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Examining inequalities across travel to work areas in Scotland

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1.   Abstract

This article examines inequalities across the 45 travel to work areas in Scotland, using four indicators of labour market performance viz. the employment rate; the economic inactivity rate; the percentage holding level 4 (or higher) qualifications; and the percentage having no formal qualifications. The results are then contextualised in a discussion of the possible explanations for these inequalities and their implications for policy.

2.   Introduction

The process of economic development varies over space and the economic history of Scotland over several decades illustrates well how the twin processes of job creation and job destruction have different impacts geographically. From the 1950s, demand for the products of Scotland's traditional manufacturing industries, located principally if not exclusively in the west of the central belt, declined further. Job destruction followed and there was no compensating job creation to match the magnitude of the job losses in these urban areas, with manifold consequences for the local populations. In contrast, from the 1980s, job creation was apparent in Aberdeen, its hinterlands and the northern isles, localities historically associated more with agriculture and fishing, with the discovery of North Sea oil and the development of oil exploration and extraction activities (Alexander et al, 2005: Bell and Blanchflower, 2007: Cameron, 2010: Macdonald, 2009: Newlands et al, 2004).

An important feature of the minority Scottish National Party (SNP) Scottish Government's first Economic Strategy set out in 2007 was the identification of a set of targets. These targets took two forms: aspirational targets, designed to set long term direction and ambition; and shorter term objectives, designed to monitor and evaluate economic performance and appraise government policy. 'Cohesion' – by which was meant 'regional equity' - was one of the aspirations. It was central to the Scottish Government's overall purpose of focussing "the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth" (Scottish Government, 2007, p. 1). Existing inequalities within Scotland were identified and measured in terms of selected labour market indicators and the target was to narrow the gap between Scotland's best and worst performing regions by 2017.

This article examines disparities across the 45 travel to work areas (TTWAs) in Scotland using selected labour market performance indicators. Possible explanations of these disparities are then outlined and their policy implications discussed.

3.   Labour market indicators of performance

How economic performance should be measured; how Scotland should be sub-divided geographically to examine spatial differences in performance; and how inter-area differences in performance should be measured are three very problematical issues.

In its first economic strategy document, the Scottish Government elected to make use of one particular labour market indicator – the activity rate - to measure cohesion, although there are other possible indicators of labour market performance (as well as other measures of performance which do not have their origin in the labour market).

Within the population as a whole, at present, those aged 16 years and over are eligible to participate formally in the labour market. This subset of the population measures the potential size of the labour force. Not all those eligible to participate in the labour market do so. A person is described as economically active if he/she is employed or unemployed but seeking and available for work in a particular period. The activity rate measures the number economically active as a percentage of those within the population eligible to participate in the labour market. As such, it is a measure of the actual size of the workforce in that period. It is possible to subdivide the economically active into two groups. The number who have jobs expressed as a percentage of those eligible to participate in the labour market measures the employment rate. The number who do not have jobs expressed as a percentage of those eligible to participate in the labour market measures the unemployment rate.

The reciprocal of the activity rate is the inactivity rate, measured as the number who are eligible to participate in the labour market but who do not do so as a percentage of those eligible to participate. The principal economically inactive groups are: people looking after family and home; the long-term sick and disabled; the temporarily sick or injured; retired people; and discouraged workers (defined as those who consider job search to be futile because of the perceived absence of appropriate vacancies within the local economy).

Measures of the activity rate, the employment rate, the unemployment rate, and the inactivity rate offer four different quantitative perspectives of the performance of the labour market. For a given level of labour demand within an economy, the activity rate measures those willing to supply labour; the employment rate measures those willing to supply labour who are in employment; the unemployment rate measures those who are willing to supply labour but who have no jobs; and the inactivity rate measures those who are not participating in the labour market.

The analysis which follows makes use of two of these quantitative indicators of labour market performance viz. the employment rate and the inactivity rate and examines both for people, males and females.

Labour supply, however, has a qualitative as well as quantitative dimension, reflected in people's qualifications and skills. Accordingly, to provide a qualitative perspective of labour market performance, two other indicators are also used in the analysis viz. the percentage who hold qualifications to level 4 (i.e. degree level equivalent) or higher; and those who have no formal qualifications. These two qualitative indicators complement the quantitative indicators of the employment rate and the inactivity rate because, at the level

of the individual, the possession of qualifications increases the probability that an individual will be in employment and the absence of qualifications is associated with an individual not participating in the labour market.

