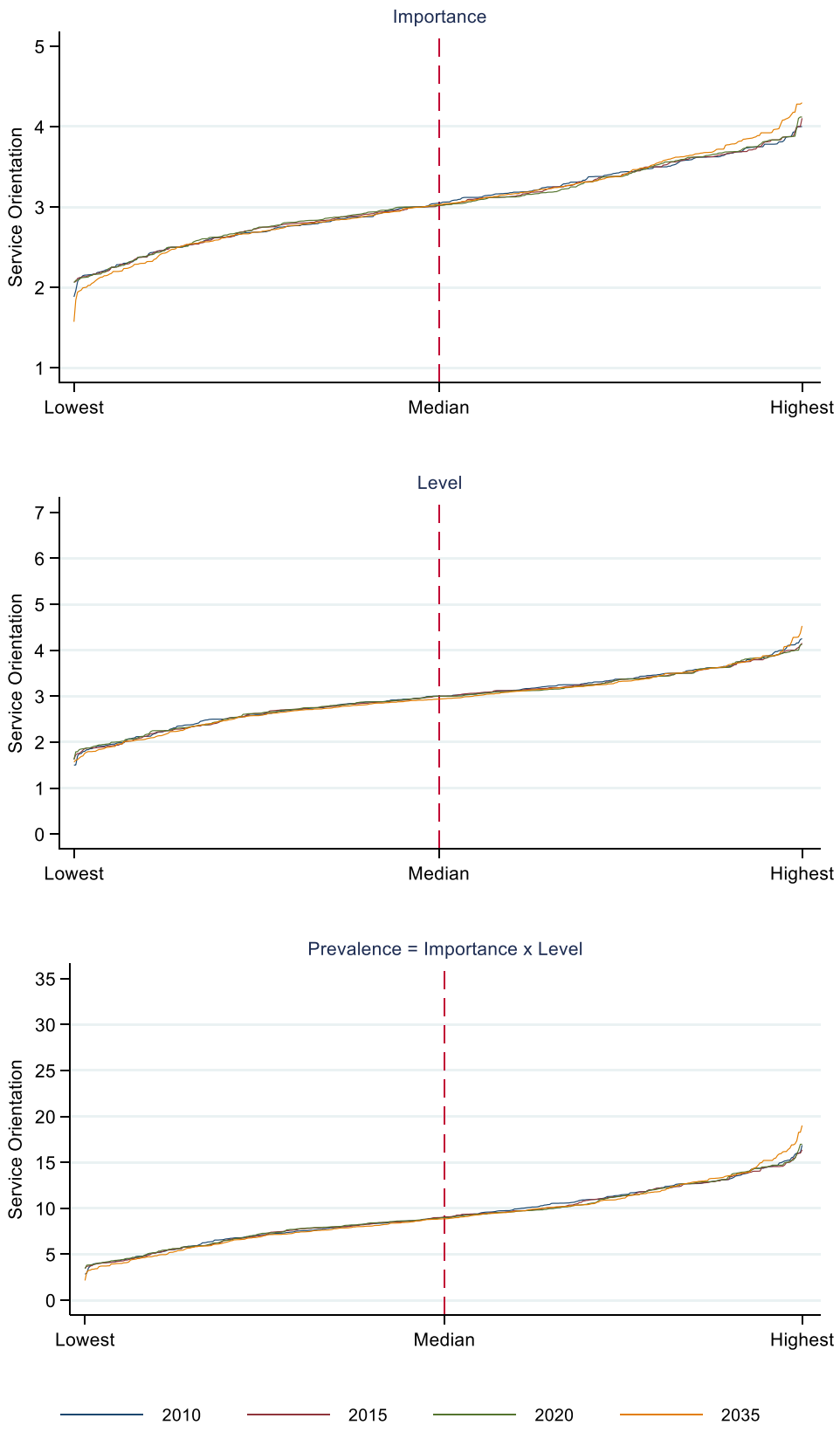


Figure 16: Historic and future skill projections – Social Perceptiveness

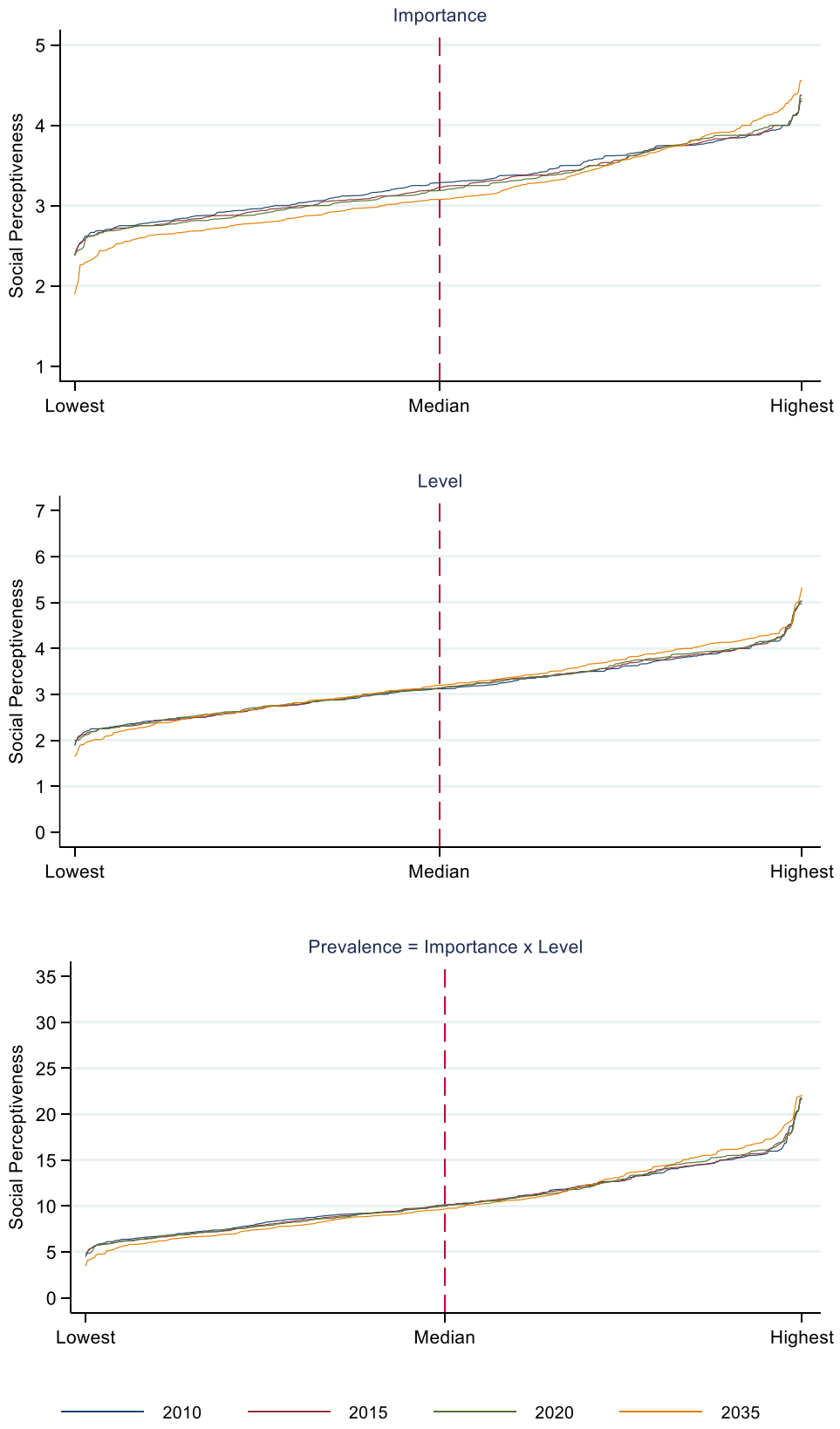


Figure 17: Employment 2020 and 2035 by UK SOC2020 Skill levels

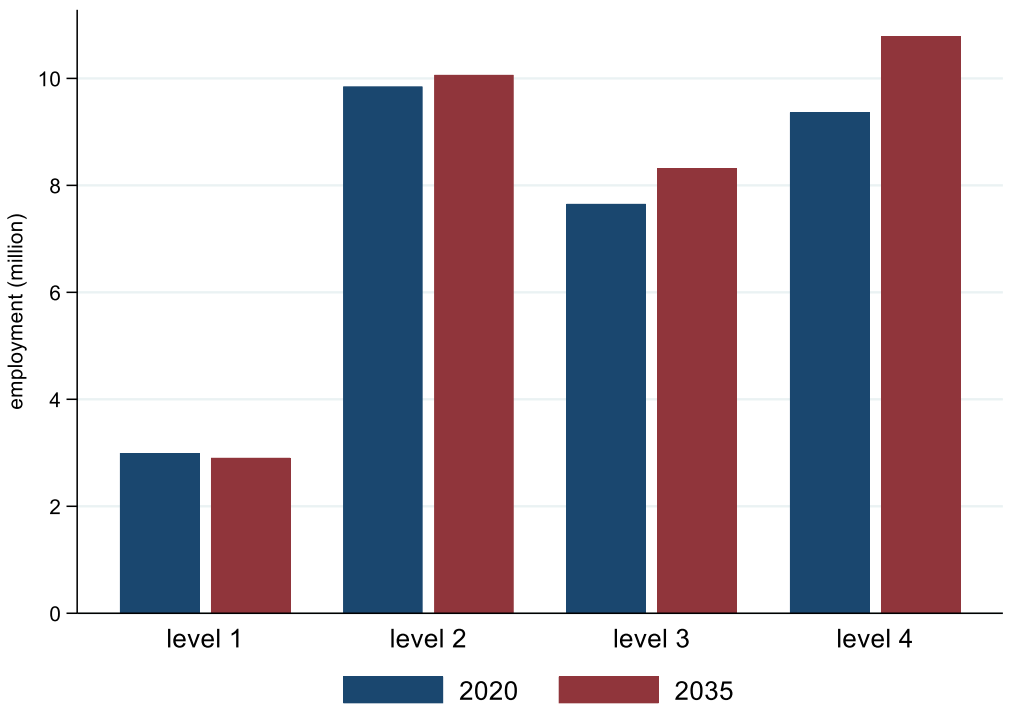


Figure 18: Employment shares 2001-2010-2020-2035 by SOC2020 Skill level

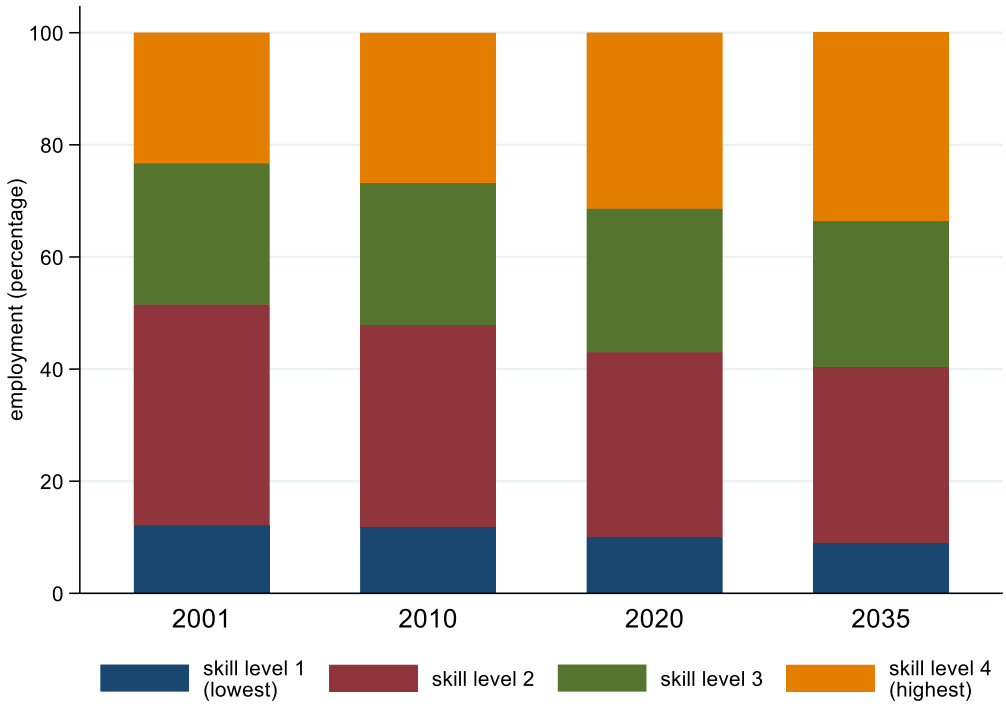


Figure 19: Top 20 skills ranking – Skills Prevalence measure, linear skills projections

