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## **TRAVEL TO WORK AREAS (TTWAs) AND LOCAL UNEMPLOYMENT STATISTICS: A GLASGOW VIEW**

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Mr Michael Portillo's decision, when Secretary of State for Employment in 1995, not to sanction dissemination of a revised set of TTWAs based on 1991 Census data, will, it is hoped, prove to be a landmark in the development of British official statistics. It has created a vital opportunity to move towards a new system of labour market statistics reflecting current economic and social realities and contemporary technology.

TTWAs are a survival from a past era when social surveys were less comprehensive and information technology was more primitive than today. They bear no relationship to the needs of present-day public administration. They do not provide a useful, or even accurate, description of geographical variations in unemployment; or a useful description of the commuting patterns of the kind of people likely to be unemployed; or a valid delineation of local labour markets. Nor do they contribute usefully to the process of defining areas for special intervention such as UK Assisted Areas or EU Objective Areas. In this paper, these points will be explained and illustrated in relation to Glasgow and Scotland.

The structure of the paper is as follows. First of all, the origins of the system will be briefly considered. This is important because in the development of TTWAs, some questionable assumptions have been made from the start and never re-examined, while the original goals have come to be confused by other, often conflicting, considerations. The key doctrine that unemployment rate reporting areas should be "self-contained" is then examined. This lies at the root of most of the problems of the present system. Finally, in this introductory section, the nature and defects of the so-called "Glasgow TTWA" - the fifth largest in Britain - are briefly outlined.

The paper moves on to consider how the TTWA system misrepresents the geographical pattern of unemployment, by concealing concentrations of high unemployment, and producing inaccurate unemployment rates which systematically overestimate unemployment in rural or semi-rural commuter dormitory areas and underestimate it in urban areas. The new Office for National Statistics (ONS) rates for unitary authorities are considered in passing: using the same methodology, they are biased in the same way but to a much more extreme degree.

TTWAs purport to represent labour markets but actually their boundaries merely constitute a certain type of commuting "shed" (analogous to "watershed"). The resulting misrepresentation of commuting patterns and labour market areas is considered in the next section.

It is then shown how these two types of misrepresentation - of unemployment and of labour markets - have combined to obscure and misrepresent the development and nature of Britain's unemployment problem. In the light of this analysis, the unsuitability of TTWAs for their present role in defining priority areas is explained.

Finally, the paper outlines proposals for a new system, based on a clear distinction between the various purposes which TTWAs have attempted to serve and an acknowledgement that no

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<sup>1</sup> A separate official Glasgow City Council response has been submitted to the ONS Consultation. The present paper is consistent with it but does not itself necessarily represent Council policy.

single set of areas can meet all the requirements.

## **THE ORIGINS OF TTWAs**

In unpublished form, TTWAs date from the Coronation year of 1953 (Dept of Employment & Productivity 1968, p.554). Publication dates from 1960 (Ministry of Labour 1960, p.133). For the reasons associated with the contemporaneous Local Employment Act 1960, there was a newly perceived need for regular statistics on unemployment rates at below Regional level. In order to obtain unemployment rates (as opposed to simple unemployment counts), it is necessary to know the size of the labour force. But at that time, no data were available on this except for Census years. Therefore a proxy had to be used. The number of unemployed claimants registered at Employment Exchanges within an area (U) was added to the number of persons employed at workplaces within the area (E), known from counts of National Insurance cards, and the total (U + E) was called the "workforce" (W). The unemployment rate was then estimated as  $U/W$ . Essentially the same method is still used today.

This "workforce" method breaks down where there is significant net commuting across the area boundary. Areas with net in-commuting will have their unemployment rate underestimated, because W will be larger than the actually resident labour force by the amount of the net in-commuting. Areas with net out-commuting will similarly have their unemployment rate overestimated.

TTWAs were invented purely in order to provide a set of areas for which the "workforce" method would work reasonably well. They were not chosen as areas for which anyone wanted to know the unemployment rate, but as a methodological compromise. They met a generally recognised need for some data on unemployment rates for areas smaller than standard Regions but have never met it well.

Nor were TTWA boundaries chosen in order to provide information on travel to work patterns or labour markets. Indeed when TTWAs were introduced in 1960, they were not even called "Travel-to-Work Areas" but were simply seen as adjusted boundaries for "principal towns and Development Districts". Most were simply Employment Exchange areas which were felt to be sufficiently "self-contained", and the remainder were the smallest possible groupings of Employment Exchange areas. It was not suggested that the areas in any way constituted labour markets. This idea did not appear until 1968 (DEP 1968, p.554).

## **THE DOMINANCE OF "SELF-CONTAINMENT" IN THE DEFINITION OF TTWAs**

Although TTWAs have come to be used to attempt to describe commuting patterns and delineate local labour markets, their specific origins were such that few people have ever given systematic consideration to the criteria which would be required for them to serve these uses. By chance, these were set out also in 1960 in an excellent paper by J F Goodman (Goodman 1960). There are actually not one but two key criteria for defining commuting or labour market areas:-

- self-containment, i.e. the extent of flows across the boundary
- internal cohesiveness or integration, i.e. the volume of intra-area movement. If an area does not have intensive interaction within it, then it is not a market.

These two criteria are mutually conflicting. Other things being equal, the more self-contained an area is, the less internally integrated it will be. Because the primary and decisive purpose of TTWAs has always been the production of local unemployment statistics, their definition has emphasised self-containment at the expense of integration. This emphasis emerges clearly in Smart's insider's account (1974, pp.261, 278) of the key 1968 revision, which represented the first systematic definition of TTWAs. Although Smart was aware of and endorsed Goodman's

twin criteria, only self-containment was given operational effect in the 1968 TTWA definition procedure, which formed the essential basis for later revisions.

In defining the present (1981-based) TTWAs:-

1. TTWAs were built up from employment "cores", i.e. places to which a lot of people commute, or from highly "self-contained" areas, but not from areas from which a lot of people commute.
2. The formula used to measure the strength of commuting links averaged out the commuting flows in each direction.
3. In order for two areas to be joined together in the same TTWA, there was effectively no minimum required commuting flow in one direction if there was a sufficient flow in the other direction.
4. Every place in the UK had to be allocated to a TTWA even if it had no significant links with anywhere else.
5. No area with fewer than 3,500 employed workers could be a separate TTWA (Department of Employment 1984).

Points 2 to 5 mean that areas can be joined together in the same TTWA when commuting flows between them are negligible in one or both directions.

Point 1 means that the system gives most weight to the commuting patterns of white collar workers, who account for most of the longer-distance commuting to employment "cores". For most of the purposes for which TTWAs are used, it would be more appropriate to build up TTWAs from concentrations of high unemployment. A fundamental distinction needs to be made between the "employment field" of a residential area, i.e. the places to which residents commute, and the "labour shed" of an employment centre. This is the terminology of Vance (1960), who 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.

Most commuting has always been very local. In Scotland in 1991, two-thirds of employed people worked within 3 miles of home, and almost 9 out of 10 within 6 miles. Commuting by the kind of people who are likely to be unemployed is even more restricted. Most unemployment is experienced by blue collar workers and by the least skilled among them. This group has travel-to-work distances which are considerably shorter than the average (1), and is also much more likely to be dependent on public transport, which tends to allow only certain types of journey and to rule out others of equal or shorter length (Ball 1980, p.132).

Goodman's warning (p.185) that "The danger of seeking external perfection (of labour market areas) at the expense of losing the essentially *local* character of the market must be guarded against" was timely but unfortunately has been overlooked. This has had two consequences:-

- The striving for self-containment has produced many over-large TTWAs which are irrelevant for the purpose of describing geographical variations in unemployment either at a point in time or over time.
- These over-large TTWAs are extremely unintegrated in labour market terms and are therefore unsuitable for the other purposes to which they have been put - describing commuting patterns, acting as "approximations to local labour markets", and defining priority areas.

