

## THE FUTURE OF LOCAL UNEMPLOYMENT STATISTICS: THE CASE FOR REPLACING TTWAs

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The main geographical unit for official unemployment rates below regional level is the Travel-to-Work Area. TTWAs sub-divide Britain into a single set of mutually exclusive areas. Each is supposed to constitute a fairly self-contained labour market, i.e. most of the workforce living and working within the same area. The definition of these areas is currently based on commuting data from the 1981 Census.

TTWAs are intended to provide a uniform, unbiased method of reporting unemployment differences across the country. They are officially regarded as the smallest areas for which valid unemployment rates can be quoted, and for which meaningful economic comparisons can be made (Coombes et al. 1997).

Consequently, they are used as building blocks for defining assisted areas under UK and European spatial policies. They are also key spatial units for the evaluation of urban regeneration and regional development projects, and for the identification of local labour markets for research purposes. Indeed, their full significance is not widely appreciated.

The Office for National Statistics (ONS) is currently undertaking a review of unemployment statistics to see whether the requirements of users such as local authorities and TECs/LECs are being met. (1) One option is to update the TTWA boundaries using the 1991 Census to reflect recent changes in commuting patterns. Another option is to replace TTWAs with a reporting system based on smaller or different areas. This is a vital decision for economic researchers and policy-makers.

### The Arguments for TTWAs

Advocates of the TTWA system claim several merits for it. First, it is argued that TTWAs provide a statistical method for defining spatial units which is reasonably consistent across the country. Boundaries reflecting political or administrative considerations have little influence. The single central system for reporting unemployment rates reduces local attempts to manipulate these high profile statistics and avoids unnecessary disputes.

Second, each TTWA is said to be an approximation to

a distinct local labour market, enabling conditions in different local economies to be compared, like with like. This is important for several reasons, including the objective definition of priority areas for regional policy.

Third, TTWAs are said to provide a useful geography for labour market analysis because they identify localised commuting clusters and the important links between people's workplace and residence. The TTWA boundaries at least need to be revised to reflect increases in average commuting distances since 1981 as a result of suburbanisation, rising car ownership, improvements in the road network and the decline of traditional industries, such as mining, which overwhelmingly employed people living nearby (Coombes et al. 1997).

### The Case Against TTWAs

These supposed advantages are open to challenge. In brief:

\* TTWAs do not provide a balanced description of spatial differences in unemployment. They conceal concentrations of high unemployment in the major employment centres within average rates for large areas, but provide much more detailed coverage of some small town and rural areas with relatively few employment problems.

\* TTWAs misrepresent labour markets, emphasising one aspect - self-containment - at the expense of the other essential feature, internal integration.

\* TTWAs focus on the 'commuting sheds' of employment centres, which are mainly defined by white collar workers' movements, rather than the 'employment fields', or commuting ranges, of the blue collar workers who are most likely to be unemployed. They therefore provide a poor indication of the commuting patterns most relevant to unemployment.

These features make TTWAs unsuited to the purpose of defining priority areas for urban and regional policy. In addition, TTWAs have a further major defect which has not been widely appreciated:-

\* The method used to estimate unemployment rates for TTWAs creates large errors where there is significant net commuting across the area boundary. Unemployment is underestimated in areas with net in-commuting (conurbations and employment centres) and overestimated in areas with net out-commuting (rural and semi-rural dormitory areas).

These data errors, and the averaging out of unemployment rates across wide areas, also make TTWA data unsuitable for use in economic research, although many users are probably unaware of their defects.

Taken together, these problems create doubts about the fundamental validity and continued existence of the system. Although there have previously been criticisms of the TTWA system (e.g. Ball 1980), there does not seem to have been any previous evaluation considering all of these aspects. This article elaborates these points and illustrates their significance with evidence from Scotland.

### Origins

Some of the problems reflect the distant origins and contradictory purposes of TTWAs. They originated in the 1950s from a need for regular statistics on unemployment rates below regional level. The only way these could be produced at the time was by combining two different data sources: the number of people unemployed (obtained from the claimant count as recorded by Employment Exchange area) was divided by the size of the labour force (obtained from workplace records of people employed plus the unemployed). The same basic hybrid method is still used today.

