Using Data to Quantify and Predict Skills Gaps: Local Skills Deficits and Spare Capacity

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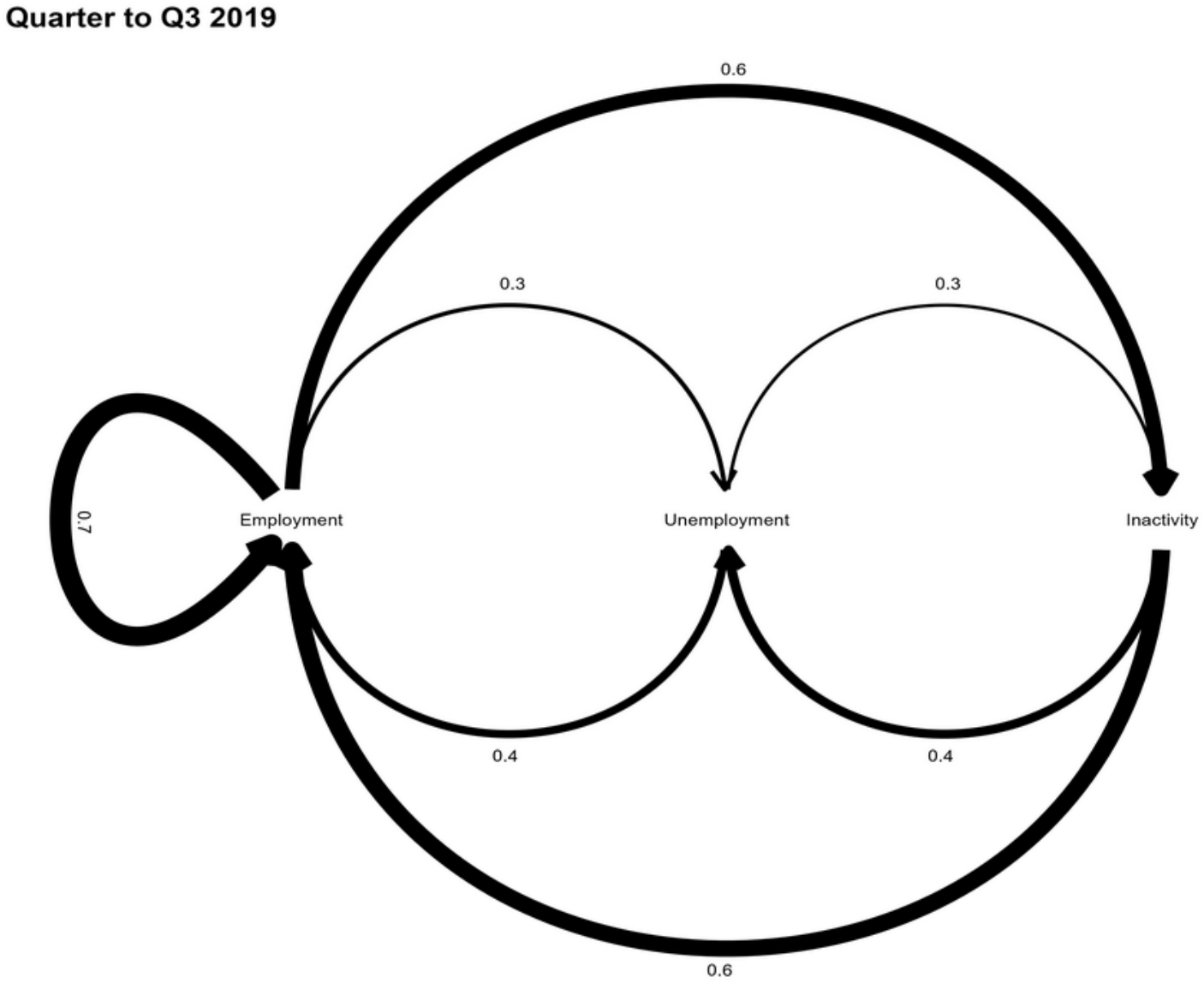
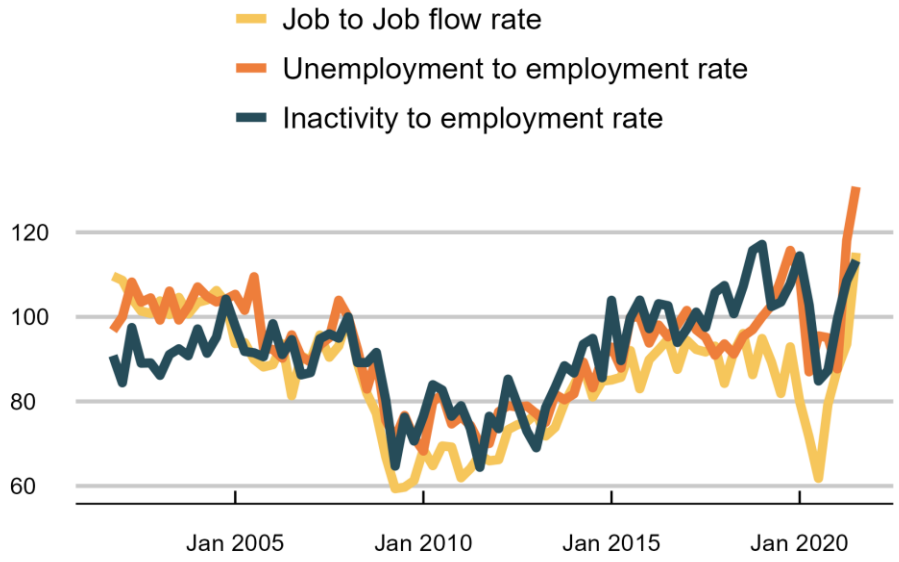
UNDERSTANDING THE CURRENT PICTURE OF THE LABOUR MARKET