As time has gone on, and longer distance commuting by a minority of mainly male white collar workers has grown, it has become increasingly difficult to achieve the self-containment which is

the TTWAs' rationale. This problem was already evident in 1968, when the number of areas was cut from 642 to 466; the number then fell to 445 in 1970, 380 in 1978 and 322 in 1984. In spite of this halving of the number of TTWAs (and also, in effect, of their usefulness), one fifth (19%) of the current TTWAs had less than 75% of their residents working within them in 1981, and almost as many (17%) had less than 80% of their workforce residing within them (Coombes et al. 1986, p.948). These proportions will since have risen, as indeed is confirmed by Coombes et al. (1997, p.11 col.2), who indicate that if the TTWA system were to be continued on the basis of 1991 data, the number of TTWAs would fall by a further fifth or more.

The systematically lower level of self-containment on the "residents working" than on the "workers residing" measure reflects the skewing of the system towards rural or semi-rural commuter dormitory areas. This has introduced serious bias, as will shortly be explained. Unfortunately, this does not seem to have been realised: Howson (1979, p.46.6) wrote as if the two self-containment measures were interchangeable.

## **THE GLASGOW TTWA**

The Glasgow TTWA is not poorly self-contained. In 1981, 94.8% of its employed residents worked within it and 89.3% of its workforce resided within it. But this is because it is a prime example of a TTWA which is so large as to be valueless.

- By population, it is the largest in Scotland and the fifth largest in Great Britain (after London, Birmingham, Manchester and Heathrow). At January 1996, it contained over a quarter (25.8%) of the Scottish workforce. So skewed is the size distribution of the 60 Scottish TTWAs (**FIGURE 1**) that 42 of them each have less than 1% of the Scottish workforce while the largest 4 (Glasgow, Edinburgh, Aberdeen and Lanarkshire) account for 54%. The TTWA system therefore provides virtually no information about unemployment among over half of the workforce.
- By geographical area, the Glasgow TTWA is the 30th largest in Great Britain. It includes 3 whole unitary local authority areas and parts of 5 more (**FIGURE 2**). Its boundary cuts across every other boundary which is of practical concern. In the words of the April 1960 Ministry of Labour Gazette, it is "not comparable with the locality of similar name". Measuring some 25 miles from north to south and 20 miles from east to west, it is vastly larger than the actual commuting range of almost everyone in it.

The (relatively) high degree of accuracy of unemployment statistics for the Glasgow TTWA based on the "workforce" method has been bought at the cost of irrelevance in those unemployment statistics and misrepresentation of its varied labour markets. As we shall see, the unemployment rate estimate for the Glasgow TTWA would in fact have been out by 8% even in 1981, before the present boundary came into use, and will now be worse. Even if it were accurate, the unemployment rate for the TTWA would be of no interest to the City Council or, so far as is known, to any of the other local authorities wholly or partly included within it.

Even the Glasgow TTWA's apparent self-containment is deceptive. In the case of such a large TTWA, the boundary often misrepresents the commuting patterns of a settlement near its edge. This applies for instance to the former Cumbernauld & Kilsyth District (mainly corresponding to Cumbernauld New Town), which is within the Glasgow TTWA but in 1991 was "exporting" 2730 residents to work in places outside the TTWA compared with only 1580 to places within the TTWA (2).

## **MISREPRESENTATION OF THE GEOGRAPHICAL PATTERN OF UNEMPLOYMENT**

An area as large as the Glasgow TTWA is extremely diverse in its economic and social characteristics. A recent study of the Geography of Poverty and Wealth (Green 1994) showed that the former Districts of Bearsden & Milngavie and Eastwood were respectively the 3rd and

4th wealthiest out of all 459 lower-tier local authority districts in Britain (after the City of London and Richmond-upon-Thames), in terms of the proportion of households in social classes 1 and 2. The same study showed that the city of Glasgow had the most concentrated poverty in Britain on no less than 5 different measures.

Not surprisingly therefore the Glasgow TTWA includes within it areas with a very wide range of unemployment rates. The valuable estimates of local claimant unemployment rates produced by the former Strathclyde Regional Council show that at January 1996, unemployment at the level of individual communities ranged from only 4% in Gryffe (Renfrewshire) to over 20% in 5 areas of Glasgow (City Centre, Drumchapel, Springburn/Balornock, Easterhouse/Garthamlock and Bridgeton/Dalmarnock). None of this variation, by a factor of more than 5 over a distance of more than 13 miles, is captured by the TTWA unemployment rate. None of these Glasgow areas is small: their labour forces range from 3,580 (City Centre) to 11,113 (Springburn/Balornock).

Use of the TTWA boundary causes one of the largest concentrations of high unemployment in Britain to disappear almost entirely from view. **FIGURES 3 and 4** show a comparison for April 1991 of the geographical pattern of unemployment in Scotland as shown by the Dept of Employment's TTWA estimates and by the Census. Over much of Scotland, the picture is broadly similar. But the outstanding exception is the Clyde Valley. In particular, the huge concentration of unemployment in the city of Glasgow, which the Census showed had by far the highest unemployment rate (19.4%) of any Scottish District, disappears in the TTWA map. This was 55,165 unemployed people. Disappearing also are the lesser but still heavy concentrations in Monklands (16.2%, 7,280 unemployed people), Motherwell (15.8%, 9,861 unemployed people), and Clydebank (14.7%, 2,938 unemployed people). The problems of these four Districts disappear into the modest average TTWA rates at that date of 11.8% for Lanarkshire and 10.5% for Glasgow. Only Greenock TTWA (13.4% compared to the Inverclyde District Census figure of 15.5%, 6,161 unemployed people) remains to show that anything was amiss in the Clyde Valley. Instead, the TTWA picture is dominated by Cumnock & Sanquhar (16.9%). The Census showed that Cumnock & Doon Valley District had 16.5% unemployment, very close to the TTWA figure, but the number of unemployed people in the area was only 3,037 (District) or 2,748 (TTWA).

This problem continues. The EU Labour Force Survey showed that at Winter 1995/96, the former Glasgow City District (the present City area plus Rutherglen and Cambuslang), with a population of about 685,000, had an unemployment rate of 16.3%, double the GB average of 8.2%. This was higher than for any major city outside London. But the Glasgow TTWA had a claimant unemployment rate in January 1996 of only 9.0%, barely above the GB average of 8.2%.

Such misrepresentation is bound to have practical consequences. The TTWA system appears to be one of the main reasons why, in the City Council's view, unemployment in Glasgow does not receive anything like the attention from central government that it merits.

Apart from the skewed size distribution, there are at least two other sources of significant misrepresentation of geographical patterns of unemployment within the TTWA system.

### **Self-containment v. Balance in Commuting Flows**

Discussion on TTWAs has generally assumed that "self-containment" will ensure that there is a balance between commuting inflows and outflows. This is not the case, unless self-containment really is 100%, a situation which does not occur in reality. This point can be illustrated by the case of Peebles TTWA, identical to the former Tweeddale District.

In 1991 Peebles/Tweeddale had 6.6% unemployment according to the Census but 7.5% according to the TTWA figures. This overestimation by the TTWA method is worse than it appears because true claimant unemployment rates are always *lower* (in 1991, by about 17%)

than Census rates. The reason for the discrepancy is that although Peebles met the self-containment criteria in 1981, it actually had a considerable imbalance between in-flows and out-flows, which worsened markedly by 1991.

In 1981, 91.4% of Peebles' workforce were resident within it, but only 81.0% of its residents worked within it. Most jobs in an area of this type are in activities such as agriculture, tourism and personal services, which do not pay enough to finance lengthy journeys to work. Therefore the proportion of jobs in Peebles held by residents fell only fractionally by 1991, to 90.9%. But the 38% growth in upper level professional and managerial jobs in Edinburgh over the decade produced an increase in out-commuting from Peebles, so that the proportion of Peebles residents working in the area fell to 68.4%, below the Dept of Employment's self-containment threshold.