4.   Travel to work areas (TTWAs)

In the original economic strategy document of 2007, Scotland was sub-divided by local authority areas. TTWAs are a preferred geographical area for examination because they reflect self-contained areas within which most people live and work. TTWAs are based on a statistical analysis of commuting patterns, therefore, rather than administrative boundaries (ONS, 2016). TTWA boundaries are non-over-lapping and cover all of the UK, with TTWAs being assigned to countries and regions of England on the basis of where the highest proportion of the land area of the TTWA falls (e.g. Berwick is a cross-border TTWA and is located in England). Over time, as commuting patterns have changed, with more people traveling longer distances to work, so the geographical area covered by TTWAs has tended to increase. Their numbers have decreased accordingly.

The most recent configuration of TTWAs uses 2011 Population Census data. Currently, there are two defining criteria used in the construction of TTWAs. First, they must have an economically active population of at least 3,500. Secondly, at least 75 per cent of the area's resident workforce must work in the area and at least 75 per cent of the people who work in the area must live in the area. There are 228 TTWAs in the UK, of which 45 are in Scotland.

One consequence of the criteria used to construct TTWAs is that they vary in size, with some being much larger than others. For example, the size of the five largest TTWAs in Scotland contrasted with the size of the five smallest (cf. Table 1). A further consequence of the criteria used is that, sometimes, the statistical accuracy of the data varies. Therefore, some data are missing for the smaller TTWAs. This is a feature of some components of the analysis in this article.

Table 1: Travel to work areas (TTWAs): some descriptive statistics

Five Largest TTWAs	
Glasgow	1,256,435
Edinburgh	658,057
Motherwell and Airdrie	424,712
Aberdeen	397,285
Dunfermline and Kirkcaldy	296,288
Five Smallest TTWAs	
Campbeltown	7,741
Portree	7,545
Mull and Islay	7,323
Broadfoot and Kyle of Lochalsh	6,992
Ullapool	6,834
Maximum	1,256,435
Minimum	6834
Range	1,249,601
Mean	118,200.5
Standard Deviation	221,714.5
Coefficient of Variation	1.87

5.   Measuring inequalities

Although the Scottish Government in its 2007 economic strategy document elected to use the range, it is possible to identify several other measures of dispersion (or variability or spread) which may be used to examine cohesion (or inequalities).

The range is the simplest measure of dispersion, calculated as the difference between the largest data value of the selected indicators and the smallest data value. It is an imperfect measure because it is subject to the vagaries of what is happening at the polar extremes of the distribution. The standard deviation is a second possible measure of dispersion. This measures the average amount scores of the selected indicators in a distribution of scores deviate from the mean. In this way, it takes into consideration all areas, not only those at the tails of the distribution. The greater the variability/spread of these scores, the larger is the magnitude of the standard deviation. However, the magnitude of the standard deviation depends upon the units used to measure the indicators in question. When there is some difference between these – as there is, for example, in the context of the employment rate and the inactivity rate both of which produce relatively high mean scores – it is often necessary to examine the standard deviation relative to the mean. This third measure of dispersion is the coefficient of variation. This article reports results for each of these measures.

6.   Exploring the spatial differences

The TTWA data analysed are extracted from the Excel data sheets which accompany ONS (2016). Their origin is the Annual Population Survey for period April, 2015 – March, 2016.

Table 2: TTWA Employment rates: some descriptive statistics

People		*Men*		*Women*	
Five Highest Employment Rates		*Five Highest Employment Rates*		*Five Highest Employment Rates*	
Fort William	91.8	Portree	100.0	Broadfoot & Kyle of	91.8
Portree	89.4	Fort William	93.2	Lochalsh	91.4
Shetland Islands	89.1	Shetland Islands	92.3	Ullapool	90.5
Orkney Islands	85.5	Peterhead	90.6	Fort William	85.7
Broadfoot & Kyle of Lochalsh	84.3	Golspie and Brora	88.3	Shetland Islands Orkney Islands	84.7
Five Lowest Employment Rates		*Five Lowest Employment Rates*		*Five Lowest Employment Rates*	
St. Andrews and Cupar	67.0	St. Andrews and Cupar	71.1	Newton Stewart	61.5
Kilmarnock and Irvine	65.8	Girvan	70.5	Kilmarnock and Irvine	59.1
Mull and Islay	65.5	Dundee	70.4	Girvan	58.4
Alness and Invergordon	65.0	Greenock	67.1	Mull and Islay	58.3
Girvan	63.7	Ullapool	56.0	Alness and Invergordon	58.1
Maximum	91.8		100		91.8
Minimum	63.7		56		58.1
Range	28.1		44		33.7
Mean	75.85		79.06		72.97
Standard Deviation	6.64		7.51		8.61
Coefficient of Variation	0.08		0.09		0.11