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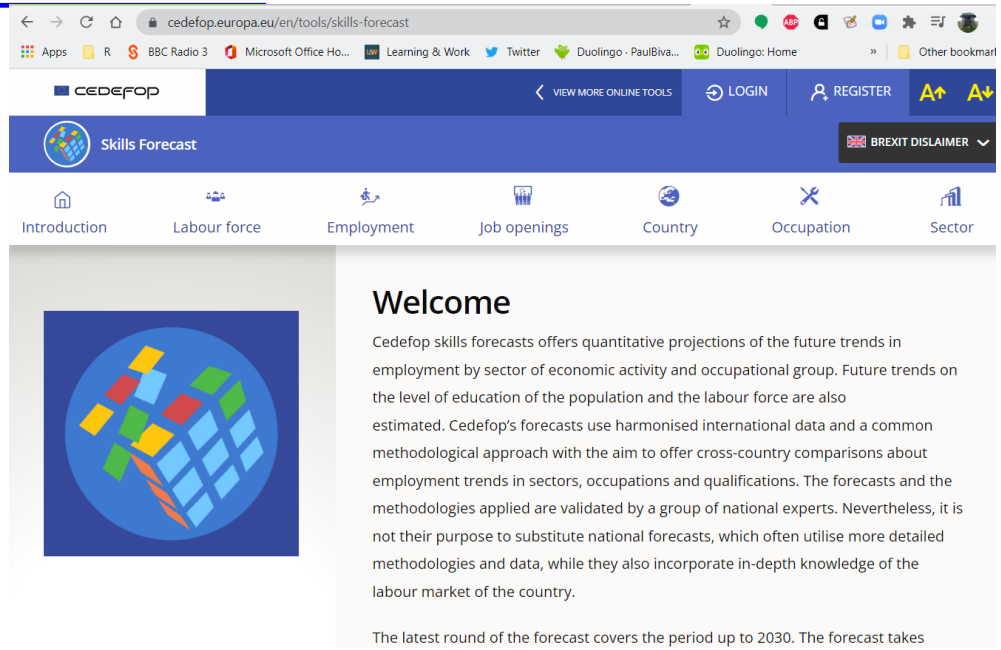
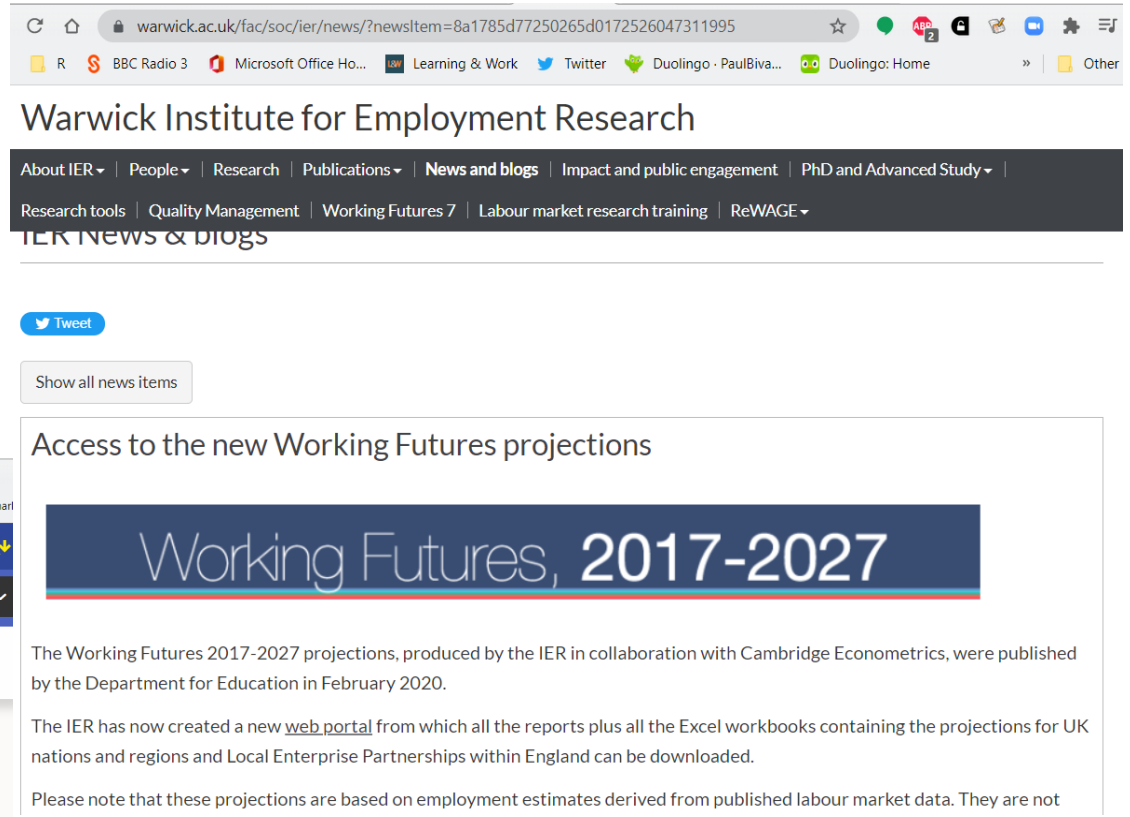
Predicting employment skill pattern and employer skill demand