The 1991 Census showed only 450 people working in Tweeddale (Peebles TTWA) but resident outside, compared to 2,080 people resident in the area and working outside. This net outflow of 1,630 people - large in relation to the resident employed labour force of 6,590 - means that the "workforce" method was overestimating the claimant unemployment rate by about 30%.

The exact scale of this problem can only be readily estimated for TTWAs which are coterminous with pre-1996 local authorities. There are only 11 of these in Scotland (Western Isles, Orkney, Shetland, Lochaber, Badenoch, Dumbarton, Kilmarnock, Stewartry, Berwickshire, Galashiels and Peebles). **TABLE 1** shows the 1991 position for these TTWAs. Four of them, apart from Peebles, had significantly incorrectly estimated unemployment rates in 1991: Berwickshire (16% overestimate), Stewartry (11% overestimate), Kilmarnock (8% overestimate) and Badenoch (6% overestimate). The size of the overestimates is linearly related to the imbalance in commuting flows (**FIGURE 5**), and this relationship can be used to estimate the size of the errors for all the Scottish TTWAs in 1981, if the 1981-based TTWAs had been in force at that date. The results are shown in **FIGURE 6**.

Even for 1981, TTWA unemployment rates would have been systematically overestimated in commuter dormitory areas. Particularly bad cases are Crieff (20% overestimate), Wick (18% overestimate), Blairgowrie & Pitlochry (17% overestimate), Buckie (17% overestimate), Bathgate (16% overestimate) and Huntly (14% overestimate). Conversely, unemployment rates would have been systematically underestimated for major employment centres such as the four cities of Edinburgh (9% underestimate), Glasgow (8% underestimate), Aberdeen (6% underestimate) and Dundee (4% underestimate), and for lesser but important employment centres such as Thurso, Inverness, Stirling, Perth and Dumfries. The evidence of the 11 TTWAs coterminous with local authorities, together with other evidence on residential decentralisation (Glasgow City Council 1996a, p.16) suggests that this bias will have become much stronger right across Scotland since 1981. The reader will find it instructive to look again at the differences between **FIGURES 3** and **4** in the light of this analysis of the errors in the TTWA rates.

The presence of errors of this type in the unemployment rate estimates for TTWAs was explained by Green and Coombes (1985) but does not appear to be generally known. The *Employment Gazette* and *Labour Market Trends* have discussed the existence of this type of error in general terms but have never carried any warning about particular TTWAs for which the errors are likely to be serious, or any estimates of the errors. Indeed, they have implied that the degree of self-containment achieved in the published TTWAs has been sufficient to remove any reasonable grounds for concern about the errors.

Some may argue that this problem can be dealt with by updating the TTWA boundaries. But, if the "workforce" method were to be retained, this would mean enlarging the TTWAs (for instance by merging Peebles into Edinburgh) and making the unemployment rates even less useful; and the evidence of the 1981 review is that unacceptable bias would still remain. The fundamental point is that areas very rarely do have an equality of commuting flows, because it is in the nature of economic and social life that they should have differentiated functions.

Green & Coombes (1985) proposed that correction factors could be applied to the TTWA unemployment rates to adjust for the errors caused by net in- or out-commuting as recorded in the Census at the base date. But the problem with this procedure is that the correction factors themselves would often become out of date, as would clearly have happened in the case of Peebles between 1981 and 1991. There would be no way of knowing whether the "corrected" unemployment rates were really more correct than the "uncorrected" ones. Coombes et al. (1997, p.12) float the idea of such a correction procedure but say that "considerable statistical reservations at such an approach can be anticipated".

### **Treatment of Armed Forces Personnel**

The other source of misrepresentation of the geographical pattern of unemployment in the TTWAs arises from 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* to the size of their workforces. Most TTWAs have no armed forces personnel. But for the minority which do, this procedure results in an overestimation of the unemployment rate. The outstanding example of this problem in Scotland is the Forres TTWA, whose labour force is the smallest of all but which has a major military base (RAF Kinloss). Forres is also one of the areas whose unemployment rate is overestimated because of an excess of out-commuting over in-commuting. The result of these two factors at January 1996 was to give Forres, which had 542 claimants, the third highest "workforce"-based unemployment rate for any TTWA in Scotland. This however was spurious: the Forres "unemployment blackspot" (**FIGURE 3**) does not exist, as anyone who has visited this lovely area will know.

### **Misrepresentation by the New ONS "Workforce"-based Unemployment Rates for Unitary Authorities**

An urban high unemployment area like Glasgow is trebly penalised by the TTWA system. Its acute and large-scale unemployment disappears into the average rate for a meaningless larger area; even the rate for this larger area is systematically underestimated by comparison with commuter dormitory areas; and attention is drawn away to the supposed problems of spurious unemployment "blackspots".

Sadly, this already severe misrepresentation of the cities' unemployment problem, and of Glasgow's in particular, has been compounded by the publication since April 1996, without any kind of "health warning" to the public, of unemployment rates for unitary local authorities using the "workforce" method. The ONS is well aware that this method cannot be properly used for areas which are not self-contained in commuting terms; this is why TTWAs were invented. The rates now being published have the same biases as the TTWA rates but raise the errors to extreme levels. **FIGURE 7** shows the position for Glasgow, Edinburgh and Aberdeen and their commuting hinterlands (3). Glasgow's claimant unemployment rate is understated by 34%, and the rates for the commuter suburbs of East Renfrewshire (almost identical to the former Eastwood) and East Dunbartonshire are overstated by 124% and 74% respectively. In a gratuitous repetition of the Forres problem, the ONS has created another spurious unemployment "blackspot" in an area - Eastwood - which we have already seen is one of the handful of wealthiest places in Britain. Extreme errors of the same kind are found in the Edinburgh and Aberdeen areas, and no doubt also in the areas of Dundee and other employment centres.

Glasgow City Council has expressed its concern to ONS about these misleading statistics and has asked that their publication should cease immediately. (Glasgow City Council 1996b) (4). They are clearly not of publishable quality.

### **MISREPRESENTATION OF COMMUTING PATTERNS AND OF LABOUR MARKET AREAS**



TTWAs also misrepresent commuting patterns and labour market areas.

As already noted, the great majority of commutes are short. Commuting patterns actually conform to an inverse exponential decay function (or "power" function), in other words the propensity to commute declines very fast with distance (Glasgow City Council 1996a, p.17; Hammond & McCulloch 1978, pp.308-11; Glasgow Regeneration Alliance 1994; Webster 1994). This tends to be concealed from casual view because jobs have a very uneven geographical distribution. This point can be understood by reference to **FIGURES 8** and **9**. They show the 1991 commuting patterns for the Easterhouse/Garthamlock area of Glasgow, which has very high unemployment (20.8% at January 1996).

**FIGURE 8** shows the absolute number of commuters to each other area in the conurbation. There is a wedge-shaped zone stretching into and just beyond the city centre which accounts for almost all journeys to work. The city centre itself is very prominent, because it has such a large number of jobs. Hardly anyone commutes to Coatbridge, Airdrie, New Stevenston, Motherwell, Bellshill, Stonehouse or Hamilton; this is consistent with the TTWA boundary, since these areas are in the Lanarkshire TTWA. What is more interesting is that hardly anyone commutes to Cumbernauld, East Kilbride, Barrhead, Paisley, Renfrew, Clydebank, Bearsden, Campsie or Kirkintilloch, although all of these areas are within the "Glasgow" TTWA. The only area within the Glasgow TTWA but outwith the city boundary which attracts any significant numbers is Moodiesburn/Stepps. This is the closest, on average only 2 miles away.

Underlying this observed pattern is the distance decay function illustrated in **FIGURE 9**. This controls for the differing number of jobs in each area by showing the share of jobs in each area held by Easterhouse/Garthamlock residents. Here it is seen that commuting flows are almost purely dependent on distance, and that significant commuting in relation to the number of jobs available occurs only to areas in the East End of Glasgow and to Moodiesburn/Stepps. The city centre, relatively distant from Easterhouse/Garthamlock, is no longer prominent.