TTWAs were devised purely to provide a set of areas for which this hybrid method would work reasonably well. Their boundaries were therefore driven by statistical considerations (i.e. the need for a fair degree of self-containment), rather than policy concerns or efforts to understand the workings of the labour market. Local authority boundaries were not used because many of them were very small and irregular at that time and because in its origins the system was an internal Department of Employment resource which naturally used Employment Exchange areas as building blocks.

### Self-Containment Versus Internal Cohesion

The emphasis on self-containment has been at the expense of the internal cohesion and strength of interactions within designated areas. This vital property of local labour markets has been consistently downplayed. Although the need for internal cohesion was understood at least by some (Goodman 1960), the record shows that as the Department of Employment

formalised the system during the 1960s, it was increasingly ignored in favour of self-containment (Smart 1974). Over time, computers have facilitated increasingly sophisticated techniques for devising boundaries which maximise self-containment, but these have all been refinements of the basis algorithm laid down in the 1960s. There has been little or no reconsideration of the theoretical basis of the system, nor any attempt to incorporate a requirement relating to internal cohesion.

Maintaining the principle of self-containment has become more difficult over time for the authors of TTWAs because of longer distance commuting by a minority group of car-borne white-collar workers. The effect has been progressively to reduce the number of TTWAs from 642 in 1960 to 322 in 1984, making them ever larger and less useful. A simple updating using the 1991 Census would lead to a further loss of up to a fifth of existing TTWAs (Coombes et al. 1997).

Consequently, there are already many large TTWAs which are weakly integrated in labour market terms. Their boundaries are best described in the terminology of Vance (1960), as 'labour sheds' (on the analogy of 'watersheds'). They represent the area from which the labour supply of a given employment centre is drawn, rather than the area over which the residents of a given community range to find jobs (their "employment field"). Vance showed in a detailed historical study of Natick, Massachusetts, that while labour sheds and employment fields both change over time with changes in transport technology, the latter are usually smaller than the former. This is certainly true today of a city like Glasgow, which has a very large labour shed (with well over 40% of its jobs being held by in-commuters) but a much more restricted employment field (with only 16% of its workforce commuting out). Employment fields for individual areas such as Greater Easterhouse or Drumchapel are even smaller (Glasgow Regeneration Alliance 1994). Consequently a shed-based system such as TTWAs misrepresents most commuting patterns, which are generally very localised. In 1991 nearly half (44%) of men commuted less than 5 kms, 53% of full-time women and 70% of part-time women (Coombes et al. 1997). Yet the average radius of many TTWAs is over 10 kms and for some areas it is over 30 kms. Coombes et al. note that if TTWAs were defined in terms of manual workers' commuting patterns, there would be substantially more of them.

### Concealing Local Concentrations of Unemployment

TTWAs for the major cities tend to be relatively large

geographically, so they contain a very sizable share of the national workforce (Figure 1). The size distribution of the 60 Scottish TTWAs is so skewed that 42 of them each have less than 1% of the Scottish workforce while the largest three account for nearly half (47%). The largest TTWAs conceal enormous diversity of labour market conditions and processes within them, because they incorporate many of the wealthiest and poorest areas in the country.

They also reveal none of the differences between socio-economic groups such as car-borne commuters and public transport users, blue- and white-collar workers, men and women, and full- and part-time workers. Many of these have widened over the last two decades as a result of growing job market fragmentation and social polarisation.

Severe concentrations of unemployment in the inner cities and peripheral estates are obscured by averaging out unemployment over wide areas including neighbouring towns and prosperous suburbs. The important contemporary phenomena of urban industrial decentralisation, selective outmigration and debates about environmental sustainability and greenfield versus brownfield development are concealed in the process. Proper analysis, understanding and policy responses are all impaired as a result.

