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The qualifications/jobs mismatch in Scotland

John Sutherland, Centre for Public Policy for Regions (CPPR), University of Glasgow

Two important features within the Scottish economy over recent decades have been the investments made in education and training and the subsequent and consequential enhancement of the skills profile of the workforce (Scottish Government, 2007a). However, one unintended outcome has been the extent to which the supply of individuals with relatively high qualifications now exceeds the number of jobs which have similarly high qualifications as entry requirements. Felstead (2007) has estimated that in Scotland there are 240,000 more people with level 4 or 5 qualifications than there are jobs requiring this level of qualification on entry. Whereas the education system in Scotland, in particular its further and higher education sectors, appears to have supplied the labour market with new entrants of high calibre, compatible with the requirements of a 'knowledge economy' for example, the increase in demand for these individuals on the part of organisations located in Scotland has proved to be inadequate to provide appropriate employment opportunities for all.

This paper reports research which examined two conditions: being 'over qualified' (defined as being in a job the entry qualifications for which are below the highest qualification held) and being 'under qualified' (defined as being in a job the entry qualifications to which are above the highest qualification held). The research had three objectives: first, to estimate the extent of 'over qualification' and 'under qualification' prevalent in Scotland; secondly, to identify the determinants of these two conditions; and thirdly, to determine whether the likelihood of an individual resident in Scotland being 'over qualified' or 'under qualified' differed from that of an equivalent individual resident elsewhere in the United Kingdom (Sutherland, 2009).

The data set examined

The data source used in the examination was the 2006 Employee Skills Survey (Felstead et al, 2007), a survey which has its origins in the surveys associated with the innovative Social Change and Economic Life Initiative of 1986 (Gallie et al, 1998).

The focus was upon two sets of variables in the original data set, those identifying:

- the highest qualification possessed by the respondent, in levels, from possessing no qualifications through to possessing qualifications at levels 4/5 ; and
- the entry qualification required for the job being done by the respondent, again in levels, from no qualifications are required for job entry through to level 4/5 qualifications are required.

When manipulated, these variables form the two conditions being estimated: being 'over qualified' (i.e. individuals whose highest qualifications are above the entry requirement for the job being done) and being 'under qualified' (i.e. individuals whose highest qualifications are below the entry requirement for the job being done)¹.

Measuring the extent of 'over qualification' and 'under qualification' in Scotland

Table 1 presents descriptive information on the extent of being 'over qualified' and being 'under qualified', as defined.

In Table 1, the rows identify the distribution of jobs done by respondents by entry requirements, where these are measured in terms of five qualification levels, from 'no qualifications are required' through to 'level 4/5 qualifications are required'. For example, (approximately) 31 percent of employees in employment in Scotland were in jobs requiring no entry qualifications; 11 percent were in jobs requiring level 1 qualifications for entry; 10 percent were in jobs requiring level 2 qualifications for entry; 18 percent were in jobs requiring level 3 qualifications for entry; and 28 percent were in jobs requiring level 4 or 5 qualifications for entry. The columns identify the distribution of the highest qualification held by respondents, where these are again measured in terms of the same five qualification levels. Again for example, (approximately) 13 percent of employees in employment in Scotland had no qualifications; 6 percent had level 1 qualifications as their highest qualification; 14 percent had level 2 qualifications as their highest qualification; 27 percent had level 3 qualifications as their highest qualification; and 36 percent had level 4 or 5 qualifications as their highest qualification.

Given the structure of this table, cells along the (top left to bottom right) diagonal indicate what may be described as 'matches', i.e. where the entry requirement for the respondent's job matches his/her highest qualification, where both are measured in levels. The aggregate of the cell proportions for these five cells for Scotland is 0.4857. (In a comparable cross tabulation for the United Kingdom, the corresponding figure was 0.4763, a rate of matching marginally lower than that for Scotland.)

Further, cells above the matched diagonal cells represent outcomes which may be described as 'mis-matches', where the qualification required for job entry, measured in levels, is below the highest qualification possessed, also measured in levels (ie the condition of being 'over qualified'). The

Table 1: The qualification for entry to the job currently held, by the highest qualification possessed, in levels