These maps show the position for only one area, but the same pattern is found in every area of the Glasgow conurbation, and elsewhere. Perhaps counter-intuitively, the rate of decay of the distance function is lowest at the city centre and rises towards the edge of the conurbation. In other words the propensity to commute of Easterhouse/Garthamlock residents is in fact relatively high by comparison to that of people in more prosperous areas of the outer conurbation. This is a standard feature of urban commuting patterns (Fotheringham 1984, p.538). It is due not (or at least not significantly) to varying individual commuting propensities but to the fact that the densities of employment and of the transport network decline with distance from the centre, bringing a change in the structure of opportunities.

London's commuting patterns, although scaled up, are very similar to Glasgow's. Commuting ranges are uniformly short, except for a minority of particular types of worker. Coombes et al. (1997, p.10 col.1) state that "an area such as Camden (i.e. the Camden Town area of NW inner London).....clearly falls a long way short of being a separable local economy...few of the area's local jobs are taken by the local residents because the area is in reality integral to the wider London economy". This kind of comment is often made about urban areas (Webster 1994). But in 1991 (to quote the readily available figures for the whole Borough), 83.9% of Camden residents worked either in Camden or in one of the 7 contiguous boroughs. Even in Camden, the share of jobs taken by local residents was still considerable at 17.4%. With a ratio of jobs to employed residents of 2.8, even if all Camden residents worked in Camden, they could only take a maximum of 35.7% of the jobs. Areas in the centre of the city have low shares of jobs held by local residents primarily because they have high employment densities, not because their residents range significantly longer distances through the "wider labour market" than those of other areas.

There are several reasons for the rapid decline in propensity to commute with increasing distance from home:

- **Travel costs** These are both monetary and non-monetary. Everyone tries to minimise these costs, other things being equal. For low paid workers, they are a severe constraint on commuting, which has grown stronger as the wages of "entry-level" jobs have fallen in the drive for a "flexible labour market".
- **Labour market information and search costs** It is difficult to find out about jobs far from home.
- **Employer discrimination** A substantial proportion of employers discriminate in favour of applicants who live nearby.
- **Competition from other workers who live nearer** Because everyone wants a job near home, they compete harder for jobs nearby, making it more difficult for others to get them. In the words of Abler et al. (1972, p.244), "Without competition, fields (i.e. in this case, commuting ranges) can sprawl out great distances, but spatial competition abruptly curtails them".

For statistical reasons explained by Fotheringham (1984), it is difficult to estimate exactly what the so-called "friction of distance" in relation to commuting actually is. What is certain is that for the low-paid workers who are likely to be unemployed, it is extremely strong.

The TTWA system fails to register the fact that the true commuting fields (and hence labour market areas) of high unemployment areas (as indeed of most places) are very restricted. In aggregating spatial units to form TTWAs, the system's designers (a large, uncoordinated group of civil servants and latterly academics) have asked the wrong question. They have asked "Which adjacent area has the strongest link in either direction with the starting area?". They have then accepted what are in fact extremely weak linkages in one or both directions. The result has been to define commuting "sheds". For the purpose of defining labour market areas, they would have had to ask "Do any adjacent areas have *strong* links *in both directions* with the starting area?" Of course, their choice of question has been determined by the underlying drive for a single set of mutually exclusive and self-contained TTWAs, arising from what was thought to be the fundamental requirement for unemployment rate reporting using the "workforce" method. But there exists no such thing as a single set of mutually exclusive and self-contained labour market areas.

In the Glasgow case, the TTWA's internal linkage criteria are met mainly because of the large volume of in-commuting to the city by outer conurbation residents, not because of out-commuting by residents of the city. In 1981, only 13.5% of the city's employed residents worked outwith the city, and in 1991 only 16.4%. At both dates the overwhelming majority of these out-commuters went only a short distance over the boundary and not to the New Towns or other remoter parts of the TTWA. In other words, for the city's own residents the city itself is a self-contained labour market area, comfortably meeting the TTWA self-containment threshold.

Coombes et al. (1997) admit that TTWAs do not correctly describe blue collar labour markets. They state (p.11 cols. 3 & 4) that "It is certain that (the TTWA analysis) averages away a huge variety of commuting behaviour by different groups within the labour market...substantially more 'manual TTWAs' (are) separately identifiable than for the workforce as a whole". But since unemployment mainly affects blue collar workers, it is their commuting patterns and not those of the "average" worker which are relevant.

## **MISREPRESENTATION OF THE DEVELOPMENT AND NATURE OF THE UNEMPLOYMENT PROBLEM**

The combined effect of TTWAs' misdescription both of the geographical distribution of unemployment and of the extent of local labour markets has been to conceal the evolution of the unemployment problem over time and hence its nature and causes.

The great escalation of unemployment in Britain since 1979 has been due to the loss of employment in manufacturing and to a lesser extent mining, together with the service employment dependent on these activities. Without significant exceptions, the areas which today have high unemployment rates are those which have lost these jobs.

In the case of mining, the picture has been one of simple loss: there are no areas which have gained mining jobs. Cumnock & Doon Valley, whose high unemployment rate was mentioned earlier, is an example of an area affected by mine closures, having lost 89% of its primary (mining) jobs in 1981-91, constituting 30.4% of its total 1981 employment.

In relation to manufacturing, the position is more complicated in that the huge overall national decline in manufacturing employment of 37.2% between 1981 and 1993 masks smaller losses, or actual growth, in some areas and even greater decline in others. The pattern has generally been one of decentralisation or "urban-rural shift" (Fothergill 1989; Townsend 1993). The impact on unemployment was summed up recently in an official paper by the Department of Education and Employment (1995, p.357) as follows: "analysis identified the urban-rural divide as a dominant definition, rather than the standard region... 'the deterioration of the large British cities and to a lesser degree other smaller cities relative to the smaller town or rural areas' was the single most important factor in the (1981-91) change in unemployment rates between wards".

These trends are seen at their starkest within the Glasgow TTWA. Overall, employment fell by 10.6% in the city of Glasgow between 1981 and 1991, but only by 0.3% in the outer Glasgow conurbation (roughly corresponding to the rest of the Glasgow TTWA). Between 1981 and 1991, manufacturing jobs fell by 37,756 (43.6%) in Glasgow, and the total number of "blue collar" (manual and personal service) jobs fell by 30%. The actual number of blue collar jobs lost in the city (51,190) was more than in the whole of the rest of Scotland. But over the same period, manufacturing jobs actually rose by 2,319 (21.3%) in East Kilbride and by 1,536 (46.8%) in Cumbernauld & Kilsyth. Both of these areas are also within the Glasgow TTWA. In response to this better employment performance, male unemployment fell over the period by 16.5% in East Kilbride and by 17.9% in Cumbernauld & Kilsyth, but by only 1.8% in Glasgow.

The TTWA system has failed to capture any of this dramatic change within the Glasgow area, because it has conflated the areas losing jobs with those gaining them. By wrongly implying that the effects of job losses or gains at any point within the TTWA are quickly transmitted throughout the TTWA, it has also appeared to justify the mistaken belief often held by "neo-classical" economists that migration and commuting adjustments ought swiftly to remove any imbalance between labour supply and demand arising from job loss in particular places.

Evidence from changes in commuting patterns within the Glasgow TTWA shows quite clearly that job growth in some areas did little or nothing to relieve the effects of job loss in others (Glasgow City Council 1996a, pp.16-17). Commuting from Glasgow to the areas of employment growth ought to have increased, and indeed it did - slightly. But Glasgow had only 25% of the additional commuting to Clydebank (the closest), 15% of the additional commuting to East Kilbride, and 3% of the additional commuting to Cumbernauld & Kilsyth (the furthest away). These shares were much too small to make up for the huge job losses in Glasgow. They were so small because, in line with the exponential distance decay function discussed earlier, the lion's share of the additional jobs were bound to be shared out between the neighbouring areas which were closest.