- Warwick IER and Cambridge Econometrics have done skills forecasts for each LEP to 2027
- And for EU countries to 2030
- https://warwick.ac.uk/fac/soc/ier/wf7downloads for WF





PREDICTING EMPLOYMENT SKILL PATTERN AND EMPLOYER SKILL DEMAND

- The Working Futures methods look longer-range – the short term (5-10 year) implications of longer term trends. In the short term, there will be variations.
- How do they do that?
- Is it still relevant after a pandemic?
- Forecasts are based on information on what has happened in the past
- The Working Futures data goes back to 1990
- It measures, since then, changing employment by:
  - Industry sector
  - Occupation
  - Qualification
  - Part-time/full time
  - Gender
- 1,350 groups within each industry sector

PREDICTING EMPLOYMENT SKILL PATTERN AND EMPLOYER SKILL DEMAND

- All of these are changing – within each sector and within each occupation group, the qualification balance changes
- Particularly, high qualifications have been absorbed with little if any drop in graduate pay and employment premia
- Long time series give a reasonable basis for forecasting – but the skill is ensuring that the forecasts for each group are consistent with each other and with overall economic forecasts
- Since 1990, the data covers several economic cycles – and we are in another now.

PREDICTING EMPLOYMENT SKILL PATTERN AND EMPLOYER SKILL DEMAND

- But, one key element does not get forecast that way.
- The first slide (the blinking glasses) shows the issue.
- Forecasting inflows and outflows from jobs over a long period
- Much of this is forecasting retirements and new labour market entrants - in Working Futures this is called Replacement Demand
- For many industry/occupation groups, growth demand is negative – the only demand is replacement

Occupation Table 1 Employment Change by Occupation Group (SOC 2010) and Replacement Demand, 2007-2027

Levels (000s)	2007	2012	2017	2022	2027	2017-2027 Net Change	2017-2027 Replacement Demand	2017-2027 Total Requirement
	thousands					thousands		
Managers, directors and senior officials	2,419	2,665	3,133	3,334	3,514	381	1,213	1,594
Professional occupations	4,593	4,983	5,881	6,224	6,577	696	2,013	2,709
Associate professional and technical	3,628	3,688	4,245	4,447	4,604	360	1,387	1,747
Administrative and secretarial	3,395	3,109	3,092	2,813	2,567	-525	969	444
Skilled trades occupations	2,934	2,782	2,829	2,688	2,569	-260	765	505
Caring, leisure and other service	2,232	2,466	2,854	3,029	3,251	397	1,143	1,540
Sales and customer service	2,353	2,371	2,475	2,435	2,434	-41	766	726
Process, plant and machine operatives	1,923	1,810	1,845	1,733	1,671	-174	561	388
Elementary occupations	3,327	3,129	3,285	3,274	3,271	-14	1,047	1,033
All occupations	26,804	27,004	29,639	29,978	30,459	820	9,866	10,686

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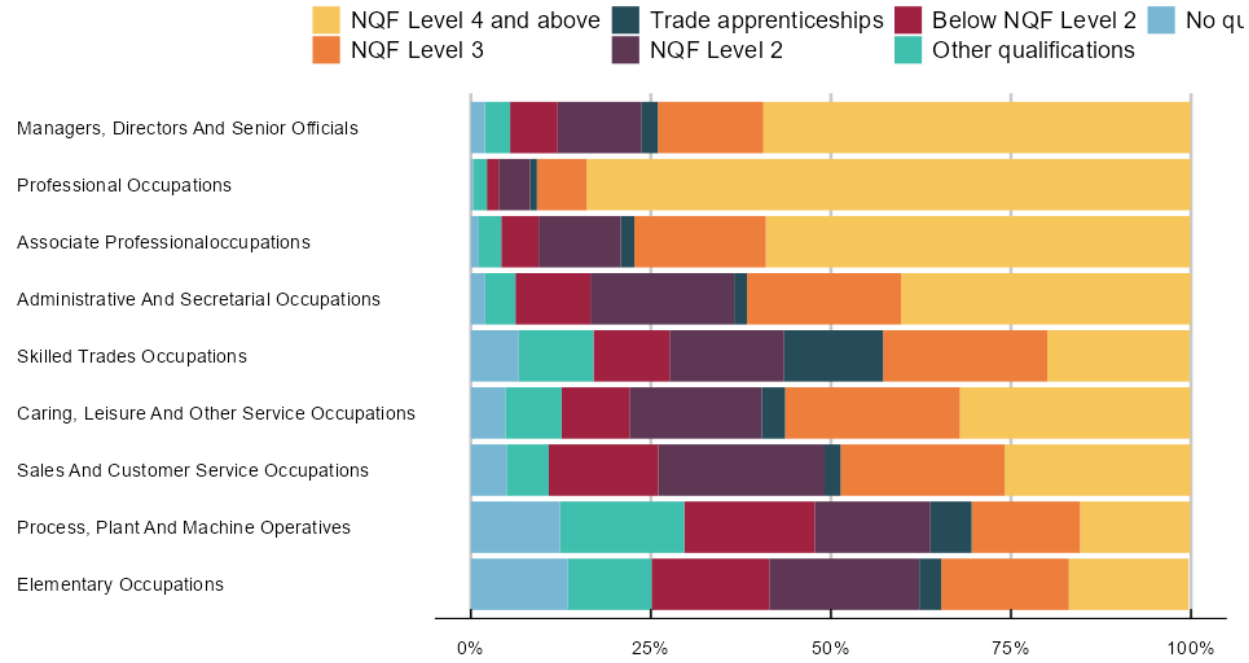
PREDICTING EMPLOYMENT SKILL PATTERN AND EMPLOYER SKILL DEMAND