		Highest qualification held, in levels					Total
		No qualifications	Level 1	Level 2	Level 3	Level 4/5	
Qualification	No qualifications	101.8	34.79	64.02	83.3	51.06	334.9
		.0967	.0331	.0609	.0792	.0485	.3184
		.3038	.1039	.1912	.2487	.1525	1
		.7086	.4775	.4109	.2861	.1314	.3184
		170	54	110	132	80	546
required	Level 1	25.63	18.81	27.14	31.96	14.57	118.1
		.0244	.0179	.0258	.0304	.0138	.1123
		.217	.1592	.2298	.2706	.1234	1
		.1785	.2581	.1742	.1097	.0375	.1123
		38	33	35	52	26	184
entry	Level 2	8.663	8.554	34.9	41.39	18.82	112.3
		.0082	.0081	.0332	.0393	.0179	.1068
		.0771	.0762	.3107	.3685	.1675	1
		.0603	.1174	.224	.1421	.0484	.1068
		17	12	56	64	28	177
to	Level 3	5.158	5.432	22.21	101	55.93	189.7
		.0049	.0052	.0211	.096	.0532	.1803
		.0272	.0286	.1171	.5323	.2948	1
		.0359	.0745	.1425	.3468	.144	.1803
		8	9	34	158	81	290
the	Level 4/5	2.395	5.285	7.544	33.58	248.1	296.9
		.0023	.005	.0072	.0319	.2359	.2823
		.0081	.0178	.0254	.1131	.8356	1
		.0167	.0725	.0484	.1153	.6387	.2863
		5	11	15	59	412	502
job	Total	143.6	72.87	155.8	291.2	388.5	1052
		.1365	.0693	.1481	.2768	.3693	1
		.1365	.0693	.1481	.2768	.3693	1
		1	1	1	1	1	1
		238	119	250	465	627	1699

Key to Table: Weighted counts
 Cell proportions
 Row proportions
 Column proportions
 Number of observations

Pearson Statistic: Uncorrected chi2 (16) = 3538.3832
 Design-based F(12.52, 83768.12) = 30.5818 P = 0.0000

aggregate of the proportions for the 10 cells in question is 0.4021. (The corresponding figure for the United Kingdom was 0.3893.) Conversely, the cells below the matched diagonal cells also represent outcomes which may be described as ‘mis-matches’. However, in this instance, the qualification level required for job entry is above the highest qualification level possessed (i.e. the condition of being ‘under qualified’). The aggregate of the proportions for the 10 cells in question is 0.1183. (The corresponding figure for the United Kingdom was 0.1345.) Approximately 40 percent of the population at work in Scotland, therefore, are ‘over qualified’, as defined. However, although usually recognised more in Scotland, the extent of ‘over-qualification’ is not unique to Scotland.

Explaining the likelihood of being ‘over qualified’ and ‘under qualified’

The research applied micro econometric analysis to identify the determinants of the conditions of being ‘over qualified’ and ‘under qualified’, both conditions being estimated using qualification levels, as defined.

The binomial logit model estimated contained three distinct sets of potential explanatory variables, reflecting the personal characteristics of an individual, such as age and gender; the work related characteristics of an individual, such as his/her employment status, pay, tenure and union membership; and the characteristics of the workplace at which an individual is employed, such as its size and its sector (e.g. ‘private’ or ‘public’).

(Very) few variables proved to be statistically significant. There was some evidence that the condition of being ‘over qualified’ was less likely for males than females. There was some evidence that the condition of being ‘under qualified’ was negatively correlated with the presence of dependent children. However, the determinants of being ‘over qualified’ were not necessarily the converse of the determinants of being ‘under qualified’. Furthermore, both being ‘over qualified’ and being ‘under qualified’ were more likely to be associated with the set of variables reflecting personal characteristics than either the set of variables reflecting an individual’s work related characteristics or the set of variables reflecting the characteristics of the workplace at which he/she was employed.

To establish whether the likelihood of being ‘over qualified’ or ‘under qualified’ differed between

individuals resident in Scotland and those resident elsewhere within the United Kingdom, the estimations were repeated, this time using the full data set and with the inclusion of a set of dummy variables identifying the constituent countries/provinces within the United Kingdom.

The results of the two estimations for the United Kingdom proved to be very different from the corresponding estimations for Scotland. In the former neither gender (in the estimation of being ‘over qualified’) nor the presence of dependent children (in the estimation of being ‘under qualified’) were statistically significant in the respective estimations. Further, the set of variables reflecting the characteristics of the workplace at which the individual was employed was now of consequence in explaining both conditions.

Perhaps the most notable single result in the analysis of the full UK data set related to Northern Ireland in the estimation of the condition of being ‘over qualified’. An individual located in Northern Ireland was 12 percent less likely to be over qualified relative to an equivalent individual located in Scotland.² By contrast, in the estimation of the condition of being ‘under qualified’, none of the coefficients denoting country/provinces was statistically significant (although each was positively signed, with respect to the reference category, Scotland). The appropriate results are reported selectively in Table 2.

Table 2: Selected output from the Logit Estimations: marginal effects of the three countries

	‘Over qualified’	‘Under qualified’
England	-.015	.022
Wales	.000	.012
Northern Ireland	-.126 **	.003

Notes to Table 2:

The omitted reference category (country) is Scotland. The figures in the table, therefore, are to be interpreted as percentages relative to Scotland e.g. an individual located in England is .015 percent less likely to be ‘over qualified’ than the equivalent individual in Scotland.