There is some evidence of inequality with respect to the employment rate for people across the 45 TTWAs using the three measures of dispersion identified (cf. Table 2). Also, it is apparent that the extent of this inequality differs between men and women. Although the mean employment rate for men is greater than the mean employment rate for women, using the standard deviation and the coefficient of variation as summary measures of inequality, inequality is relatively greater for women than for men. Further, there is evidence that the ranking of TTWAs in the distribution by employment rate differs between men and women. The TTWAs with the five highest and five lowest employment rates by gender are more dissimilar than similar. The value of the pair-wise correlation coefficient between the male employment rate and the female employment rate is (only) 0.323. The value of Spearman's rho – which measures stability in the ranking of TTWAs by gender - is (only) 0.5067.

Table 3: TTWA Inactivity rates: some descriptive statistics

People[1]		Men[2]		Women[3]	
Five Highest Inactivity Rates		*Five Highest Inactivity Rates*		*Five Highest Inactivity Rates*	
Girvan	30.4	Greenock	24.1	Girvan	38.3
Mull and Islay	29.3	Glasgow	22.0	Mull and Islay	36.4
Kilmarnock and Irvine	27.6	Oban	21.8	Kilmarnock and Irvine	35.5
Ullapool	27.0	St. Andrews & Cupar	21.6	Newton Stewart	34.6
St. Andrews and Cupar	26.5	Dundee	20.5	Fraserburgh	31.3
Five Lowest Inactivity Rates		*Five Lowest Inactivity Rates*		*Five Lowest Inactivity Rates*	
Orkney Islands	12.2	Orkney Islands	11.6	Pitlochry and Aberfeldy	17.7
Turriff and Banff	11.7	Alness &	11.4	Aviemore & Grantown on Spey	15.6
Aviemore & Grantown on Spey	10.2	Invergordon	11.4	Shetland Islands	14.3
Shetland Islands	9.4	Pitlochry & Aberfeldy	9.8	Orkney Islands	12.8
Fort William	5.3	Newton Stewart	4.7	Turriff and Banff	10.8
		Shetland Islands			
Maximum	30.4		24.1		38.3
Minimum	5.3		4.7		10.8
Range	25.1		19.4		27.5
Mean	20.24		16.48		25.21
Standard Deviation	5.36		3.95		6.27
Coefficient of Variation	0.26		0.23		0.24

1. *No statistically significant data are available for: Girvan.*
2. *No statistically significant data are available for: Ullapool, Campbelltown, Portree, Fort William, Broadfoot and Kyle of Lochalsh, Peterhead, Aviemore and Granton on Spey and Golspie and Brora.*
3. *No statistically significant data are available for: Ullapool, Portree, Broadfoot and Kyle of Lochalsh and Fort William.*

Descriptive statistics for the economic inactivity rate for people, men and women are presented in Table 3 (although the absence of information for some TTWAs has an incalculable impact on these results). There is evidence of inequality across the 45 TTWAs for people for this second quantitative indicator of labour market performance. Also, there is some evidence of a difference in the extent of this inequality between men and women. The mean inactivity rate for women is greater than the mean inactivity rate for men. Using the standard deviation (but not necessarily the coefficient of variation), inequality across the TTWAs in inactivity rates is relatively greater for women than for men. Further, there is evidence that the ranking of TTWAs in the distribution by inactivity rate differs between men and women. In the context of the TTWAs

with the five highest inactivity rates, there is no TTWA which is common to both men and women. In the context of the TTWAs with the five lowest inactivity rates, the TTWAs for men and women are more dissimilar than similar. The value of the pair-wise correlation coefficient between the male inactivity rate and the female inactivity rate is 0.5505 (higher than the corresponding statistic for the correlation between male and female employment rates). The value of Spearman's rho is 0.5643 (again higher than the corresponding statistic for male and female employment rates).