- Working Futures produces LEP-level spreadsheets
- But… some questions
- Skill patterns and skill demand relate principally to the occupational pattern – with sectors being where occupations and skills are deployed. A lot of skill shortages are in cross-sector occupations (e.g. management skills)
- Just had new occupational classification – SOC20.
- As occupations have become more than 50% graduate, they move into a professional group. I'd do that on basis of 50% of actual recruits rather than 50% of all in occupation – which would then show quicker changes
- Working Futures has similar issues, so skills demands from that may be somewhat low.

PREDICTING EMPLOYMENT SKILL PATTERN AND EMPLOYER SKILL DEMAND

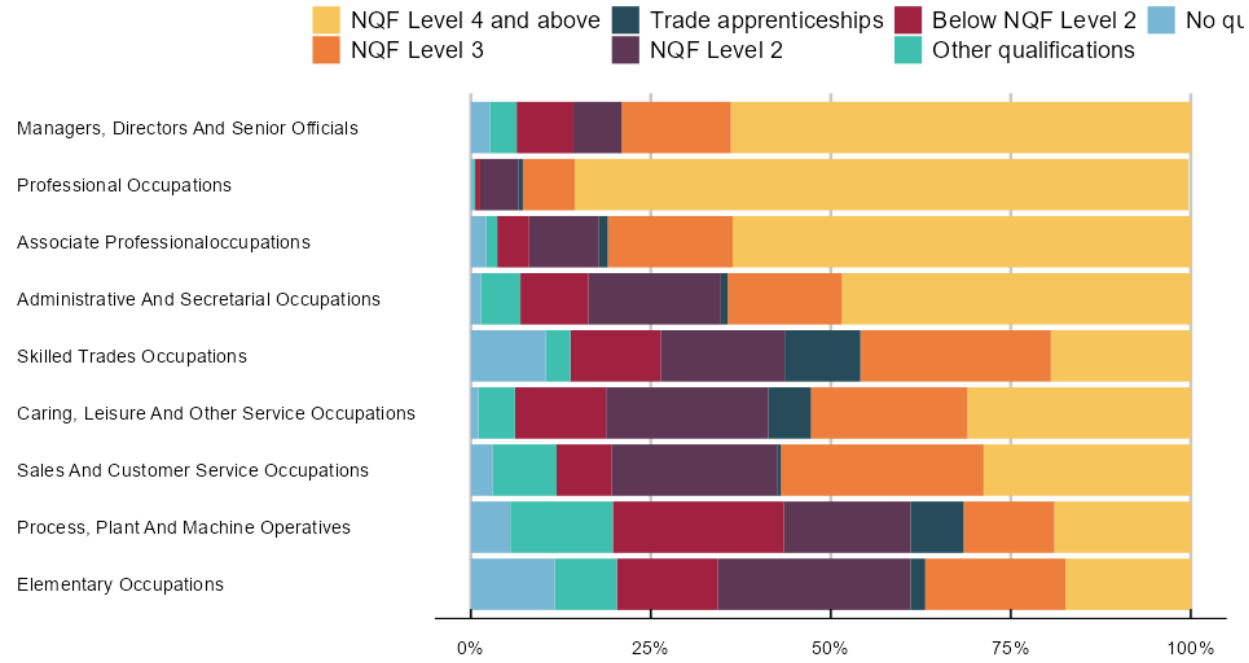
All workers