What is true of Glasgow is true also of all Britain's major cities. **FIGURE 10** shows, for the core cities of the 5 large conurbations, together with the 8 free-standing cities with populations over 250,000 in 1981, plus Aberdeen and Dundee, how strong was the relationship between employment change 1981-91 and unemployment in 1991. Migration and commuting clearly did not smooth out the effects of job loss. (The migration issue cannot be dealt with here. See Glasgow City Council 1996a, pp.13-15; Jackman & Savouri, 1992.)

What has occurred in Britain has also occurred in the United States, where indeed the best

academic analysis is far superior to anything that has appeared in Britain. See for instance Kasarda (1989), Wilson (1987) and Holzer (1996).

The statement in Annex D of the ONS Consultation Paper that "variations in unemployment rates at lower levels of disaggregation (than TTWAs)....are important for the investigation of the social consequences of high unemployment" implies a key misunderstanding. These rates are vital to understanding not only the social consequences of unemployment, but also, and more fundamentally, the economic causes.

The source of this ONS statement appears to be the type of thinking outlined by Coombes et al. (1997, p.9), which in turn draws heavily on the fundamentally flawed "characteristics" approach to urban unemployment discussed in Webster (1994, Part 2). Advocates of this approach argue that high local concentrations of unemployment are due to low levels of skill or other individual "characteristics", not to loss or shortage of accessible jobs. Coombes et al. argue that "to compare the level of unemployment in Tower Hamlets with that in Harrow....would provide more of a guide to those neighbourhoods' roles in their respective local economies than it would to conditions in the two wider local economies". But the reason why Tower Hamlets has high unemployment is mainly because the blue collar jobs on which its residents depended have gone in massive numbers, through the closure of the docks and the massive decline in London's manufacturing employment. The reason why Harrow has low unemployment is because the white collar jobs on which its residents depend have grown vigorously over the same period. Far from these local unemployment rates being a distraction from understanding the evolution of the wider London economy, they are critical to understanding it.

The fundamental process, splendidly illustrated for Cleveland, Ohio by Hill & Bier (1989), is that when jobs are lost in a particular sector of a local economy (whether "wider" or otherwise), it is the neighbourhoods where the workers live whose jobs are lost which will exhibit high unemployment rates and go into decline. Suppressing these local unemployment rates on the basis that a particular school of neo-classical economists consider them to be "invalid" or "not meaningful" is certain to ensure that the economic processes are misunderstood and public policy misdirected.

This indeed is what has occurred in Britain. Whitehall is caught in a vicious circle. Use of TTWAs has strengthened the views of neo-classical "supply-side" theorists of unemployment, which in turn has undermined interest in realistic description of the geographical pattern of unemployment at sub-regional level, and made falsification of the supply-side theories more difficult. The days are long past when a Department of Employment official could publicly write (in this author's view, correctly) that "A local unemployment rate is a measure of the deficiency in the demand for labour in a particular area" (Department of Employment 1978, p.815).

Further enhancing this problem, TTWAs have undermined academic research into unemployment, by making it impossible except in relation to Census data to incorporate an accurate measure of local labour supply/demand imbalance into the regression analyses which are the economists' standard approach. Overlarge TTWAs wash out most of the variation in this factor; this loss of variation and the measurement errors discussed earlier in this paper together make it difficult for local unemployment rates to show up as an important or even statistically significant independent variable (5).

## **TACKLING CONCENTRATIONS OF UNEMPLOYMENT: THE DEFINITION OF PRIORITY AREAS**

Since the 1960s, the standard approach to defining priority areas such as UK Assisted Areas or EU Objective Areas has been to use TTWAs as building blocks, on the assumption that they were labour market areas and therefore that the benefit of job creation in any part of the area would be diffused throughout it. The official Treasury handbook on the evaluation of regeneration projects goes so far as to say ""For employment effects the natural unit of analysis

is the local labour market as approximated by the TTWA" (HM Treasury 1995, para.A17). This was always a misconception; it is a view which has become more remote from reality as TTWAs have shrunk in number and grown in size. TTWAs are simply not relevant to the issue, and never have been.

The effects in Glasgow of this misconception have been extremely damaging (Glasgow City Council 1994, Webster 1994, Glasgow City Council 1996a). While Glasgow has long had Development Area status, so has most of the rest of the TTWA, even though many parts of it have unemployment lower than the national average. For various reasons, including assumptions about spatial strategy for central Scotland going back to the 1960s (Cmnd 2188, 1963 and Cmnd 2864, 1966), areas of the TTWA other than Glasgow have received a quite disproportionate share of the investment resulting from Development Area status, but for the reasons explained earlier, little of the benefit has gone to Glasgow's unemployed. None of the eight Glasgow Regeneration Alliance priority areas has more than 3% of its employed residents commuting to either of the New Towns of East Kilbride and Cumbernauld, which have been the favoured locations for central government sponsored investment.

What is required for the purpose of priority area designation is an accurate delineation of concentrations of high unemployment and a mapping of their actual and potential commuting patterns. For this purpose the type of presentation illustrated in **FIGURE 11** could be valuable. This plots the value of a "commuting index" proposed by Alan Evans (1973). This value shows the propensity of residents of the target area to commute to each other area, expressed as a ratio to the average propensity of all areas in the conurbation. Broadly speaking, if an area has an index value of more than 1, new jobs in it will benefit the target area in proportion to the index value. New jobs in areas with an index value less than 1 bring no direct benefit to residents of the target area. In **FIGURE 11**, which is again for Easterhouse/Garthamlock, it will be seen that only jobs in the north and east of the city, and in Eastwood, are relevant to unemployment in the target area.

This view of the problem has been accepted by the Glasgow Development Agency, which wrote recently (1995, p.21): "Evidence from travel to work data suggests that the preservation and encouragement of employment opportunities within the city boundary will be the most effective means of curtailing the city's long-term unemployment. The Agency believes that the jobs provided by manufacturing industry are especially important".

## **THE WAY AHEAD**

In order to find a satisfactory way ahead, it is essential to distinguish the different functions which TTWAs are currently attempting to perform and to recognise that they cannot all necessarily be met by a single set of statistical reporting areas.

### **Local Unemployment Rates**

National and local government, as well as academic and other groups, share an interest in having a straightforward statistical description of the geographical pattern of unemployment. This is needed for all sorts of reasons both practical and theoretical.

The "workforce" method imposes unacceptable constraints on the nature of the reporting areas and cannot deliver an acceptable degree of accuracy. It should be abandoned. Perhaps the most damaging of all the assumptions about unemployment rate reporting inherited from the 1950s is the idea that a second-rate system will do. Now that unemployment is quite clearly Britain's most important national problem, this attitude can no longer be afforded.

### ***Methodology***

The choice of a replacement methodology is entirely straightforward. The existence of the Labour Force Survey (LFS), introduced in 1973 as a result of Britain's accession to the EU, means that the problem which gave birth to the TTWA system, namely the absence of information (except for Census years) on the size of the labour force, has been solved.

LFS estimates of the economically active population can be used as follows:-

- For areas such as the city of Glasgow for which a large enough sample is available, the LFS estimate can be used directly, no doubt smoothed for sampling variation over time.
- For smaller areas, estimates of age and sex-specific economic activity rates can be derived from the LFS and applied to the Registrar-General's mid-year population estimates (MYE) for each area. These economic activity rates could be differentiated according to region or area type in order to improve their accuracy.

The accuracy of the labour force estimates produced in this way would be cross-checked by ensuring that they sum to the regional estimates of the economically active population already produced by ONS.

### ***Reporting Areas***

The choice of reporting areas is not quite so straightforward. It is important to identify where the national interest lies, and therefore what the national statistical office should provide, whatever anyone else may choose to produce. There are two key requirements:-

1. A robust set of mutually exclusive reporting areas covering the whole country.
2. Accurate identification of important concentrations of high unemployment.