The TTWA for Glasgow, for instance, encompasses the prosperous areas of Eastwood, Bearsden, Milngavie, Strathkelvin, Paisley, Cumbernauld and East Kilbride. A recent study of the Geography of Poverty and Wealth (Green 1994) showed that the former local authority Districts of Bearsden & Milngavie and Eastwood are among the wealthiest localities in Britain in several respects, whereas Glasgow is one of the poorest.

The Glasgow TTWA reveals nothing of the stark contrasts between these prosperous outlying areas and sizable localities with very high unemployment within the City of Glasgow, such as the East End, Springburn, Easterhouse and Drumchapel. The estimates of claimant unemployment rates for individual communities produced by the former Strathclyde Regional Council show that they ranged from only 4% in Gryffe (Renfrewshire) to over 20% in five areas of Glasgow (City Centre, Drumchapel, Springburn/Balornock, Easterhouse/ Garthamlock and Bridgeton/Dalmarnock) in January 1996. None of this variation, by a factor of more than five over a distance of more than 13 miles, is captured by the TTWA unemployment rate. These areas are not small; their labour forces range from 3,580 (City Centre) to 11,113 (Springburn/Balornock).

As a result of this aggregation and concealment, economic development efforts are dissipated and

attention is diverted from localities where jobs are needed most.

In some cases the concealment problem affects whole districts. The Glasgow City Council area with a population of 685,000 had an unemployment rate of 16.3% in Winter 1995/96, double the GB average of 8.2% and higher than for any major city outside London. However, the rate for the Glasgow TTWA was only 9.0% at the time.(2) Other districts with high unemployment concealed within large TTWAs are Motherwell, Monklands and Clydebank.

Comparison of a map of unemployment rates by local authority district as recorded by the Census in April 1991 with a map of the TTWA unemployment rates at the same date shows how the TTWA system makes the problems of the Clyde valley virtually disappear (Figures 2 and 3). At the same time, it gives greater prominence to other areas as unemployment blackspots which have a comparatively small total number of claimant unemployed. For instance, Cumnock and Sanquhar TTWA had only 2,748 unemployed at April 1991, compared with Glasgow's 55,165 and Motherwell's 9,861.

Disturbingly, the differences between the TTWA map and the Census map of unemployment rates are due not only to aggregation effects but also to outright - and serious - errors in the TTWA rates.

### **Errors in Unemployment Estimates**

It has traditionally been assumed that 'self-containment' will ensure that there is a balance between commuting inflows and outflows in TTWAs. This is not the case since levels of self-containment never reach 100% (they are below 75% in some cases). Most areas naturally have an imbalance in commuting flows because they perform different economic and social functions. Yet this creates systematic errors in unemployment estimates, depending on the scale of imbalance.

TTWAs with net out-commuting, such as rural areas acting as a dormitory for proximate cities, have their unemployment overestimated. In contrast, major employment centres tend to have their unemployment underestimated. These errors have been found to be as much as 30% - the estimated error for the Peebles TTWA in 1991 (Webster, 1997). Figure 4 shows the geographical pattern of estimated errors for 1981; it should be borne in mind that the evidence suggests that increased commuting imbalances will have increased the size of many of the worst errors since then. Even for 1981, TTWA unemployment rates would have been overestimated by as much as 20% in Crieff, 18% in Wick, 17% in Blairgowrie & Pitlochry, 17% in Buckie, 16% in Bathgate and 14% in Huntly. Conversely, unemployment would have been

systematically underestimated for the cities of Edinburgh (9% underestimate), Glasgow (8%), Aberdeen (6%) and Dundee (4%), and for smaller employment centres such as Thurso, Inverness, Stirling, Perth and Dumfries.

This problem was actually noticed a decade ago and some evidence given that certain areas had been incorrectly assigned to particular categories of Assisted Area status as a result (Green & Coombes 1985).

Errors are also created by the treatment of armed forces personnel. In calculating the 'workforce' for each TTWA, they are not attributed to the areas in which they actually work, but are shared out between all the TTWAs *pro rata* according to the size of their workforces. For the minority of TTWAs which have such personnel, this procedure results in an overestimation of the unemployment rate. The outstanding example of this problem in Scotland is the Forres TTWA, which has the smallest labour force of all, but a military base (RAF Kinloss). Forres's unemployment rate is also overestimated because out-commuting exceeds in-commuting. The result of these two factors was to give Forres, with its 542 claimants, the third highest unemployment rate among TTWAs in Scotland in January 1996. This was spurious, as anyone who has visited this lovely area will know.