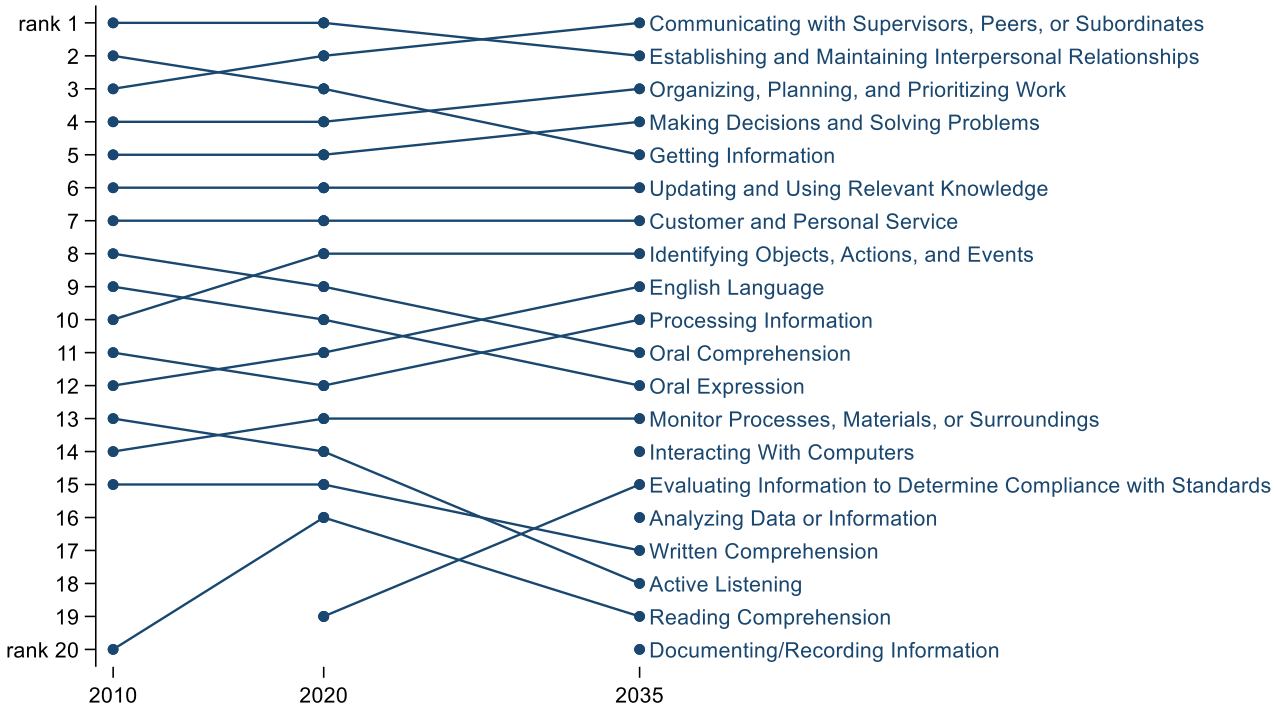


Figure 20: Top 50 skills ranking – Skills Prevalence measure, linear skills projections

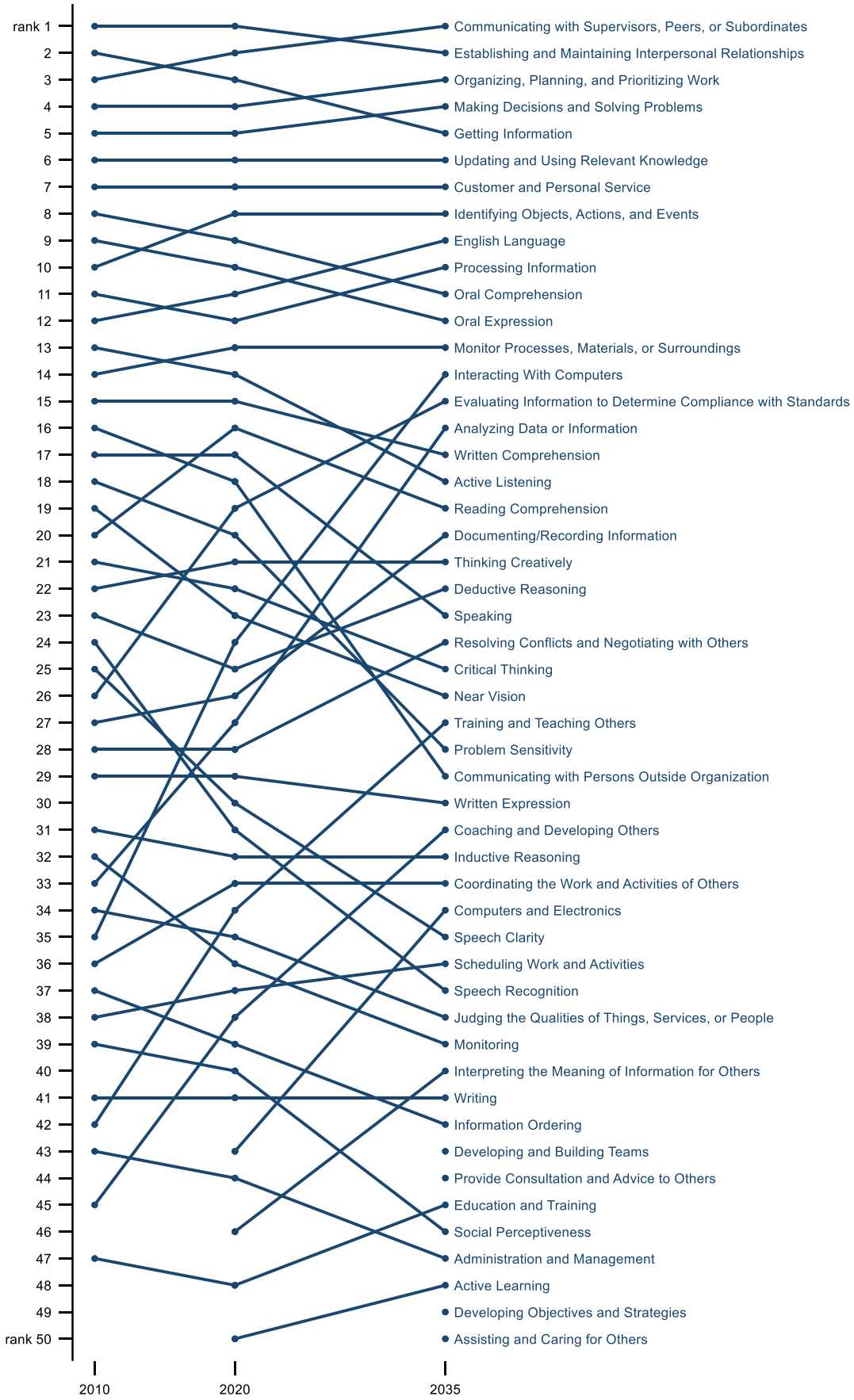


Figure 21: Top 20 rankings – Abilities (skill prevalence measure with linear projections)

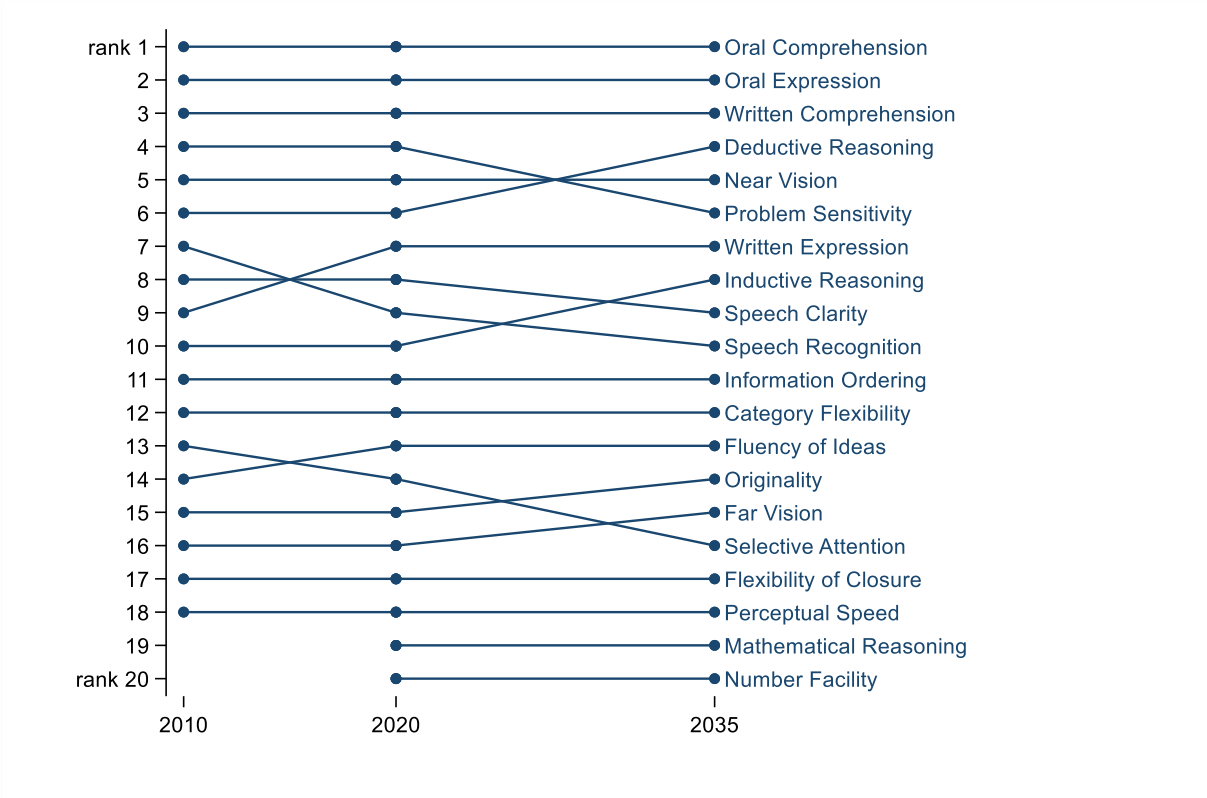


Figure 22: Top 20 rankings – Knowledge (skill prevalence measure with linear projections)

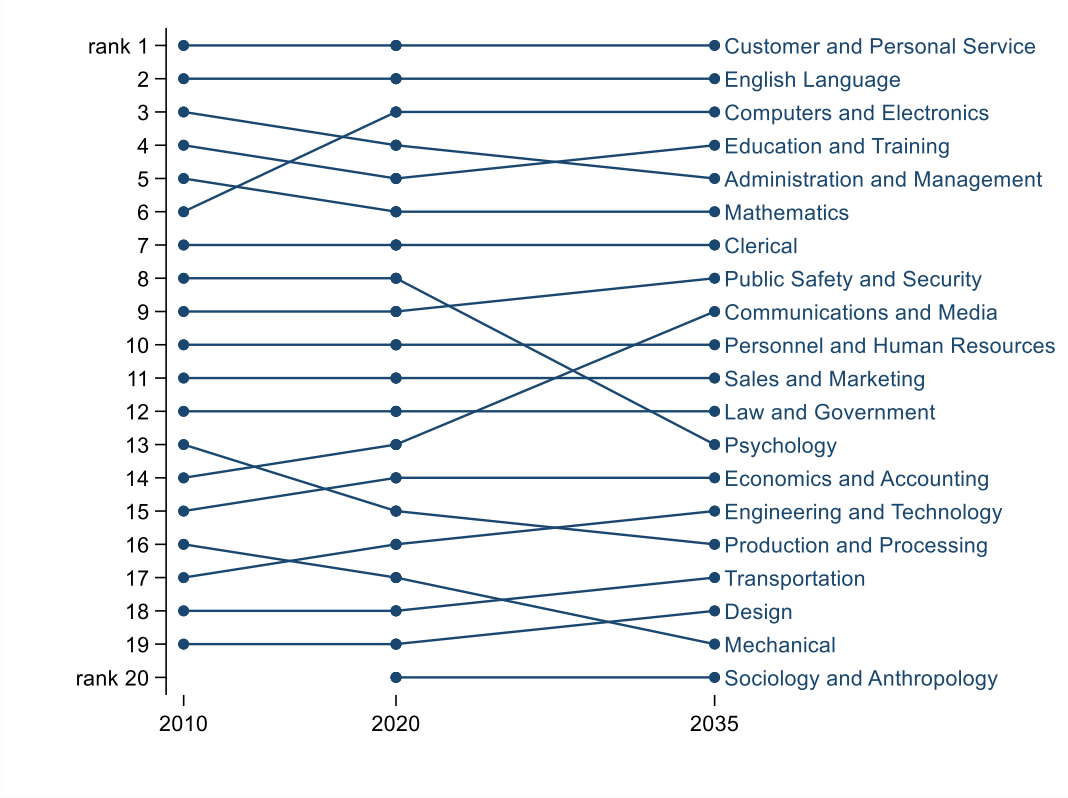


Figure 23: Top 20 rankings – Skills (skill prevalence measure with linear projections)