The obvious choice to meet the first requirement is local authorities, and reporting of unemployment rates on their boundaries should become the core of the new system. It is good news that ONS has set up a working group to consider the technical feasibility of extending the LFS methodology to all local authority districts (ONS 1996, Annex E).

This would however not of itself meet the second requirement. Especially since local government reorganisation, some local authority areas are now very large. Many Scottish local authorities would lose detail (even if it is often misleading) by comparison to the present system. No one in Glasgow would want new areas to be put into the same unfair and damaging position which the city has suffered for so many years. There would therefore be a need for a supplementary set of unemployment rates for unemployment "blackspots" (which was of course the primary aim of the original TTWA system in 1960). The areas concerned would have to be identified according to standard national criteria, relating to minimum size and threshold rate of unemployment, in collaboration between ONS and local authorities. They would be built up from postcode sectors or wards. They would not necessarily be published monthly: annual figures would probably be quite adequate. This additional set of figures would ensure that national attention would not be lost for any genuinely serious concentration of unemployment simply on account of the size of the local authority(ies) within which it fell. Every concentration of high unemployment would be given fair consideration irrespective of its location - an urgent

requirement which is not met by the present system.

The level of accuracy for these figures could not be as high as for local authority areas, except for Census years, but this would be of limited importance. Unemployment rate estimates for "blackspots" would be more robust to errors in the denominator than those for local authority areas or TTWAs, precisely because "blackspot" unemployment is so high. The dispersion of unemployment rates for TTWAs is relatively narrow: for instance, in Scotland at October 1993 the range was from 3.5% to 18.1% on the "workforce" basis. But for wards within Glasgow at the same date, as estimated by the City Council, the range was from 5.1% to 37.0% - more than twice as large. "Blackspots" would be of the size of wards or groups of wards and errors due to factors such as net migration since the date of estimation of the economically active population would therefore have to be very large to affect identification of the most important ones. It is awareness of this reality which leads local authorities generally to use Census denominators unaltered for a considerable number of years after each Census.

### **Identification of Priority Areas**

The dual reporting system proposed above would of itself meet the basic requirements for identification of priority areas better than TTWAs. All the valid candidate areas for priority status would show up either through the local authority or "blackspot" figures, or both. Definition of priority area boundaries for action would then depend upon specific examination of the actual and potential travel-to-work patterns of low-skilled residents of these areas, from Census data or other sources such as transportation surveys and details known public transport investment projects. This would be a very much more effective procedure than the present one, where it is normally assumed, entirely without empirical foundation, that new jobs anywhere else within the same TTWA will relieve the problems of an unemployment "blackspot".

In the course of such examination, travel-to-work maps of the type illustrated in **FIGURES 8, 9** and **11** would need to be produced for the unemployment blackspots. It would be useful if the ONS were to publish them from time to time, although it should be remembered that of their nature they cannot take account of changes to the transport network or car ownership occurring after the date of the Census or surveys on which they are based.

### **Identification of Local Labour Markets**

This leaves the question of local labour market boundaries. The issue here is whether there is a national interest in the production, by the national statistics office, of an official set of such boundaries, either mutually exclusive or overlapping.

The answer to this question is a clear-cut "no". There is far too much confusion and controversy in the literature about what a local labour market is. There are also too many conflicting purposes: for instance, the catchment area for staff for a new plant has to be defined differently from the potential commuting field for residents of an unemployment blackspot.

By abandoning the attempt to produce a national set of local labour market boundaries, we would not be losing something we already have. As explained earlier, this is not what TTWAs are.

Researchers, managers and administrators would still need to define local labour markets of particular types for particular purposes. But they would need to think more carefully about what they were doing and why. A substantial improvement in the quality of labour market analysis could be expected as a result.

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## NOTES

- (1) This is illustrated by the fact that in Glasgow in 1991, 53% of holders of upper level white collar jobs in the city lived beyond the city boundary, compared to only 16% of holders of unskilled jobs.
- (2) As a TTWA grows, the proportion of settlements within it which must necessarily have most of their labour market interactions with other parts of the TTWA increases, and the proportion which could possibly have strong interactions with anywhere else declines. This can be understood by considering that a circular TTWA with a radius of two miles would have an area in square miles numerically equal to the length of its circumference in miles. But a circular TTWA with a radius of 10 miles (roughly the Glasgow position) would have an area in square miles 5 times the length of its circumference in miles. This means that a new area added to an already large TTWA, although it may have only weak links with the rest of the TTWA, will have little effect on the latter's apparent degree of self-containment, which will always tend to be high.
- (3) In **FIGURE 7**, the unitary authority unemployment rate errors for the Glasgow area have been taken from Glasgow City Council 1996b. Those for the Edinburgh and Aberdeen areas have been estimated from the commuting flows reported in the 1991 Census, using the unemployment rates reported by ONS for May 1996. The percentage errors are not sensitive to the unemployment rate.
- (4) The full text of the Economic and Industrial Development Committee's Minute of 19th November 1996 reads:

### **Unemployment statistics - Instruction to Chief Executive**

11. There was submitted a report by the Chief Executive regarding unemployment statistics produced by the Office of National Statistics (ONS) in April 1996 and the changes made in the measurement of unemployment rates by Council area.
  - 1) intimating that these new figures underestimated the unemployment rate within Glasgow and grossly overestimated the unemployment rate within the surrounding suburbs;
  - 2) detailing the comparison between the ONS rates and those produced by the traditional local authority measure; and
  - 3) advising that Glasgow was the only local authority in Britain for which an underestimated unemployment rate was currently being published.

After consideration, the committee

- a) instructed the Chief Executive to write to ONS expressing the Council's concern over the inappropriateness of the current local area unemployment statistics and suggesting that until it completed its proposed consultation process, publication of the "workforce-based" estimates should cease; and
  - b) agreed that local Members of Parliament be briefed on the importance of this matter.
- (5) A good example of a study undermined by the defects of TTWAs is Furlong et al. (1991). Their multivariate analysis of the impact of local unemployment levels on school leavers' job prospects shows larger within-TTWA effects than between-TTWA effects, and larger coefficients on qualification-type variables than on local unemployment. These findings are clearly substantially due to the types of TTWA misrepresentation discussed here.



## ACKNOWLEDGEMENTS

Information on populations, areas and degrees of self-containment of the 1984 TTWAs was kindly supplied by Graham Tippen and Kelly Field of ONS. FIGURE 2 was provided by Glasgow City Planning and Development Department. Amanda Stewart of Strathclyde University calculated the errors in the ONS unitary authority unemployment statistics (FIGURE 7). I am grateful to Michael Smart and Professor Derek Diamond for explaining the connections between the 1968 review of TTWAs and the former's book published in 1974. Mike Coombes of CURDS, University of Newcastle, kindly took the trouble to point out several factual errors in earlier drafts. He is not responsible for any which remain.