** statistically significant at 0.05.

Some policy observations

That four out of ten workers in Scotland were deemed 'over qualified' using qualification levels as a measure must be considered to be a 'problem'.

This 'problem' has both private and public dimensions. From a private perspective, individuals not in jobs appropriate to their qualifications may not be earning returns commensurate with their human capital investments. Furthermore, these potential losses will only increase the more individuals are required to self finance proportionately more of their investments in further and higher education in the future. From a public perspective, the prevalence of so many potentially under employed individuals may part explain why increases in education and training expenditures in Scotland have not resulted in corresponding increases in labour productivity. As the Scottish Government has observed in this context: "strong performance on skills and qualifications does not feed through effectively enough to productivity" (Scottish Government, 2007b, p. 14).³

From the perspective of employers' recruitment and selection strategies, there are two possible explanations of why, *ceteris paribus*, the condition of being 'over qualified' may result and be so prevalent across workplaces. The first explanation is credentialism, by which is meant the use of qualifications by employers to screen for potential productivity on the part of job seekers, irrespective of the relationship between these qualifications and the job to be done. The second is that when the number of job seekers exceeds the number of vacancies, a feature of local labour markets throughout many parts of Scotland over a long period of time, employers have the scope to increase their hiring standards. When doing so, they select individuals with relatively high qualifications in preference to those relatively less well qualified, again irrespective of the qualifications required to do the job in question competently.

Traditionally, this latter explanation has been viewed in a macro economic context, of aggregate labour supply in local labour markets exceeding aggregate labour demand. However, recent research has added a micro-economic dimension to this possible explanation. Analysing differences in the skills content of jobs between Scotland and the rest of the UK, Dickerson (2009) finds that jobs in Scotland are characterised by relatively lower levels of skills

content – notably computing skills content. Some of the condition of 'over qualification', therefore, may be attributable to the nature of the job opportunities available in Scotland as well as the number of jobs.

One possible, and frequently cited, policy response to address the extent of 'over qualification' in Scotland is to increase the demand for those with relatively high qualifications. Encouraging indigenous firms to change radically their product market strategies and to move up their value chain is one such strategy (Ashton, 2007; Sung et al, 2009). How such a policy may be operationalised is problematical, however, as are its potential detrimental consequences, not the least of which would be the possible displacement of low skilled workers into a labour market in which the supply of those with no/low skills already exceeds the demand for the same.⁴ Encouraging appropriate multinational enterprises to establish themselves in Scotland is another, although the consequences of external control for employment security within Scotland will always remain a contentious issue in this context, a forceful reminder of which being the recent experiences with Diageo. Encouraging and facilitating the mobility of those considered to be in jobs which are less than commensurate with the qualifications they hold would be a possible, complementary supply based policy. That said, the search for outside job offers by individuals is contingent upon appropriate job opportunities becoming available, something which is unlikely given current – and foreseeable future - demand constrained product and labour markets.

What the extent of 'over qualification' does question, however, both in Scotland and the United Kingdom, is the continued relevance of the policy of 'universal up-skilling' associated with the Leitch Review (Leitch Review of Skills, 2006). Although education and training may be important factors in the search for productivity growth and competitiveness (as well as other commendable policy objectives, such as social inclusion), they are not the sole – perhaps not even the primary - factors.

An important feature of recent skills policy in Scotland is an explicit acknowledgement of this, manifest in an emerging policy agenda which envisages skills policy as being an integral part of a more comprehensive policy of economic development (Scottish Government, 2007a; Payne, 2009). One argument made by those advocating devolution was the possibility that it would encourage more diversity, both in terms of policy design and the central instruments of policy. In the longer term, therefore, we may be

about to witness yet another example of this materialising, this time in the context of skills and training policy. In the shorter term, however, given the current economic climate with its most probable detrimental consequences for job creation, it is highly probable that the 2010 Employee Skills Survey will report that the extent of over qualification has risen yet further.

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Endnotes:

¹ The qualification mapping used in the paper is detailed in Felstead and Green (2008), Table 3.1 (p. 31) and follows convention. Broadly, level 4 or above equates with first and post graduate degrees, and their professional and vocational qualifications equivalents; level 3 equates with sub degree (e.g. diploma) academic qualifications and their professional and vocational qualifications equivalents, usually obtained in further education; level 2 equates with 'higher' leaving school academic qualifications, usually obtained at the age of 17/18/19, and their professional and vocational qualifications equivalents; and level 1 equates with 'lower' school leaving academic qualifications obtained at the age of 16, the formal end of mandatory education in the UK, and their professional and vocational qualifications equivalents.

²This particular outcome may be explained, perhaps, in terms of the relatively high rate of out migration of highly qualified individuals from Northern Ireland,

³That said, even the correlation if not the causation, between human capital investment and labour productivity is contentious (Keep et al, 2006).

⁴See Payne (2009) for a discussion of some possible sources of inspiration for the design and implementation of appropriate economic development policies.