These charts are using SOC20, so including the latest changes



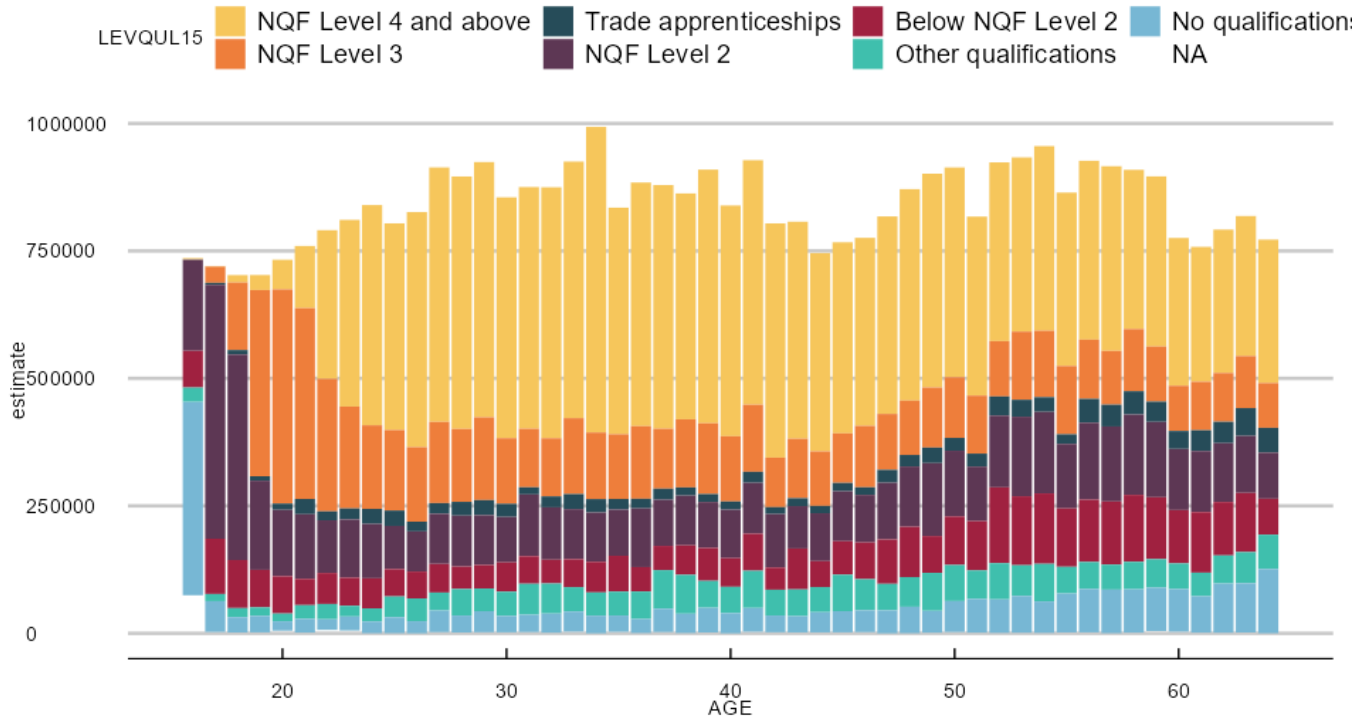
New Job starters

The administrative & clerical group as a whole is almost 50% Level 4+ for recruits – which means a proportion of occupations in it will be over 50%



TOOLS AND TACTICS TO FORECAST LOCAL POPULATION'S SKILLS

- Qualifications vary with age
- Obviously among the young – who attain by age 25 (or so)
- Older generations have lower qualifications
- People retiring in the next 10 years will have one qualifications profile
- Young people aged 16-24 will attain at least the qualification profile of those now 26-34 (likely to be higher)
- So, simply through population changes, the qualification profile will rise – but is that enough?