## REFERENCES

- Abler, Ronald, Adams, J.S. & Gould, P. (1972) *Spatial Organization: The Geographer's View of the World*, London, Prentice Hall
- Ball, R.M. (1980) 'The Use and Definition of Travel-to-Work Areas in Great Britain: Some Problems', *Regional Studies*, Vol.14
- Coombes, M.G., Green, A.E. and Openshaw, S. (1986) 'An Efficient Algorithm to Generate Official Statistical Reporting Areas: The Case of the 1984 Travel-to-Work Areas Revision in Britain', *Journal of the Operational Research Society* Vol.37 No.10
- Coombes, Mike et al. (1997) 'Review of Travel-to-Work Areas and small area unemployment rates', *Labour Market Trends*, January
- Department for Education and Employment (1995) 'New developments in the pattern of claimant unemployment in the United Kingdom', *Economics, Research and Evaluation Division, Employment Gazette*, September
- Department of Employment (1978) 'Review of travel-to-work areas', *Department of Employment Gazette*, July
- Department of Employment (1984) 'Revised travel-to-work areas', *Employment Gazette* Vol.92 No.9, Occasional Supplement No.3, September
- Department of Employment and Productivity (1968) 'Review of "Travel-to-Work" areas', *Employment and Productivity Gazette*, July
- Evans, Alan (1973) *The Economics of Residential Location*, London, Macmillan
- Fothergill, Stephen (1989) 'The Geography of Jobs in Thatcher's Britain', *The Planner/TCPSS Proceedings*, February
- Fotheringham, A.S. (1984) 'Spatial flows and spatial patterns', *Environment and Planning A*, Vol.16
- Furlong, Andy, Main, Brian & Raffe, David (1991) *Young People's Routes into and within the Labour Market: Final Report*, Scottish Office Industry Department, ESU Research Paper No.23,

Glasgow

Glasgow City Council (1994) Memorandum of Evidence to the House of Commons Trade and Industry Committee Enquiry on UK Regional Policy, September

Glasgow City Council (1996a) Glasgow's Housing Plan 1996: Changing Problems and a Changing Agenda, March

Glasgow City Council (1996b) Unemployment Statistics, Chief Executive's Report to the Economic and Industrial Development Committee, 31 October

Glasgow Development Agency (1995) Strategic Plan 1995-1998

Glasgow Regeneration Alliance (1994) Travel to Work from the Regeneration Alliance Priority Areas, Strategy Team, 27 October

Goodman, J.F.B. (1960) 'The Definition and Analysis of Local Labour Markets: Some Empirical Problems', British Journal of Industrial Relations, Vol.8

Green, Anne E. (1994) The Geography of Poverty and Wealth: Evidence on the Changing Spatial Distribution and Segregation of Poverty and Wealth from the Census of Population, 1991 and 1981, Institute for Employment Research, University of Warwick, July

Green, Anne E. & Coombes, M.G. (1985) 'Local Unemployment Rates: Statistical Sensitivities and Policy Implications', Regional Studies, Vol.19 No.3

Hammond, R. & McCullagh, P.S. (1978) Quantitative Techniques in Geography, 2nd ed., Oxford, Clarendon Press

HM Treasury (1995) 'A Framework for the Evaluation of Regeneration Projects and Programmes', Housing and Urban Environment Team, January

Hill, Edward W. & Bier, Thomas (1989) 'Economic Restructuring: Earnings, Occupations, and Housing Values in Cleveland (Ohio)', Economic Development Quarterly, Vol.3 No.2, May

Holzer, Harry (1996) What Employers Want: Job Prospects for Less-Educated Workers, New York, Russell Sage Foundation

Howson, Harold (1979) 'Travel-to-work areas', Statistical News No.46

Jackman, Richard & Savouri, Savvas (1992) 'Regional Migration in Britain: An Analysis of Gross Flows using NHS Central Register Data', Economic Journal, Vol.102, November

Kasarda, John D. (1989) 'Urban Industrial Transition and the Underclass', Annals of the American Academy of Political and Social Science, Vol.501, January

Ministry of Labour (1960) 'Statistics of Local Unemployment: Principal Towns and Development Districts', Ministry of Labour Gazette, April

Office for National Statistics (1996) Unemployment Statistics for Travel-to-Work Areas and Smaller Areas in the UK, Consultation Paper, 12 December

Smart, M.W. (1974) Labour Market Areas: Uses and Definitions, in D.R.Diamond & J.B.McLoughlin (eds), Progress in Planning, Vol.2, Oxford, Pergamon

Strathclyde Regional Council (1996) Strathclyde Economic Trends No.50, March, Glasgow

Townsend, Alan R. (1993) 'The urban-rural cycle in the Thatcher growth years', Transactions of

the Institute of British Geographers, N.S. Vol.18

Vance, James E. (1960) 'Labour-shed, Employment Field, and Dynamic Analysis in Urban Geography', *Economic Geography*, Vol.36 No.3, July

Webster, David (1994) *Home and Workplace in the Glasgow Conurbation: A New Analysis and its Implications for Urban Regeneration and Regional Employment Policy*, Glasgow City Housing Working Paper

Wilson, William Julius (1987) *The Truly Disadvantaged*, Chicago University Press

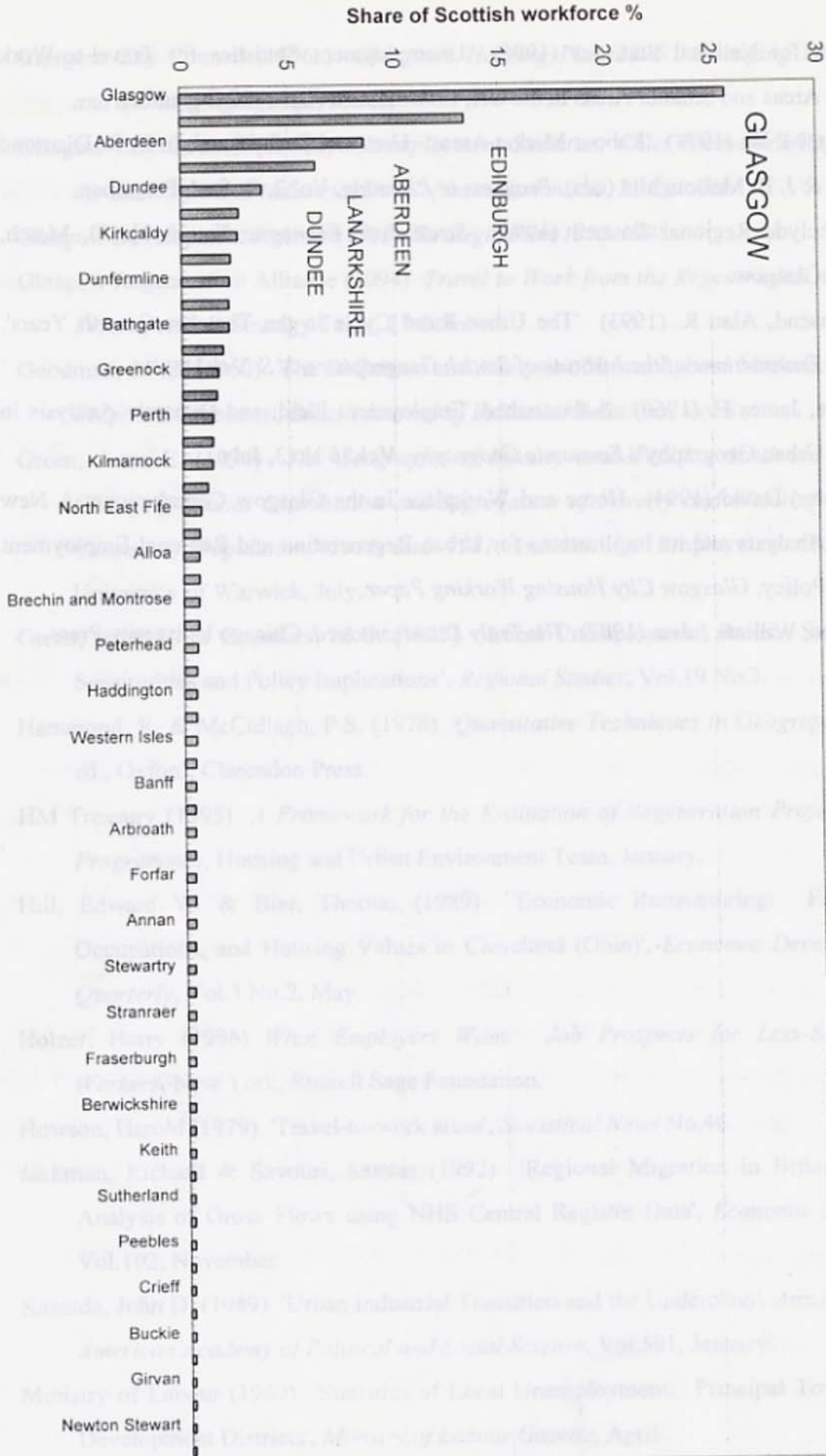
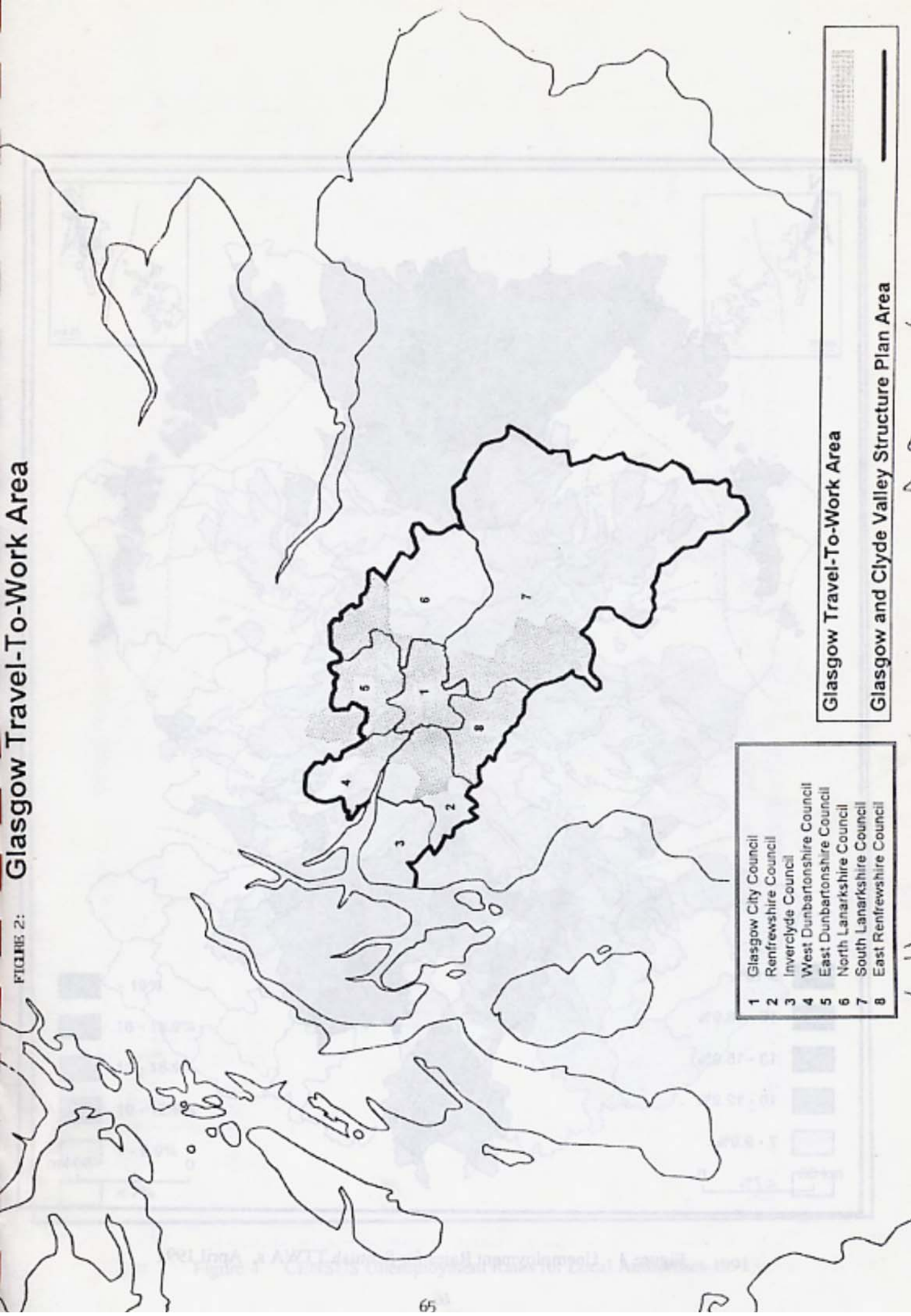