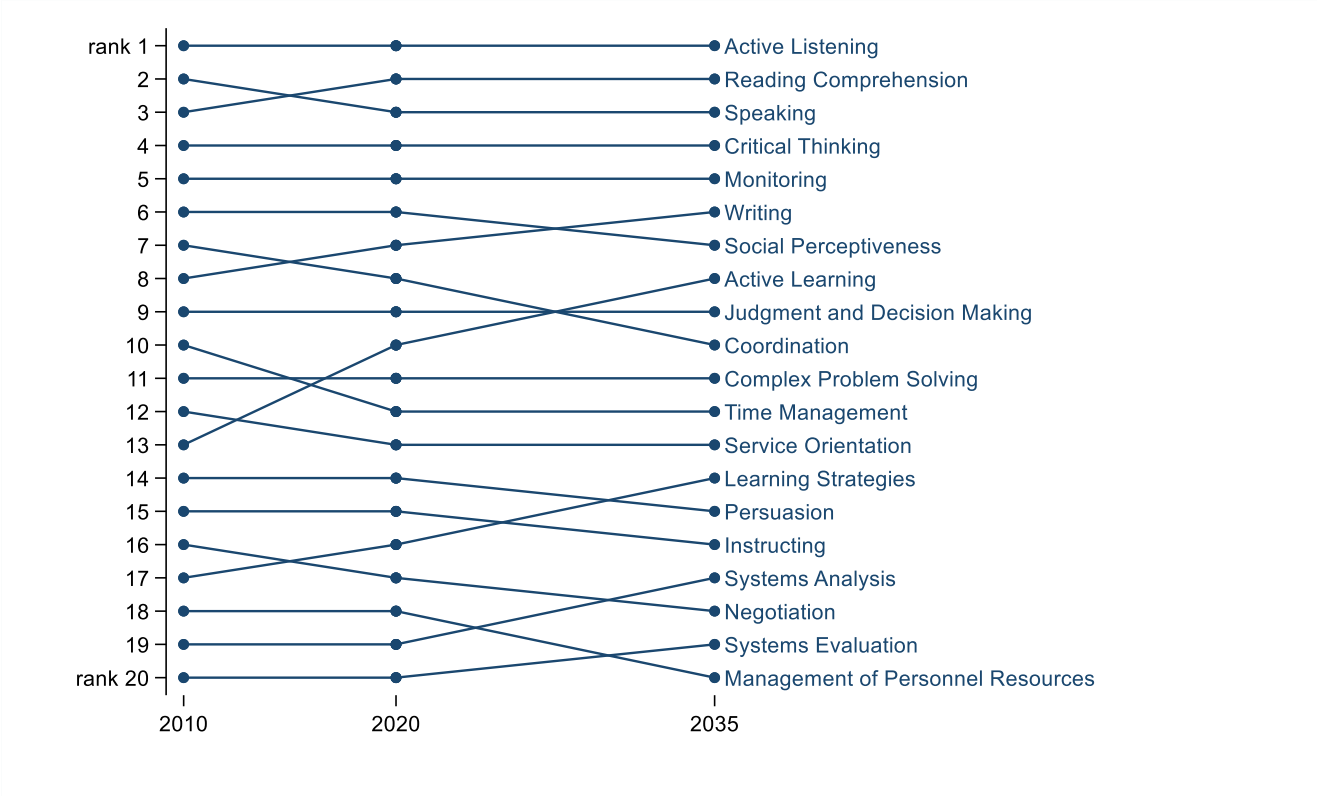


Figure 24: Top 20 rankings – Work Activities (skill prevalence measure with linear projections)

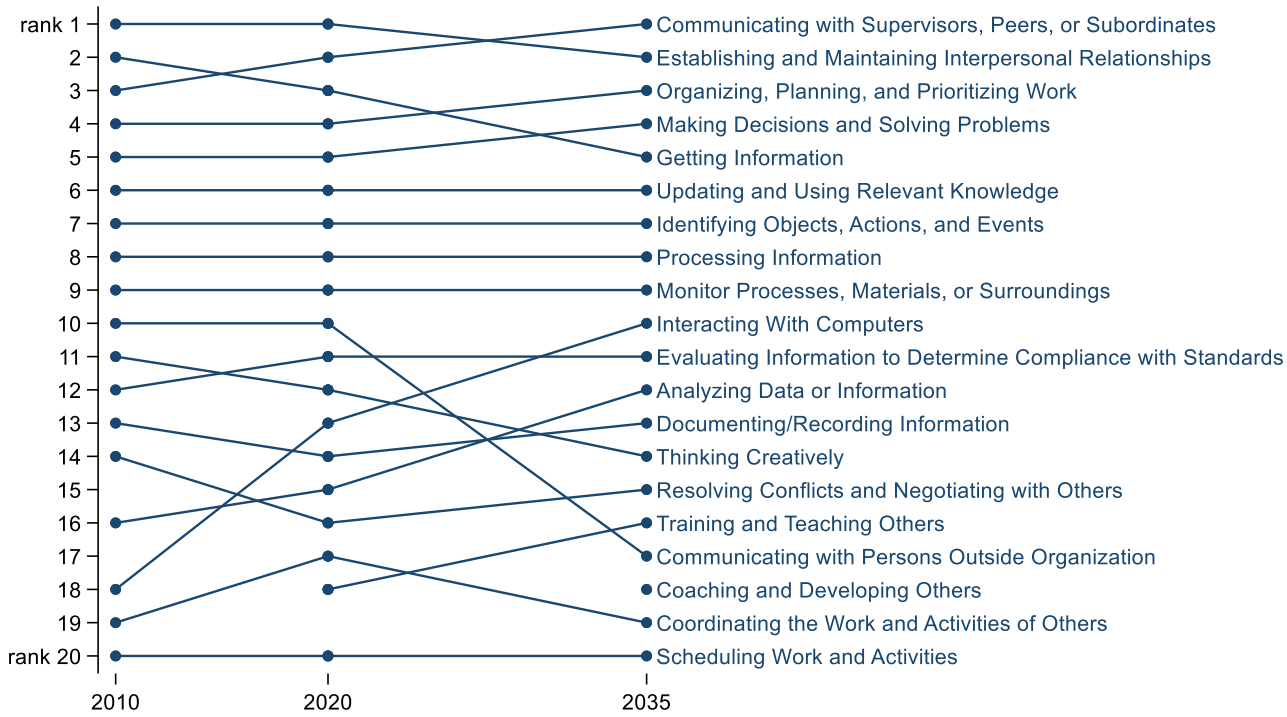


Figure 25: Pairwise correlations between Information literacy O*NET elements – Skill Prevalence metric

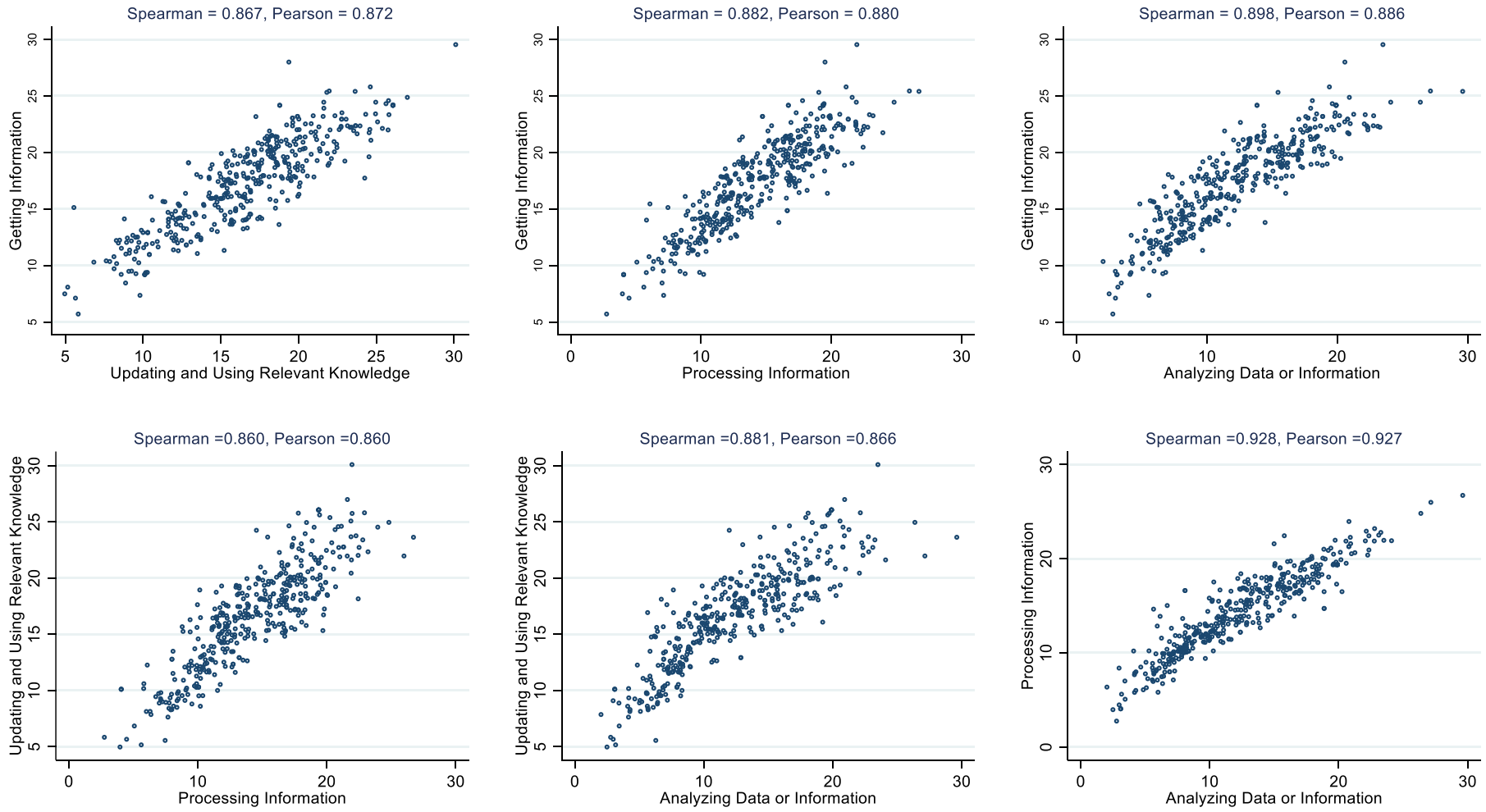
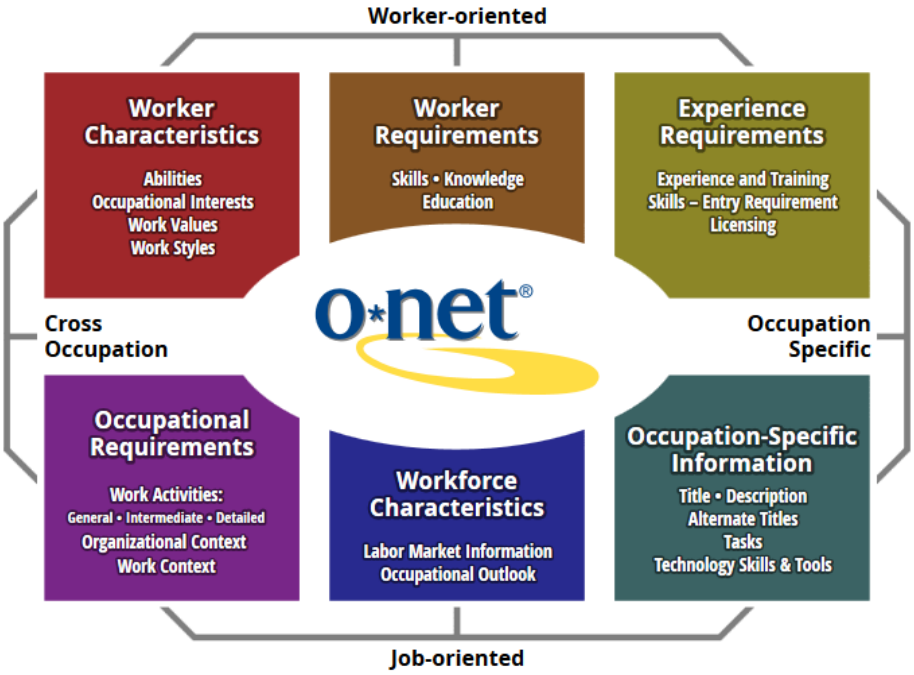
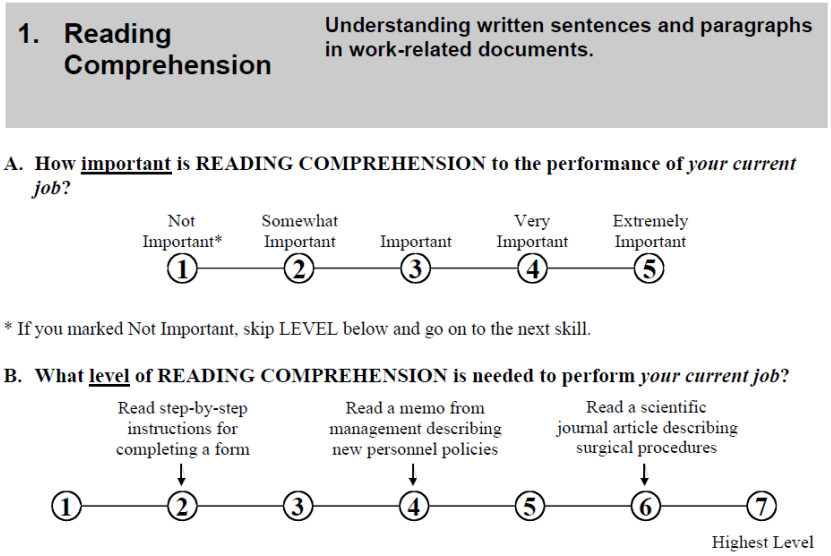