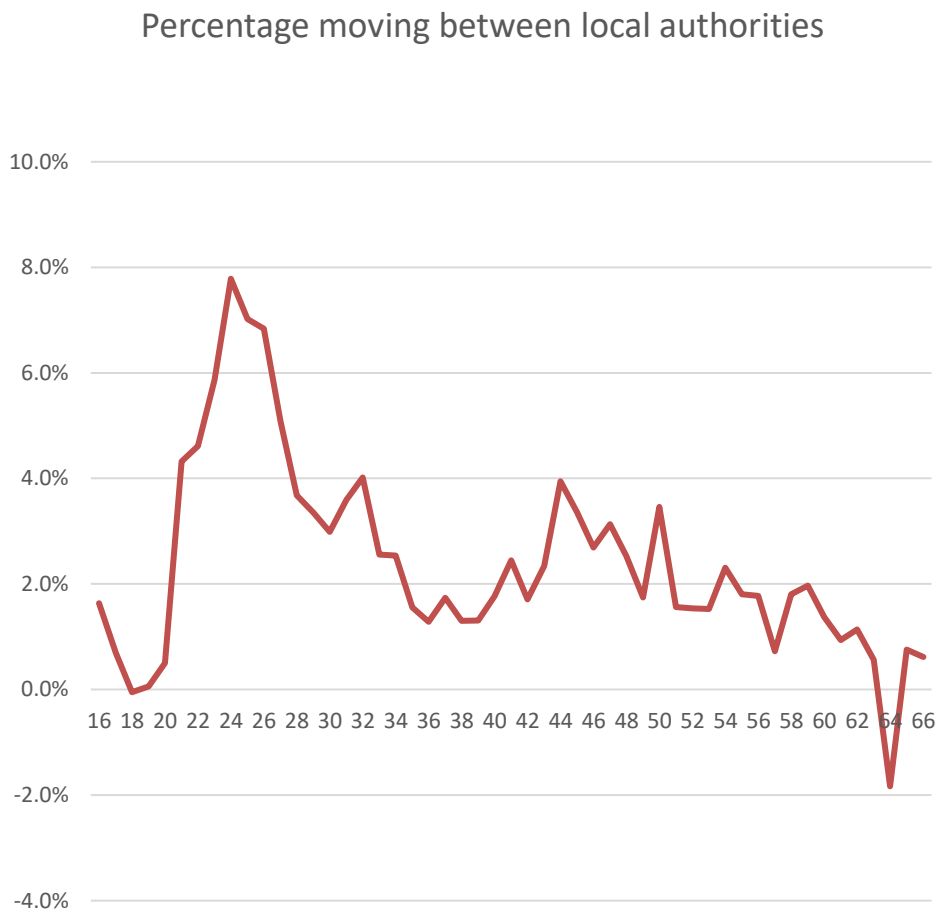


TOOLS AND TACTICS TO FORECAST LOCAL POPULATION'S SKILLS

- At local level, the only time you get close to that level of information on age, qualification, and employment is with the Census
- Annual Population Survey information (from NOMIS) is not as granular.
- So, when we get Census 2021 data, (in 2023?) can move that along by assuming retirements and replacements among under-25s to a date you're looking at.
- Before then, we have to use Census 2011, which is very out of date now.
- There are difficulties in trying to forecast numbers who raise their qualification level as adults.

TOOLS AND TACTICS TO FORECAST LOCAL POPULATION'S SKILLS

- But – this is missing a major local factor – migration between areas
- People move between areas through their life-course – and there are regular patterns
  - Young people may move to university away from parental home
  - Then go to a city to start career
  - Move outside city as family circumstances change
- All this affected by economic prospects at each change point
- And, things like housing availability and affordability
- https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/migrationwithintheuk/datasets/internalmigrationlaandregionmovesandbysexandsingleyearofagetotals



TOOLS AND TACTICS TO FORECAST LOCAL POPULATION'S SKILLS

- The internal migration figures give you numbers by age, but not by qualification, occupation or industry
- It is possible to look at past patterns of qualification change in your area and subtract the change you would have expected given the ageing effect – that gives change due to 'unknown'.
- The unknown includes skill-biased internal migration and qualifications gained by residents as adults.
- But, this is affected by things like housing developments, which you need to find out from local authorities. The type of housing development will affect who moves into them.