Appropriate corrections for these errors have never been made to the official TTWA unemployment figures, nor has any 'health warning' been issued to their users.

It is apparent that urban areas are penalised by the TTWA system on at least three counts. Their TTWAs are particularly large and diverse so average unemployment rates mean little; errors understate their problems relative to surrounding dormitory areas; and localised concentrations are concealed.

The bias has been compounded by the recent publication by ONS of unemployment rates for unitary authorities using the same hybrid method. Use of this method for areas that have large imbalances between in- and out-commuting has resulted in extreme overestimates for commuter areas of over 100% and underestimates for employment cores of over 30% (Webster, 1997).

### Defining Priority Areas

TTWAs are also unsuitable for defining priority areas for policy, since the feasible travel-to-work distances of manual workers, who are most prone to unemployment, are much shorter than average. They rely more on public transport, cannot afford to spend much on job searching and travel costs, and face

stiffer competition for jobs the further away they look. Definition of priority area boundaries should depend upon examination of the actual and potential travel-to-work patterns of low skilled residents of disadvantaged areas, drawn from Census data or other sources such as transportation surveys, as well as details of planned public investment projects. This would be more satisfactory than the current assumption that new jobs anywhere within the TTWA will benefit the poorest areas and residents.

### TTWA Data in Economic Research

TTWA unemployment rates are often used in economic research, as a measure of local labour supply-demand imbalance or for other purposes. It seems to have been generally assumed that although a degree of approximation is involved, these data are quite good enough. Our examination of the size of the errors for the Scottish TTWAs leads us to challenge this assumption; we doubt that these data would be much used if researchers were fully aware of the errors. A further problem is the elimination of so much of the range of variation in unemployment by including so much of the labour force in a few large TTWAs (Figure 1). This loss of variation would of course have to be accepted if it were really true that each TTWA represents an integrated local labour market; it would then indeed be meaningless to subdivide it. But we have already shown that this view is unsustainable.

### Conclusions and Implications

There is no such thing as a single set of mutually-exclusive and self-contained labour market areas. TTWAs are arguably trying to serve too many purposes at once, which means doing none of them well. It is becoming increasingly apparent that attempts to define them require far-reaching compromises which often result in large, unrealistic areas that are not very useful for policy or analytical purposes. However, improvements in the Labour Force Survey now seem to offer the prospect of avoiding the large self-contained areas required by the hybrid method, as indeed is indicated by the ONS in its consultation paper.

An obvious requirement expressed by many users is for unemployment data relating to smaller areas, and for at least two spatial scales:-

\* One might be a regular set of unemployment rates for local authority districts, covering the whole country. Local authority areas are larger and less irregular than such areas were before the 1974 reforms (1964 in London).

\* This set of rates would still have the drawback of concealing concentrations of

unemployment, especially within the larger local authority areas, such as Highland or Fife. This problem could be met directly, by producing rates specifically for localised concentrations of unemployment ('unemployment highspots'). This would require a standardised definition and method of analysis, specifying minimum thresholds for both the size of areas and their unemployment rate. These data would be primarily intended to assist in defining priority areas and targeting policy interventions. It would therefore not be necessary to produce them on a monthly basis; annual publication would probably be quite sufficient.

#### Notes

1. Details of the Review of Unemployment Statistics for Travel-to-Work Areas and Smaller Areas in the UK are available from ONS, B.4.12, 1 Drummond Gate, London SW1V 2QQ, tel. 0171-533 6113.
2. The estimate for Glasgow City is from the Labour Force Survey and the TTWA figure from the claimant count, but the GB figure was the same for both sources at the time. See Webster (1997).