Figure A1: The O*NET content model



Source: https://www.onetcenter.org/content.html

Figure A2: Example question from the O*NET skills questionnaire



Source: https://www.onetcenter.org/questionnaires.html

Figure B1: Mapping O*NET to UK SOC

MATCHING UK SOC2020 AND O*NET-2019 TAXONOMIES

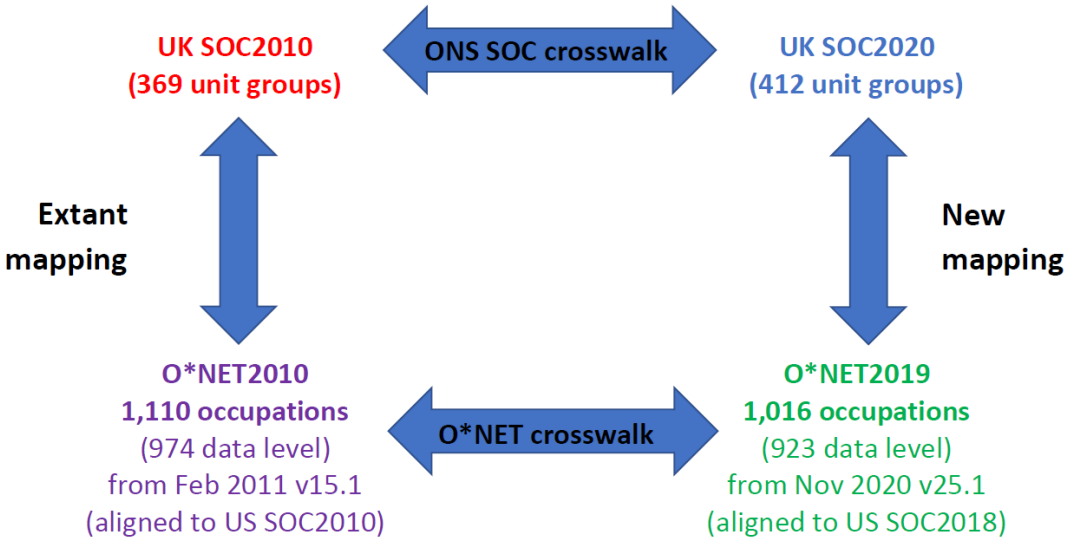


Figure C1: Skill Importance projections for UK SOC2020 1111 Chief Executives and Senior Officials

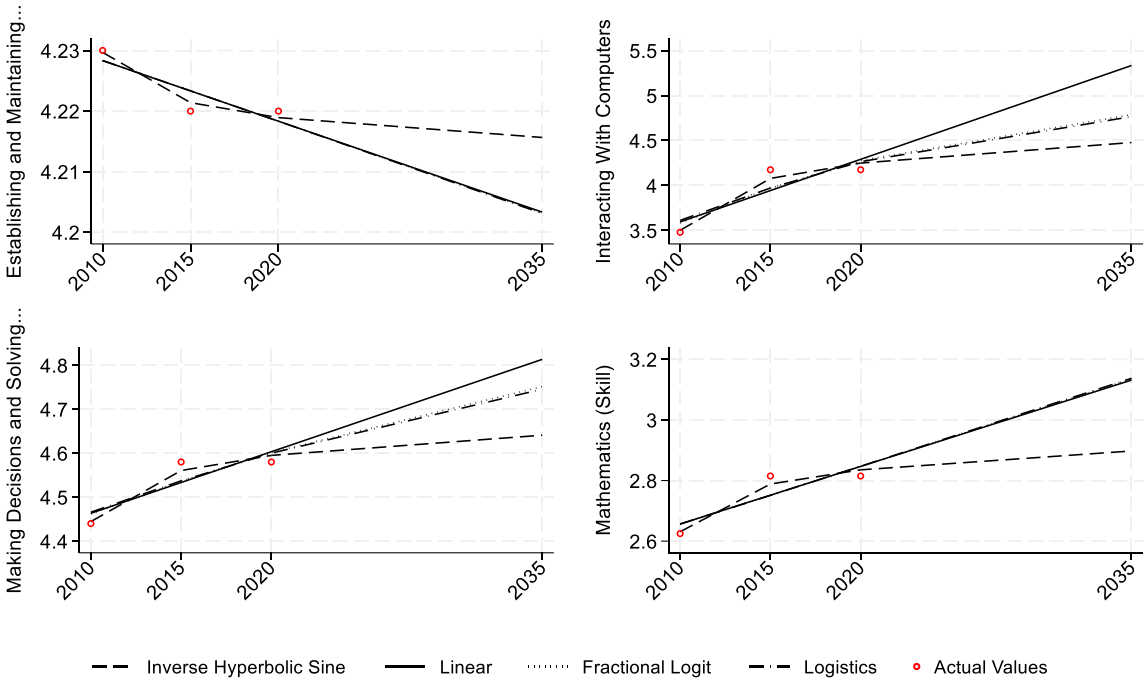


Figure C2: Skill Level projections for UK SOC2020 1111 Chief Executives and Senior Officials

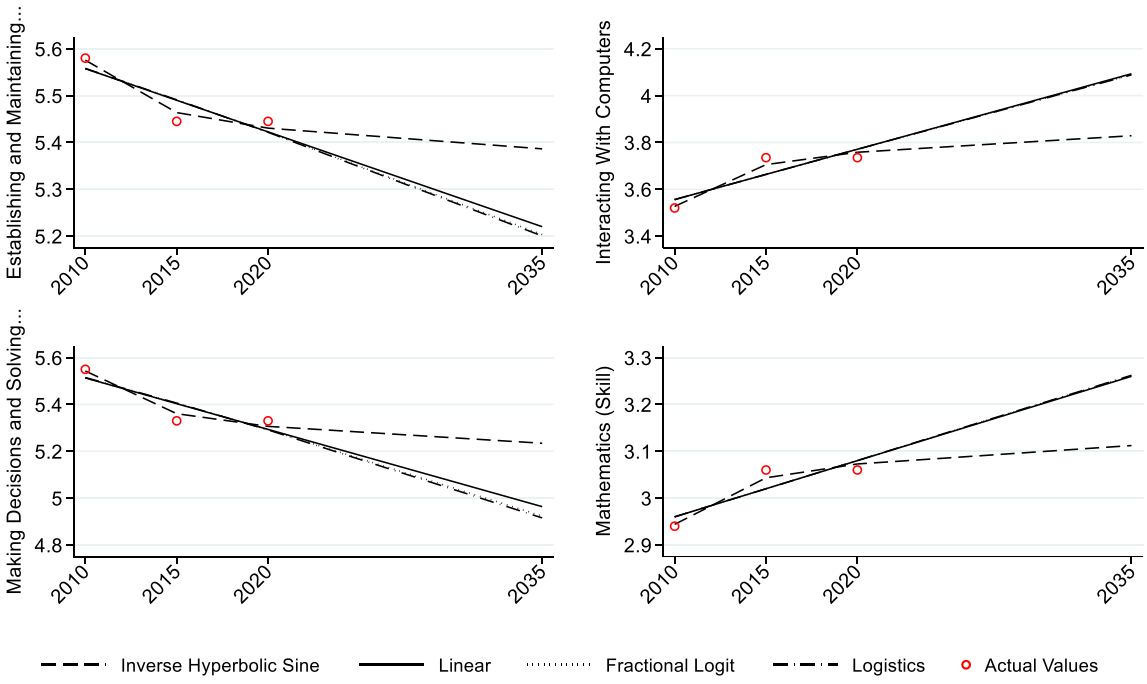


Figure C3: Skill Prevalence projections for UK SOC2020 1111 Chief Executives and Senior Officials

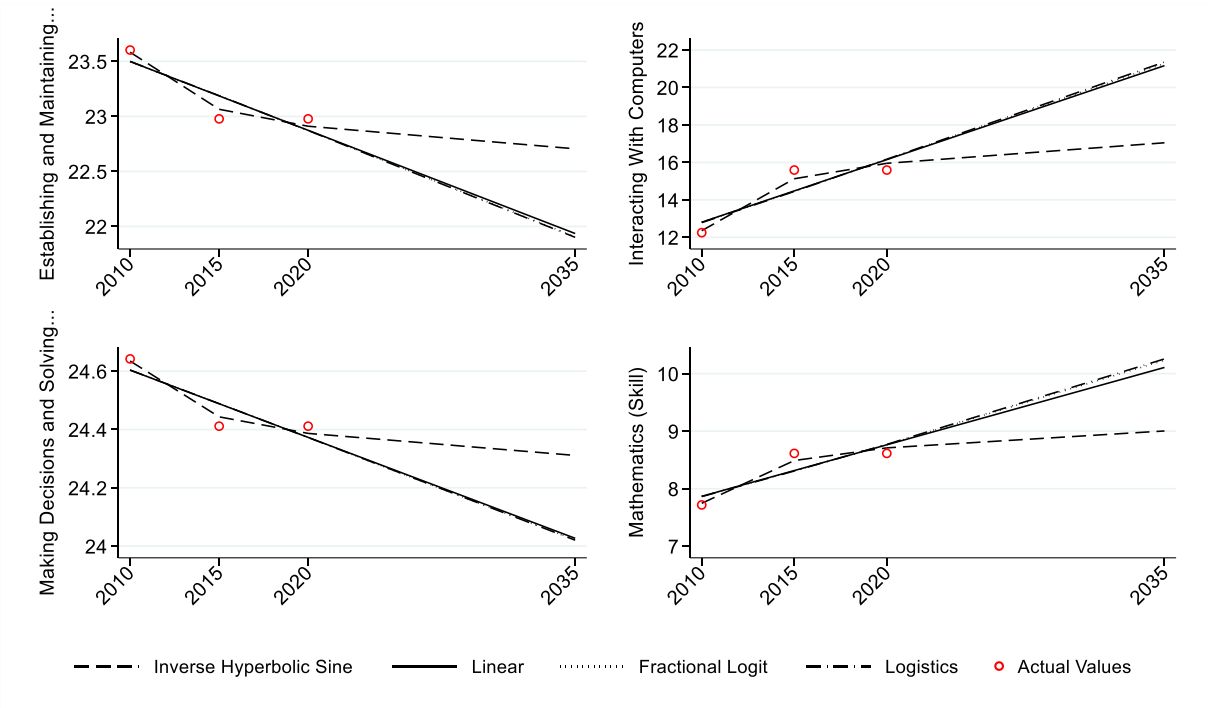


Figure C4: Skill Importance projections for UK SOC2020 9269 Other Elementary Ocupations n.e.c.