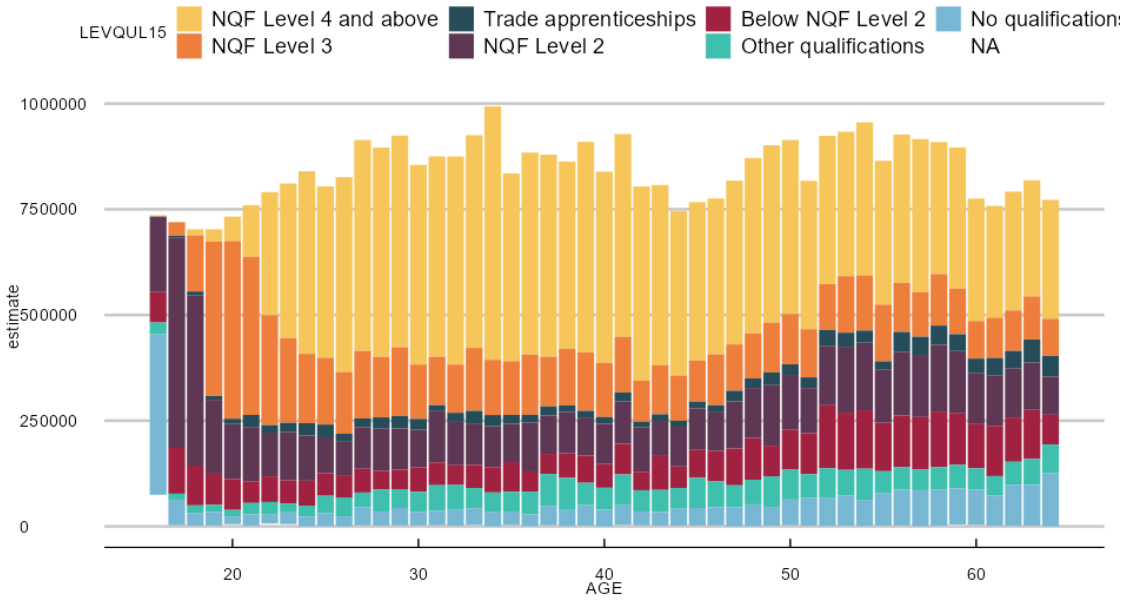
EXPLORING KEY SOLUTIONS TO HELP OVERCOME SKILLS DEFICITS

- You've got a forecast from Working Futures for qualification needs in a LEP area (with the caveats we've discussed).
- If you need to break that down to a local authority then the sector breakdown within the LEP is good.
- You've got a population skills forecast from Census + APS + internal migration estimates (with caveats)
- The Deficit is the difference between the two
- Usually, this deficit is large, and particularly at the high-qualified end
- On average, raising qualification levels by one complete level is often needed

EXPLORING KEY SOLUTIONS TO HELP OVERCOME SKILLS DEFICITS

- Productivity – ONS divide productivity growth into three
  - Human capital – skills
  - Capital Deepening – business investment (including R&D)
  - Total Factor Productivity – what's left (often this relates to management practices)
- I see productivity growth as a joint product of these three, which are not independent – business investment requires workers with the skills to make the investment pay, and high productivity management practices need adaptable workers

EXPLORING KEY SOLUTIONS TO HELP OVERCOME SKILLS DEFICITS



- Look back at your population profile
- Changes to the qualification levels of young people are not enough
- There are too few young people to make sufficient difference to the qualification pattern
- That means adult skills have to be part of any solution

EXPLORING KEY SOLUTIONS TO HELP OVERCOME SKILLS DEFICITS

- Adult skills means across the entire qualification spectrum
- Not just basic skills – that's important, but is not the whole picture
- Some will come – people already working in occupations where graduates are most of recruits will behave like teachers and nurses before – get OU and other degrees
- Regulation – in areas like care and child care – to ensure best practice
- We should realise that some qualifications are now outdated and people need up to date ones – which don't have to be at a higher level
- Management training is very important to boost productivity – and for graduates – often classed at a lower level
- Britain will need to compete internationally – and we are not a world leader