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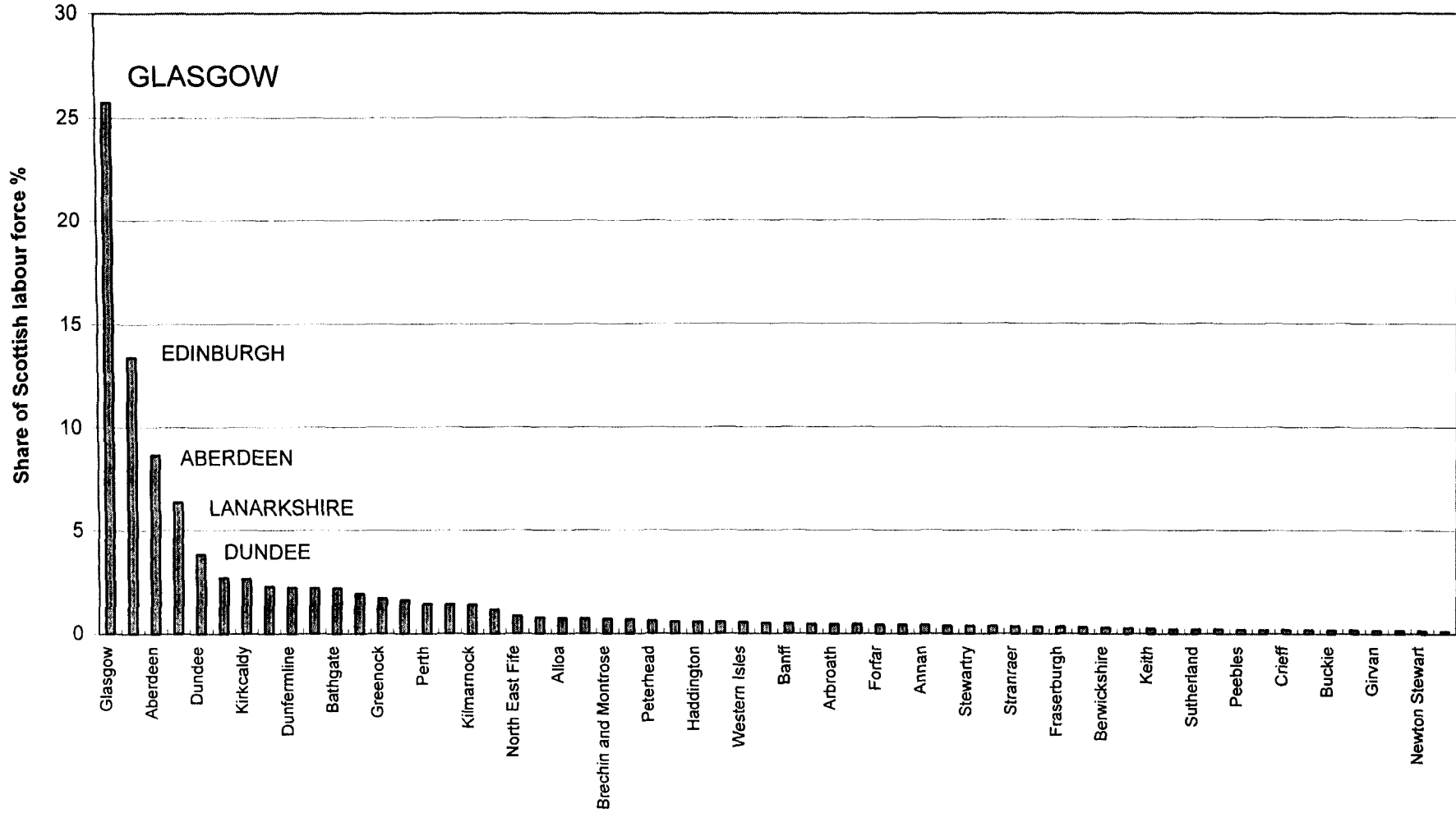
FIGURE 1 = Distribution of Scottish TTWAs by size of workforce

FIGURE 2 = Unemployment rates for Scottish TTWAs, April 1991

FIGURE 3 = Census unemployment rates for Scottish local authority districts, April 1991