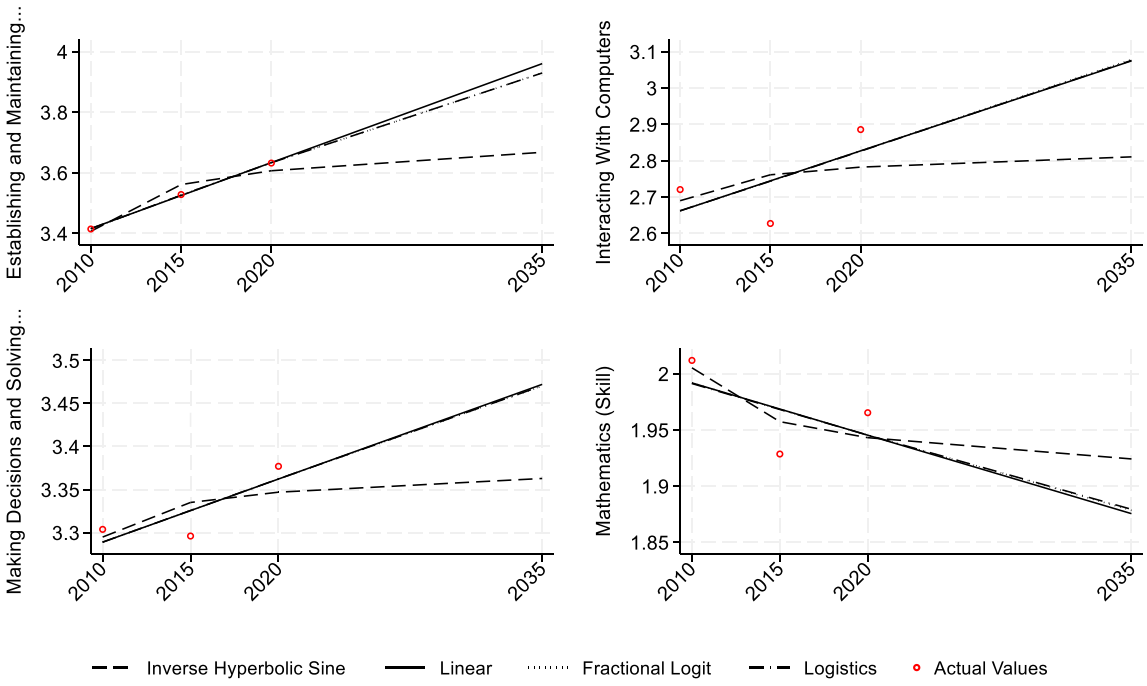


Figure C5: Skill Level projections for UK SOC2020 9269 Other Elementary Ocupations n.e.c.

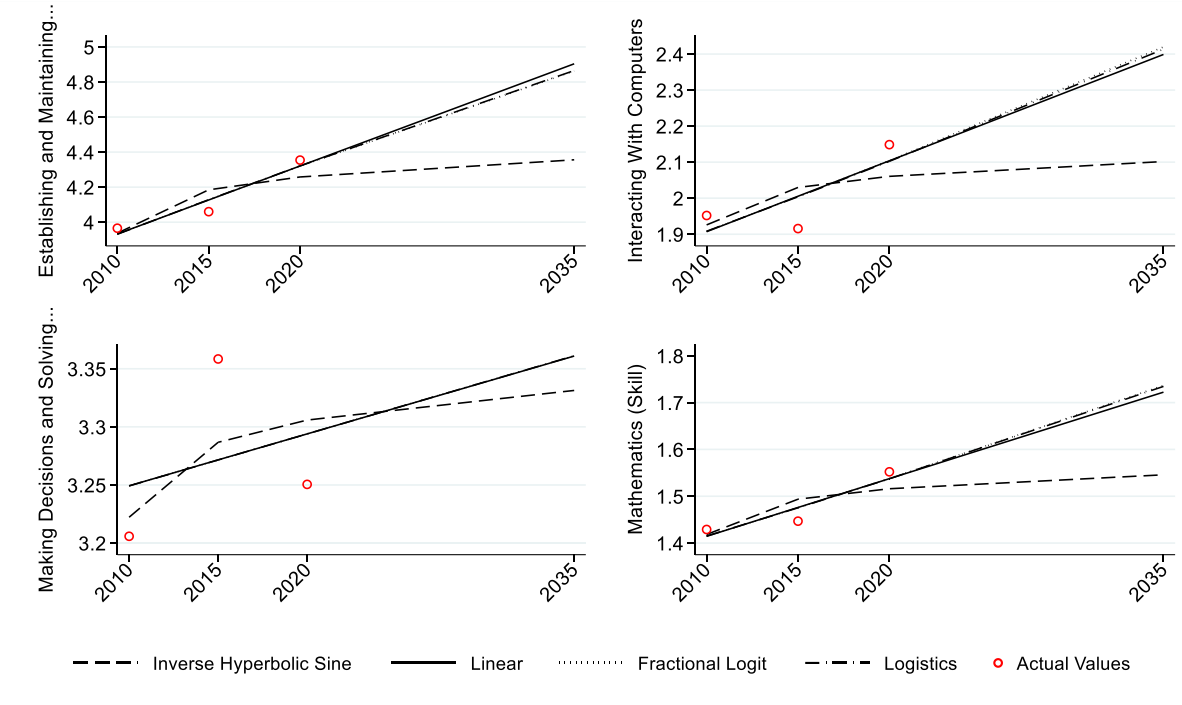


Figure C6: Skill Prevalence projections for UK SOC2020 9269 Other Elementary Ocupations n.e.c.

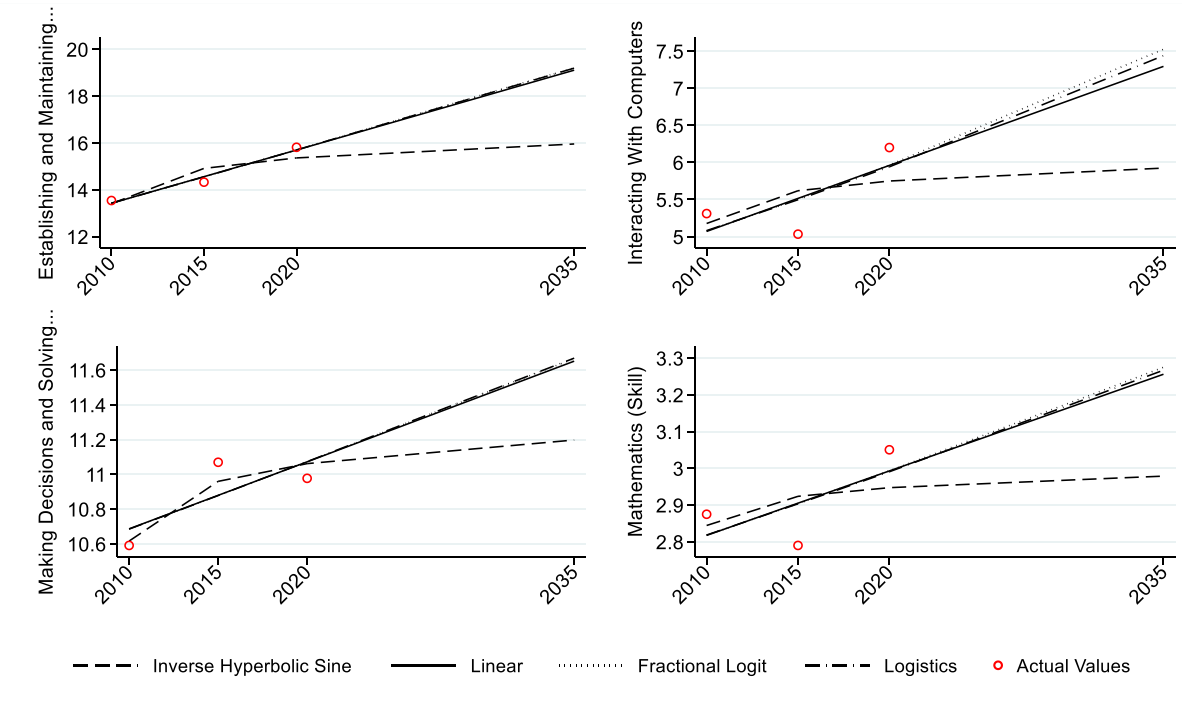


Figure D1: Differences in occupational employment under the *Alternative scenarios*

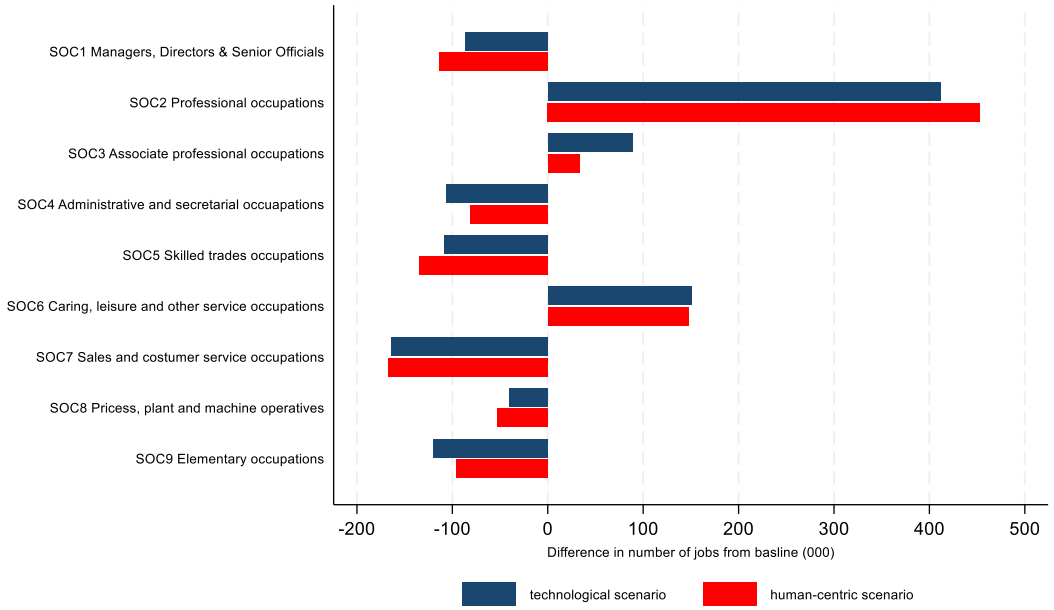


Figure D2: Differences in employment by SOC Skill level under the *Alternative scenarios*

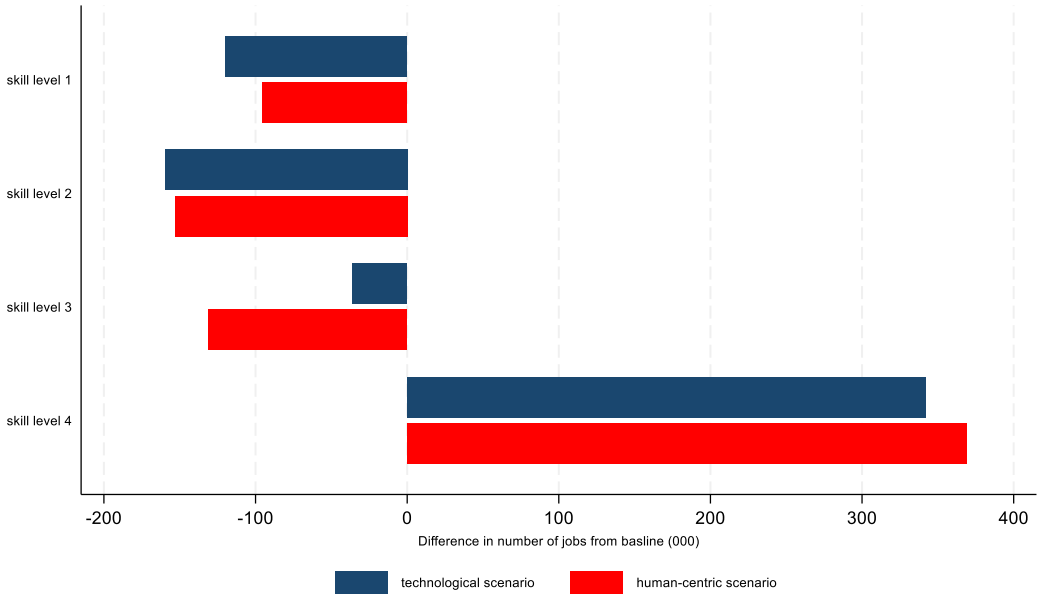


Figure D3: Top 20 skills ranking – Skills Importance measure, linear skills projections