Descriptive statistics with respect to qualifications are presented in Table 4. Again using the standard deviation and the coefficient of variation as summary measures of inter-TTWA inequalities, inequalities are to be observed for both the rate of those possessing level 4 qualifications and the rate of those possessing no qualifications. However, there is no statistically significant relationship between the employment rate and the rate of those possessing level 4 qualifications at the level of the TTWA (even after controlling for the population size of the TTWAs) (cf. Table 5). Similarly, there is no statistically significant relationship between the inactivity rate and the rate of those possessing no qualifications at the level of the TTWA (again even after controlling for the size of the TTWA population) (cf. Table 6).

Table 4: TTWA Qualifications: some descriptive statistics

With Level 4 Qualifications[1]		With No Qualifications	
Five Highest with Level 4		*Five Highest with No Qualifications*	
Pitlochry and Aberfeldy	53.5	Newton Stewart	17.3
Edinburgh	53.1	Fort William	13.6
St. Andrews and Cupar	50.9	Kilmarnock and Irvine	13.6
Galashiels and Peebles	50.1	Thurso	13.2
Aberdeen	49.5	Greenock	13.1
Five Lowest with Level 4		*Five Lowest with No Qualifications*	
Turriff and Banff	29.0	St. Andrews and Cupar	5.2
Newton Stewart	25.3	Aberdeen	4.8
Thurso	23.4	Galashiels and Peebles	4.6
Fort William	22.8	Peterhead	4.3
Wick	22.3	Shetland Islands	2.2
Maximum	53.5		17.3
Minimum	22.3		2.2
Range	31.2		15.1
Mean	37.35		9.03
Standard Deviation	7.71		3.40
Coefficient of Variation	0.20		0.37

1.   No statistically significant data are available for: Ullapool, Portree, Broadfoot and Kyle of Lochalsh, Golspie and Brora, Alness and Invergordon and Pitlochry and Aberfeldy.

Table 5: Regression results: dependent variable: employment rate

	Coefficient	Standard Error	P > |t|	Coefficient	Standard Error	P > |t|
Level 4 qualifications	-0.0721	.1308	0.584	.0458	.1380	0.741
Log of population size				-1.6062	.7677	0.043
Constant	78.5521	4.9882	0.0000	91.2369	7.7349	0.0000
Number of observations			45			45
F (1, 43) (2, 42)			0.3000			2.3500
Prob > F =			0.5843			0.1075
R-squared			0.0070			0.1007

Table 6: Regression results: dependent variable: inactivity rate

	Coefficient	Standard Error	P > |t|	Coefficient	Standard Error	P > |t|
No qualifications	.4256	.2517	0.099	.4280	.2474	0.092
Log of population size				.9491	.6231	0.136
Constant	16.6346	2.4267	0.0000	6.3041	7.1887	0.383
Number of observations			39			39
F (1, 37) (2, 36)			2.86			2.6400
Prob > F =			0.0993			0.0851
R-squared			0.0717			0.1279

7.   Explaining spatial disparities and the policy implications

Different perspectives offer different explanations for spatial disparities in indicators of labour market performance. Using the traditional framework of labour economics, disparities are attributable to supply and demand factors. Using the more contemporary framework of urban and regional economics, these same disparities are attributable to 'people effects' or 'place effects' (Little, 2009).

According to supply-based explanations, spatial differences in the indicators examined above reflect spatial differences in the demographic profile. Some groups within the working age population are more at risk than others. Individuals in these potentially more vulnerable groups are not distributed randomly over space. Rather, they tend to be concentrated into specific localities. Disadvantaged individuals tend to be located in areas of disadvantage (H.M. Treasury and DWP, 2003). Given that the 'problem', therefore, is 'people' not 'place', the appropriate policy response is suitably designed and targeted active labour market policies, most frequently skills-based retraining or up-skilling.

This policy response is a component part of a more comprehensive spatially (or place) -blind, people-based strategy towards economic development. This strategy focuses upon universal investments in human capital – in education and health especially – and encourages mobility into areas where individuals may be more productive. These policies are complemented with transport and communications infrastructure policies

designed to facilitate this mobility. According to this neo-liberal perspective, ultimately, convergence will follow, as long as factor and capital markets are allowed to operate freely.

Applying the framework associated with contemporary urban and regional economics, these supply-based explanations ignore history, context and path dependency. To illustrate, they ignore (or deny) the possibility that weak or no attachment to the labour market may be attributable to the long term absence of employment opportunities in the local jobs market. Job destruction, particularly in those sectors which historically had provided employment to individuals many of whom are now classified as 'vulnerable', has prevailed. And where job creation has been evident, it has been neither of the quantity nor of the character to match job aspirations and expectations. The local jobs market, therefore, has structured the labour market outcomes which are observed. Consequently, the 'problem' is not 'people' but 'place', and the notable absence of work in these places. Furthermore, the impact of place goes beyond labour market participation – or otherwise – because where individuals live is central to every facet of their lives.