FIGURE 4 = Estimated percentage errors for Scottish 1981-based TTWA unemployment rates as at April 1981

**FIGURE 1: SCOTTISH TTWAs: SHARE OF SCOTTISH WORKFORCE, January 1996**



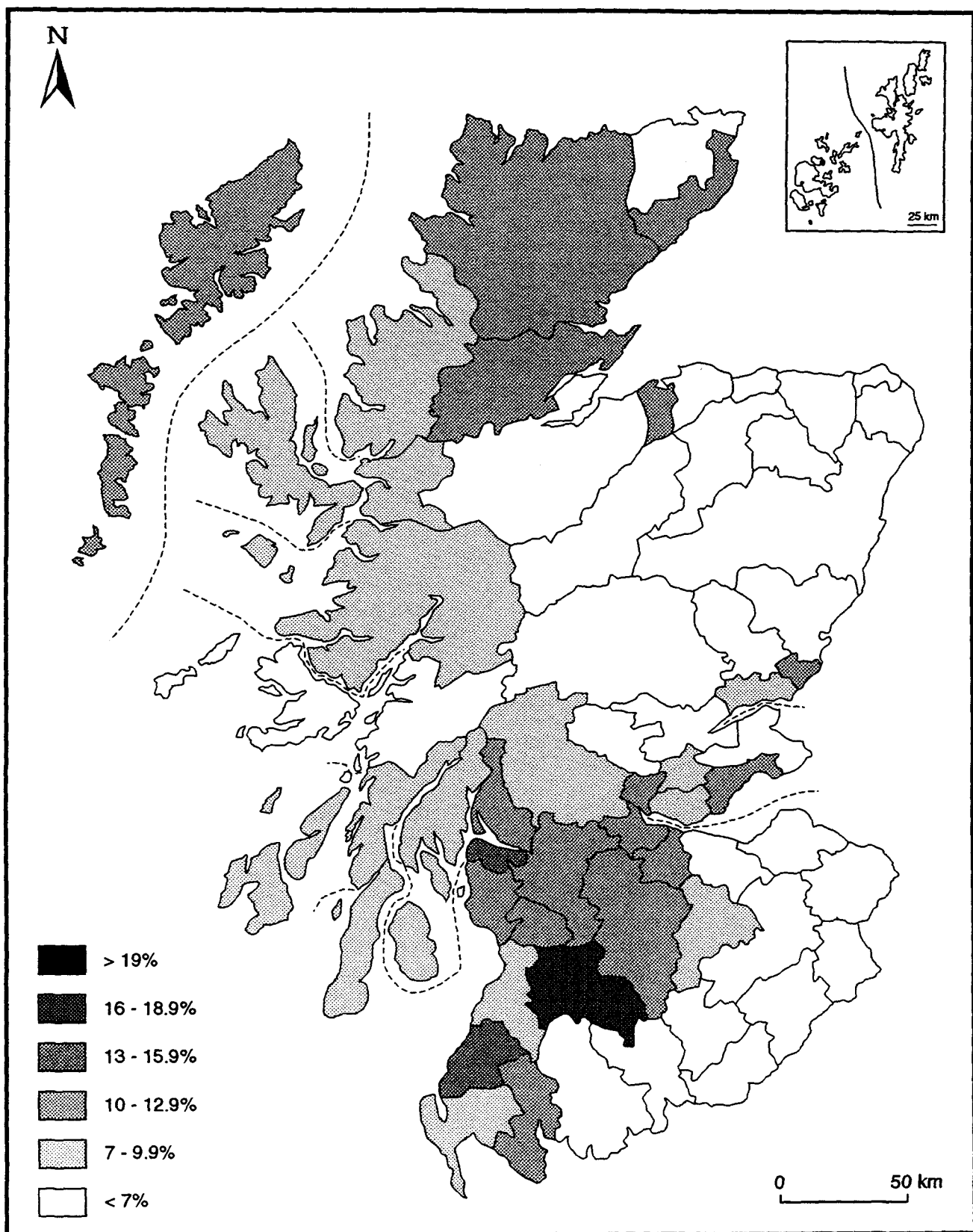