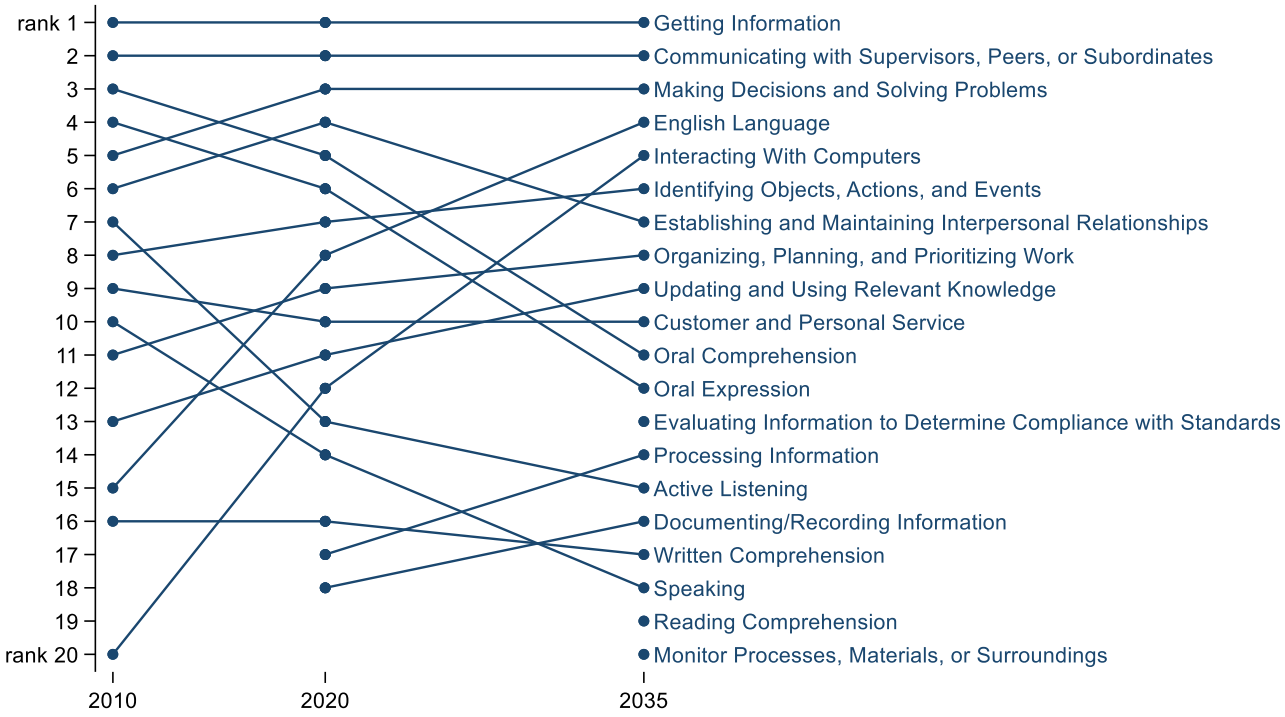


Figure D4: Top 20 skills ranking – Skills Level measure, linear skills projections