Given this diagnosis of the problem, the appropriate policy response is the design and implementation of place-based measures to support the creation of, inter alia, employment opportunities (which is not to deny the probability that skills development/enhancement may also be a requirement to ensure that individuals are better able to capitalise upon these opportunities). That said, the place-based construct is a contested construct and there is no dominant narrative to inform policy. Consequently, there are differing perspectives of what constitutes appropriate place-based policies (Barca et al, 2012). However, each rejects the neo-liberal analysis and maintains that convergence i.e. the elimination or, more likely, the diminution of spatial inequalities - can be achieved only as a consequence of policy interventions to promote growth in all areas because all areas are deemed to possess unrealised growth and development potential.

Historically in the UK, these place-based policy interventions have focussed upon infrastructure provision and state assistance to 'depressed areas', usually areas of relatively high unemployment. Invariably, infrastructure was associated with roads (e.g. motorways). State assistance was associated with diverse (and changing) types of financial support, incentives and subsidies to firms located in these areas or to provide incentives to firms to re-locate into these areas. Often it was allied to inward investment strategies, designed to attract the branch plants of large, multinational firms. For long, this type of policy intervention typified the Scottish experience (McCrone, 1969).

More contemporary approaches towards place-based policies are associated with several inherent features (Barca et al, 2012: McCann and Ortega-Argiles, 2013: Turok, 2008) viz.:

What is of central importance is the performance of the system as a whole. Removing disparities – or achieving cohesion - therefore, is not the development policy objective. Rather the focus of policy is to maximise the development potential latent within all areas;

The recognition of the salience of history, context and path dependency is equally important. As a consequence, policies are responsive to the different needs of different areas. Given the variety of factors in diverse geographical locations, therefore, there are many possible pathways to development;

Policy builds upon local embedded knowledge, and is generated by means of deliberate and participatory processes which incorporate local and external principals of relevance; and

Policy is enabling, not compensating. Policies are about transforming individual differences into assets which contribute to the whole, shaping the potential of all territories and all the people who live in them.

8.   Conclusions

There is evidence of inequalities across the 45 TTWAs in Scotland for the four indicators of labour market performance examined. However, the results presented in this article are a point in time snapshot of inter-TTWA differences measured for the period April, 2015 – March, 2016. No comment can be made, therefore, as to whether these differences have increased or decreased over time and what progress has been made (or not made) towards achieving the cohesion aspiration identified in the 2007 Scottish Government economic strategy document.

There are notable elements of continuity between that document and the recently published labour market strategy document (Scottish Government, 2016). In the latter, tackling inequalities between regions is identified as one of the 'challenges'. Despite decades of (principally Westminster inspired and directed) policy interventions, spatial imbalance, manifest, for example in inequalities in employment rates, inactivity rates and qualification levels, is a persistent feature of the labour market in Scotland. In the labour market strategy document, 'cohesion' remains one of the targets to be used to monitor progress towards realising the vision of a strong labour market that drives 'inclusive, sustainable economic growth'. The labour market strategy document, therefore, is not 'space-blind'. It does acknowledge that "it is essential that our national labour market strategy takes account of regional and local variations" (Scottish Government, 2016, p. 34). That said, there is little by the way of detail about how this recognition of the need to 'take account' of these existing spatial differences is to be addressed.

Successive SNP administrations have focused upon aggregate (i.e. national) indicators of labour market performance, partly to benchmark Scottish performance against other comparable countries and partly to compare and contrast Scottish performance with what is happening elsewhere in the UK. As a consequence, the economic geography of the country, with its manifold spatial inequalities, has tended to be ignored. The spatial dimension, however, has been an important feature in both the UK national referendum on the EU and the presidential election in the USA. Moreover, 'inequalities' – imagined, perceived and real – have been forwarded as important factors part explaining this spatial dimension. Consequently, it may be politically expedient and economically advantageous for the Scottish Government now to re-focus its policy agenda and re-design its governance structures. For example, it should make cohesion a policy objective rather than an aspirational target; and it should design a multi-level governance framework to produce more place-sensitive policies and procedures which mobilise local actors, assets and institutions in the process of economic development.

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