Figure 2 Unemployment Rates for Scottish TTWAs, April 1991

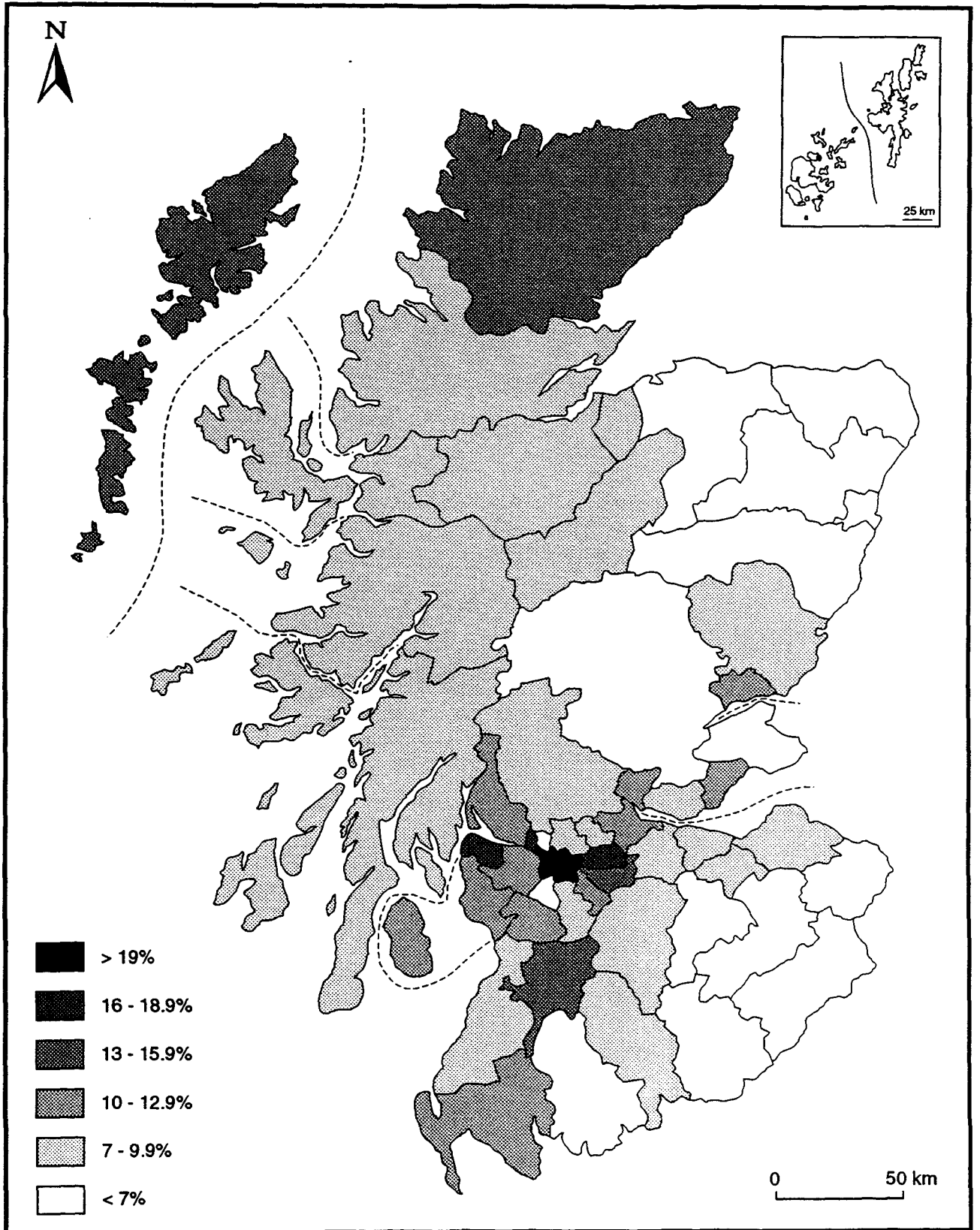


Figure 3 CENSUS Unemployment Rates for Local Authorities 1991