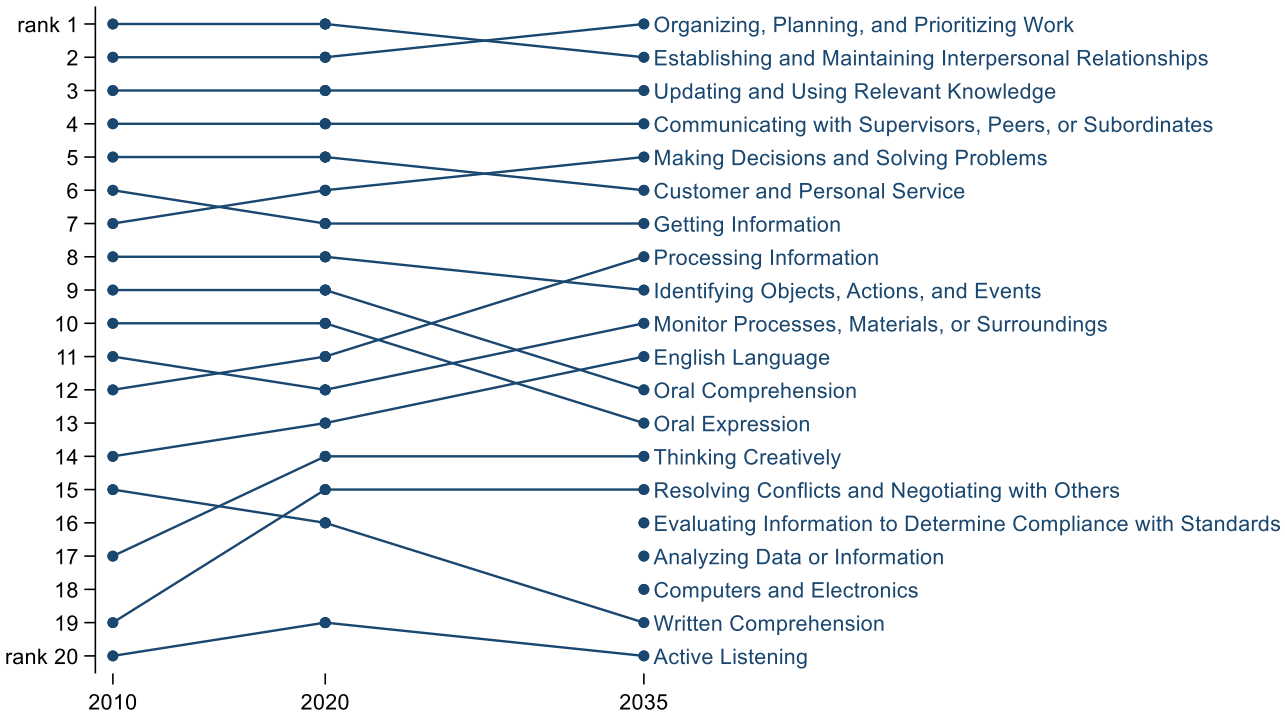


Figure D5: Comparison of mappings – Establishing and Maintaining Relationships

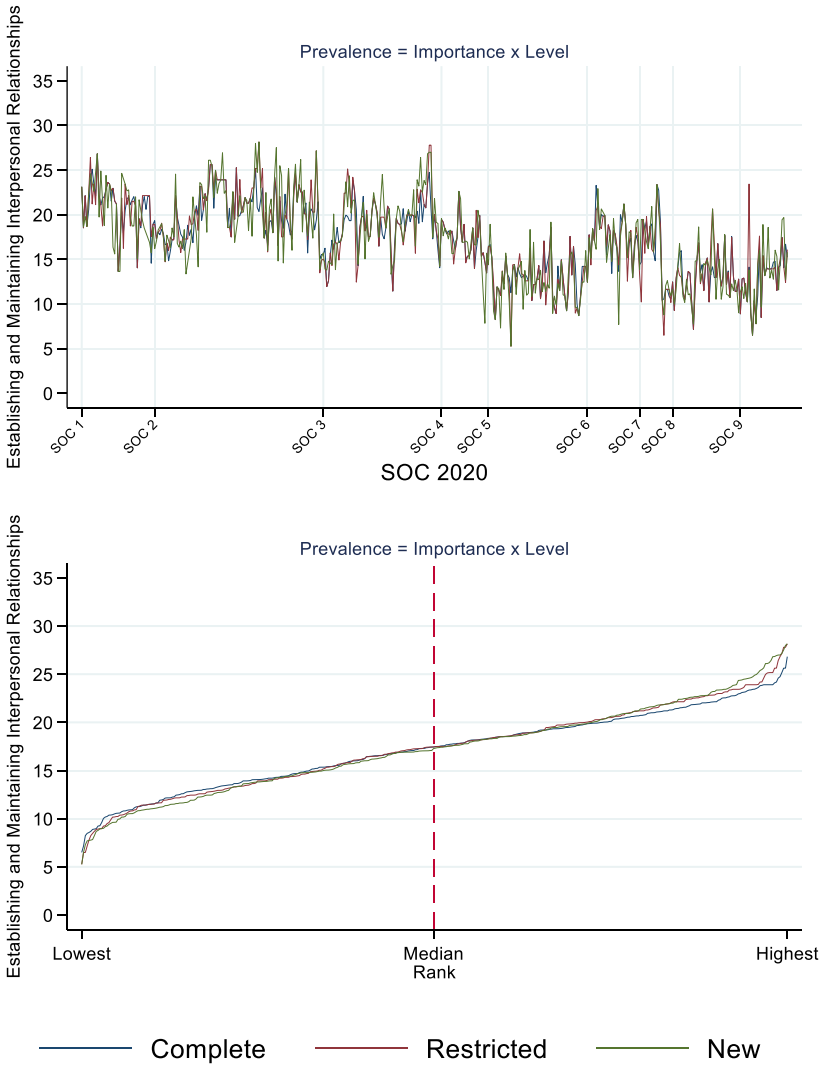


Figure D6: Comparison of mappings – Interacting with Computers

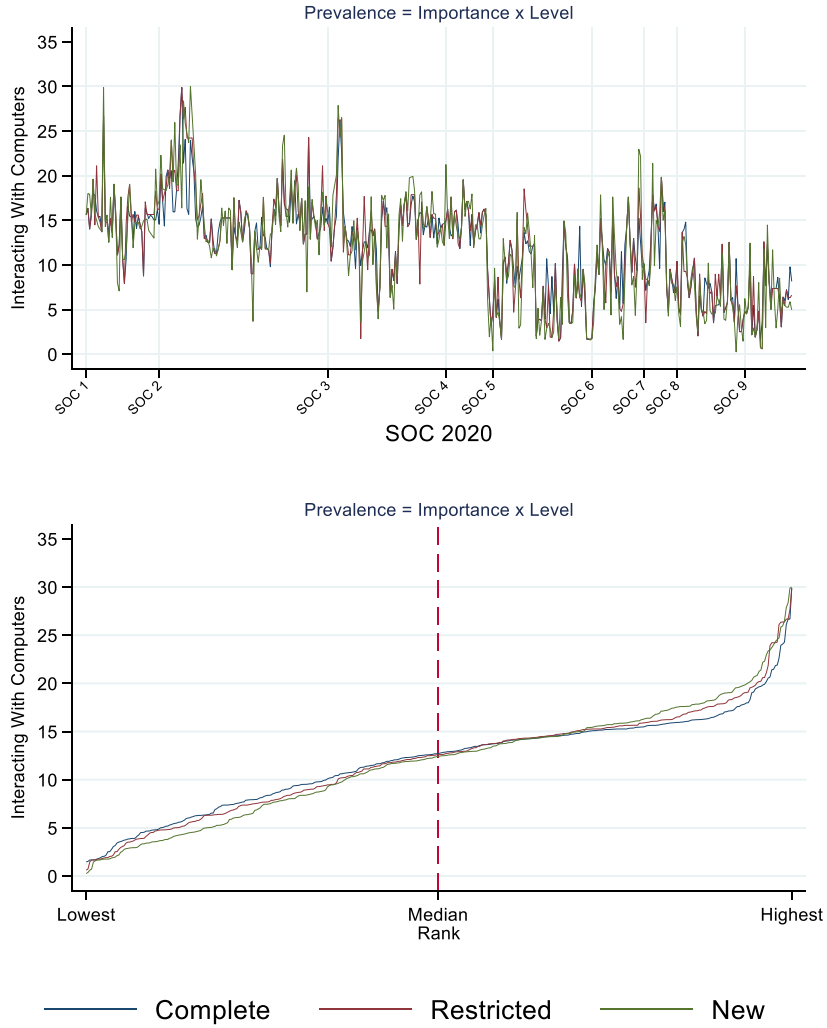


Figure D7: Comparison of mappings – Making Decisions and Solving Problems

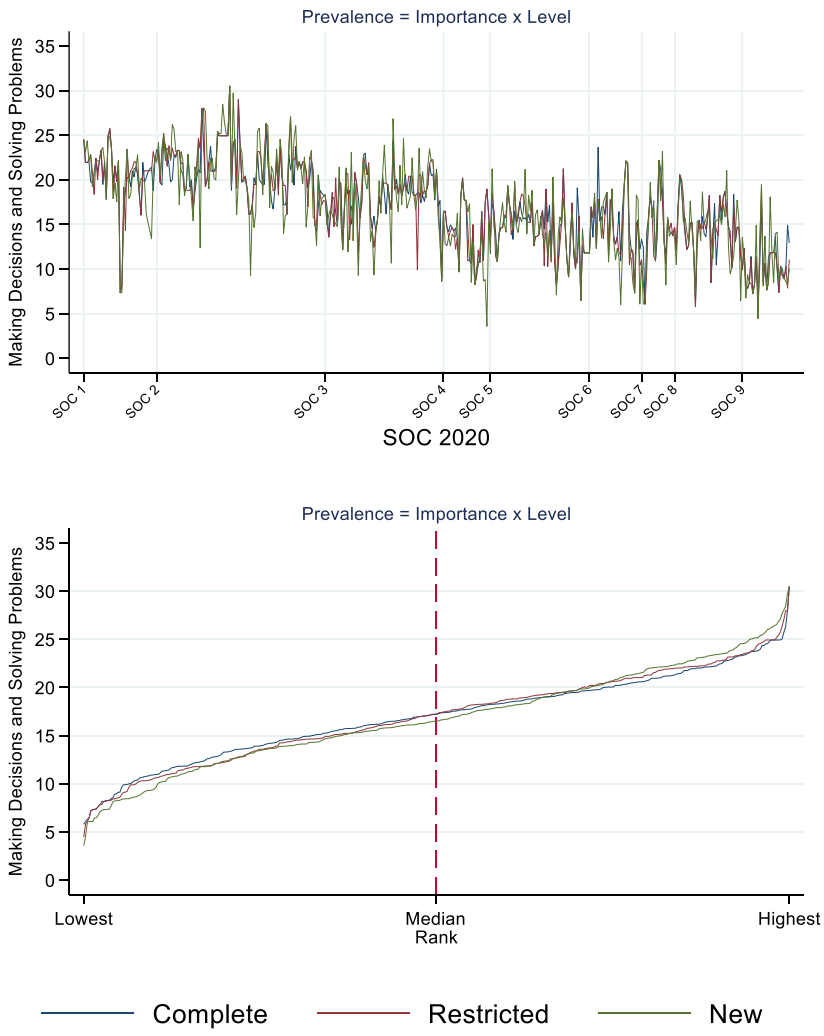


Figure D8: Comparison of mappings – Mathematics

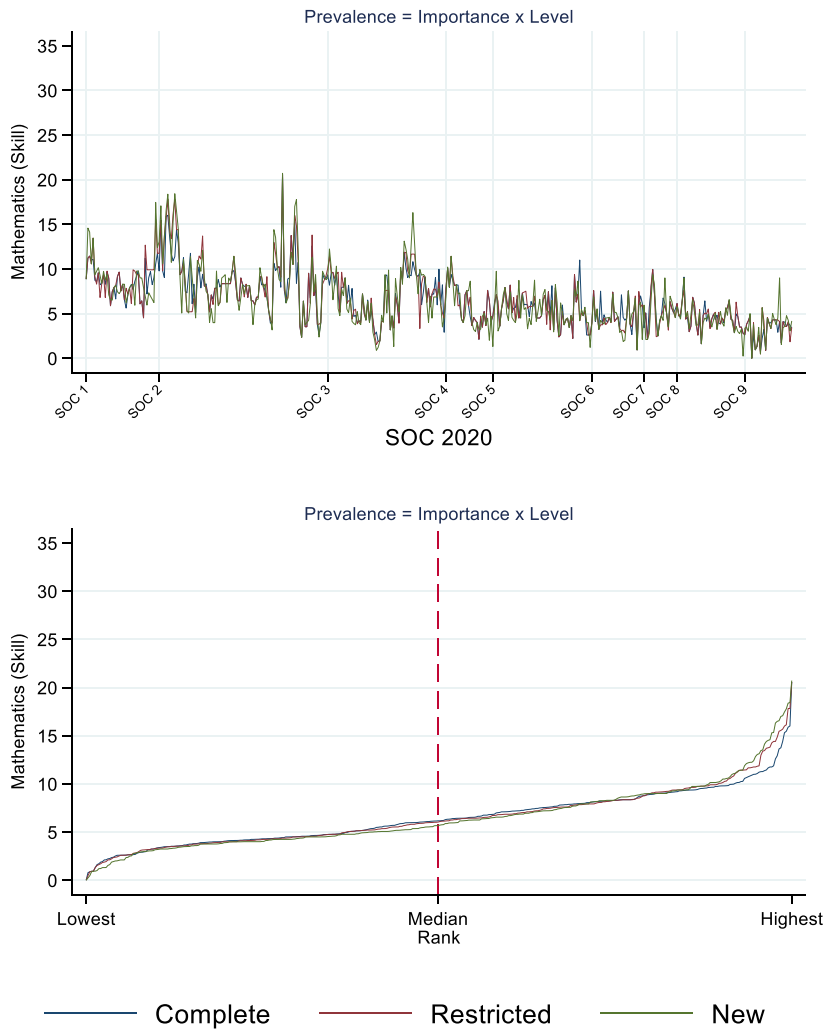


Figure D9: Comparison of mappings – Programming

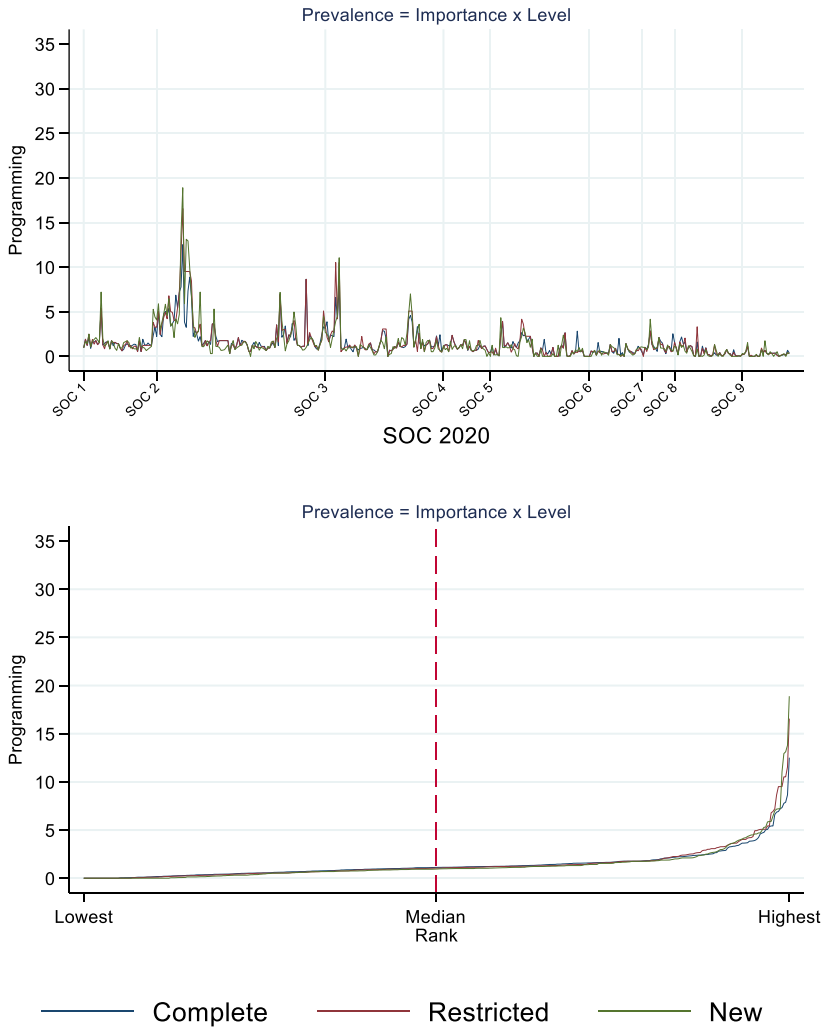


Figure D10: Comparison of mappings – Science

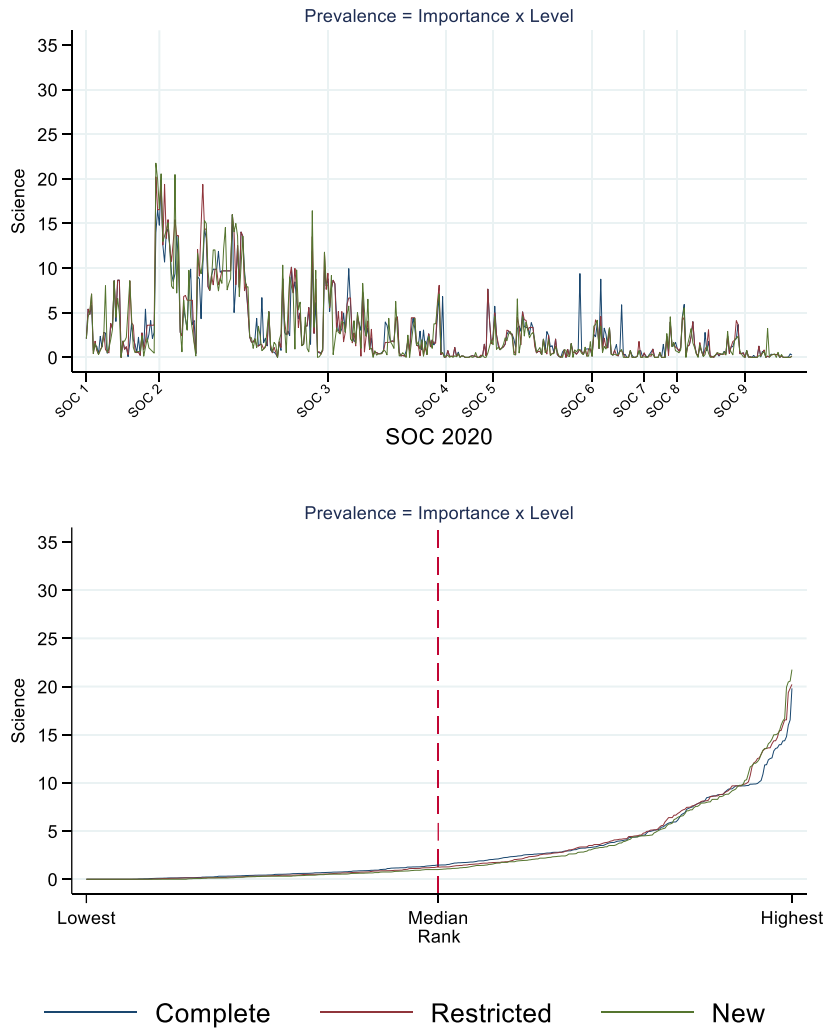