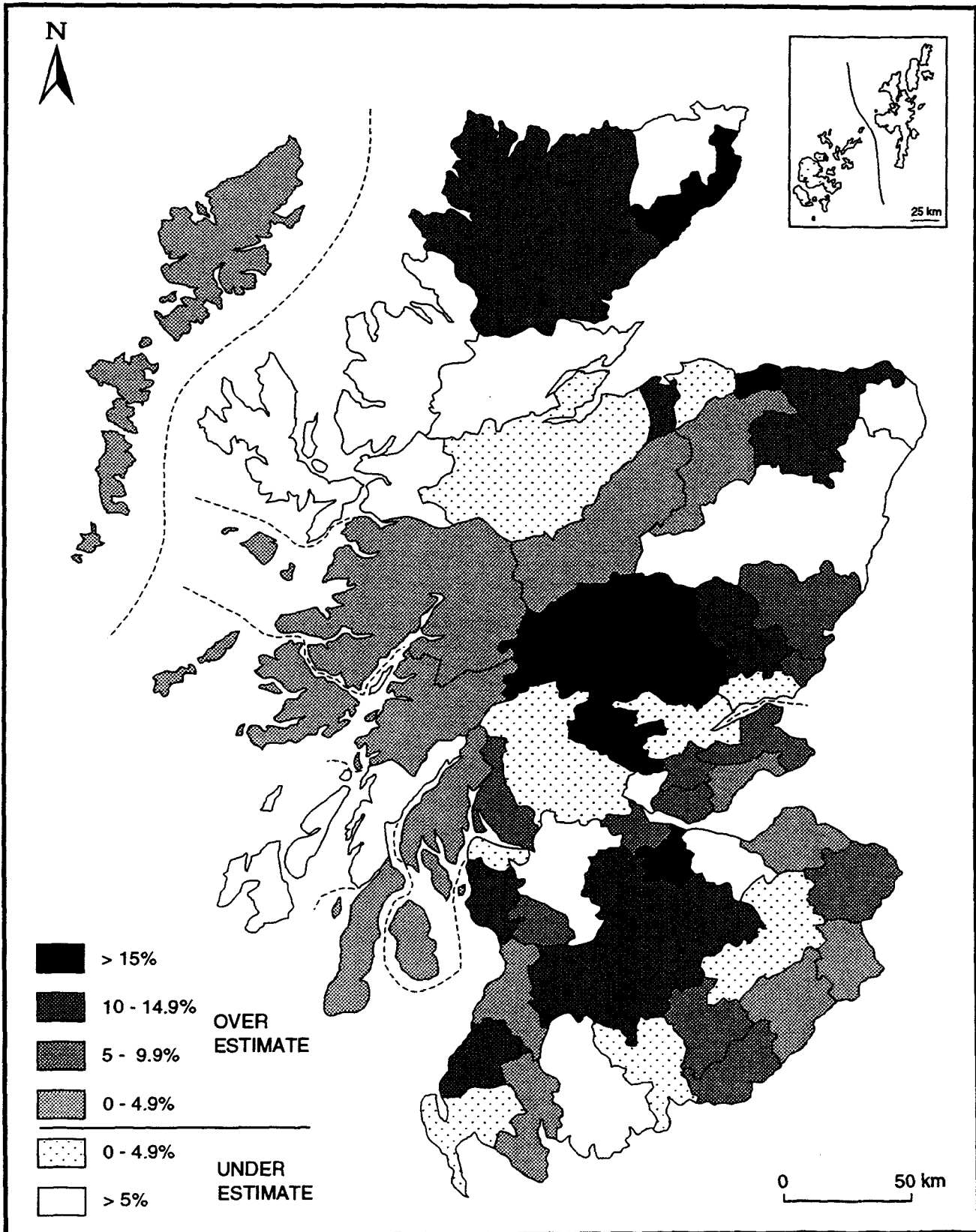


Figure 4 Estimated percentage errors for Scottish 1981 - based TTWA Unemployment Rates at April 1988

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