Figure D11: Comparison of mappings – Service Orientation

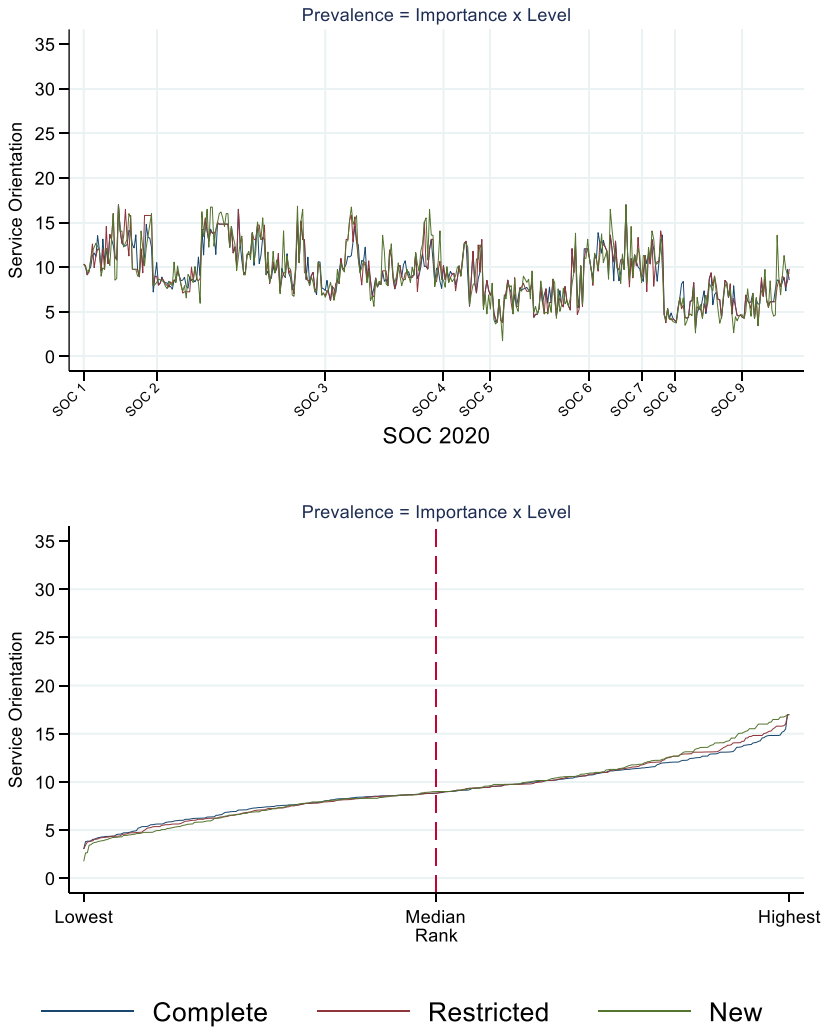


Figure D12: Comparison of mappings – Social Perceptiveness

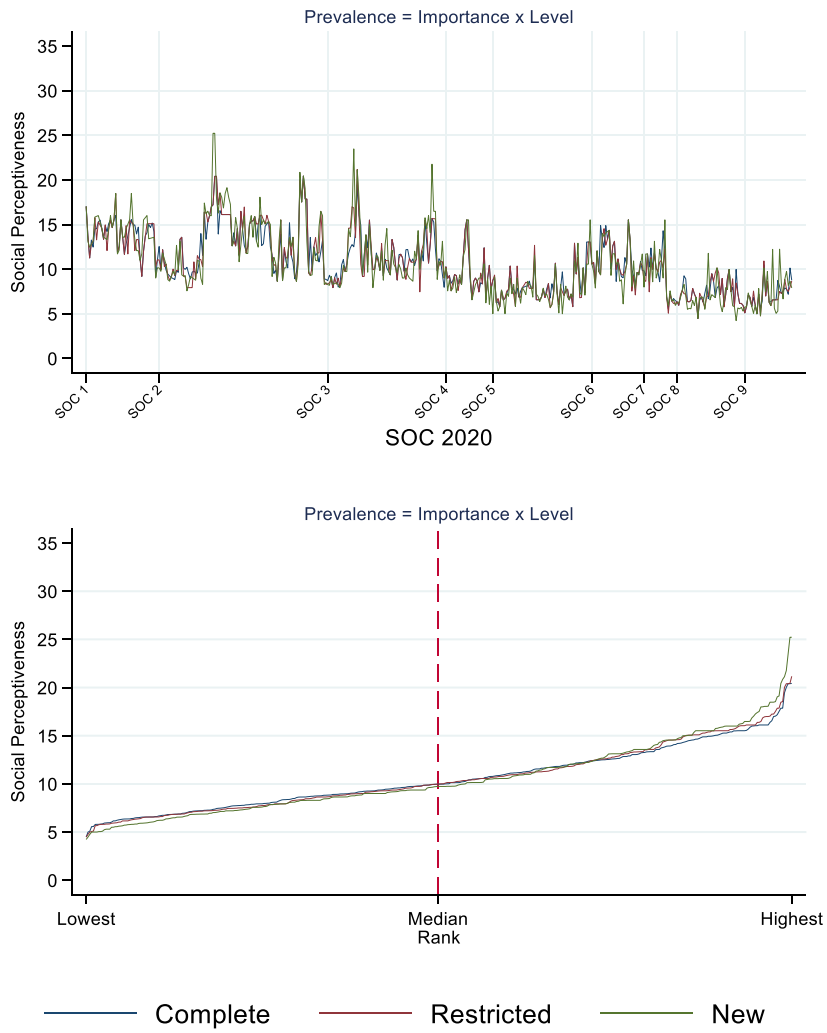


Figure D13: Top 20 skills ranking – Skills Prevalence measure, logarithmic skills projections

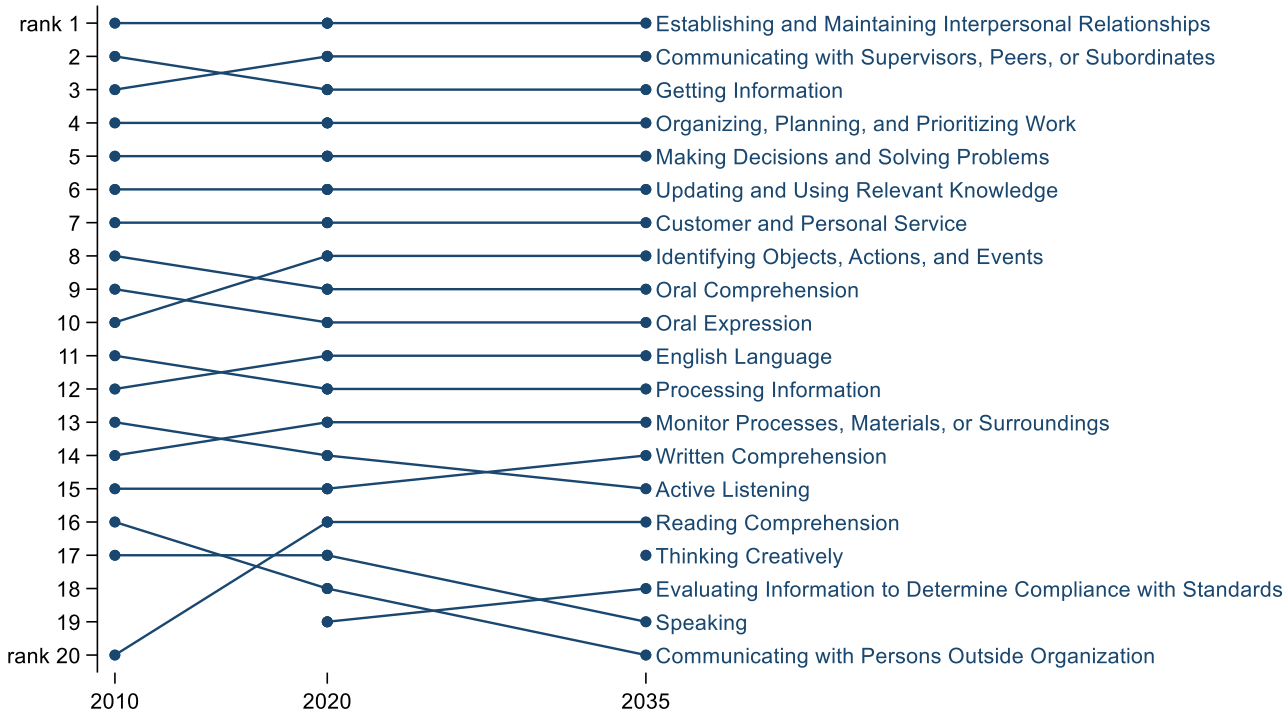


Figure D14: Top 20 skills ranking – Skills Importance measure, logarithmic skills projections

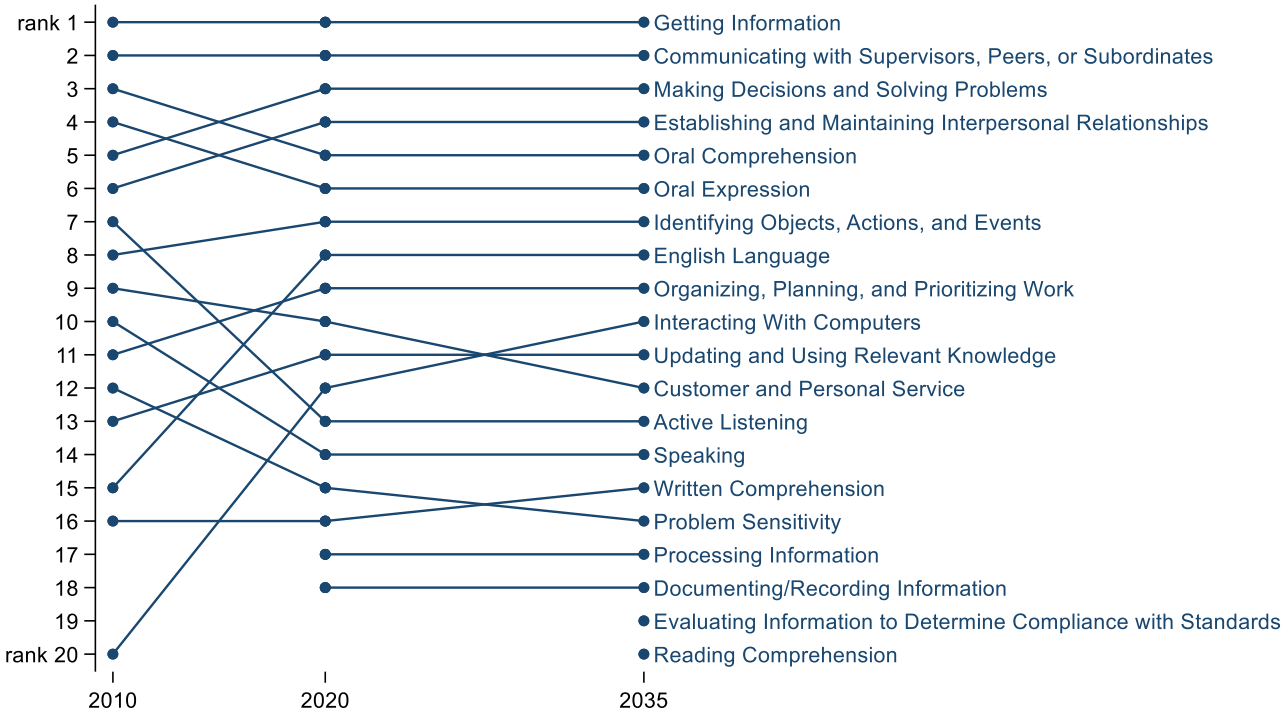
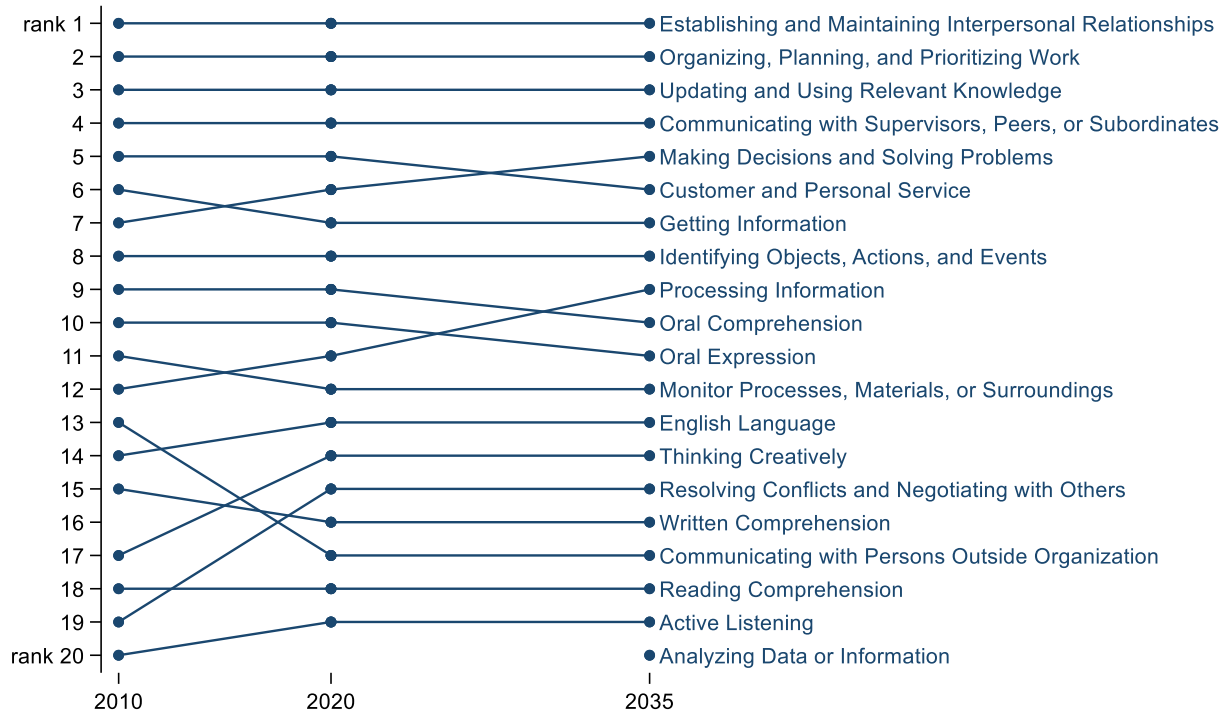


Figure D15: Top 20 skills ranking – Skills Level measure, logarithmic skills projections



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