FIGURE 1: SCOTTISH TTWAs: SHARE OF SCOTTISH WORKFORCE, January 1996

**Glasgow Travel-To-Work Area**

**FIGURE 2:**





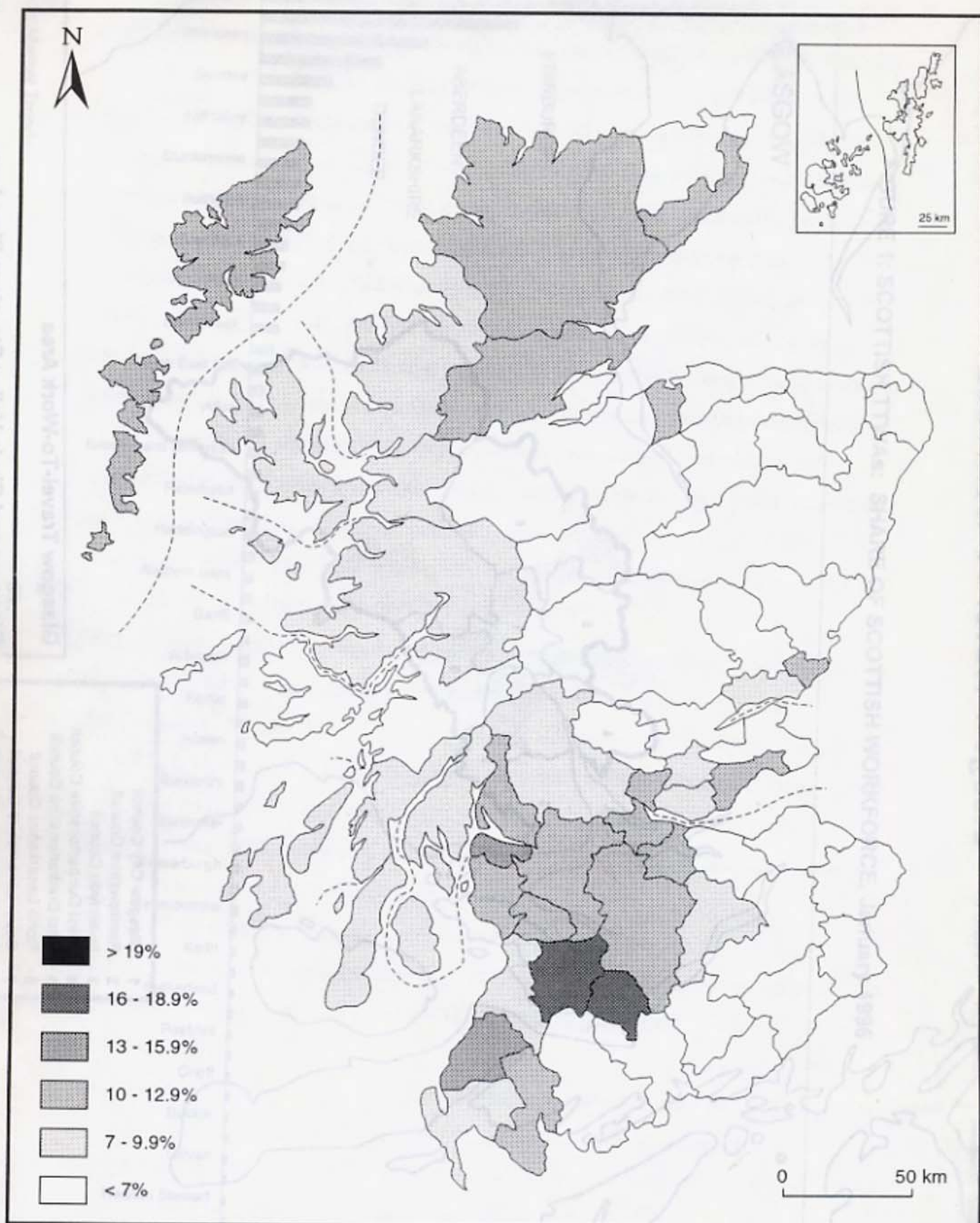


Figure 3 Unemployment Rates for Scottish TTWAs, April 1991

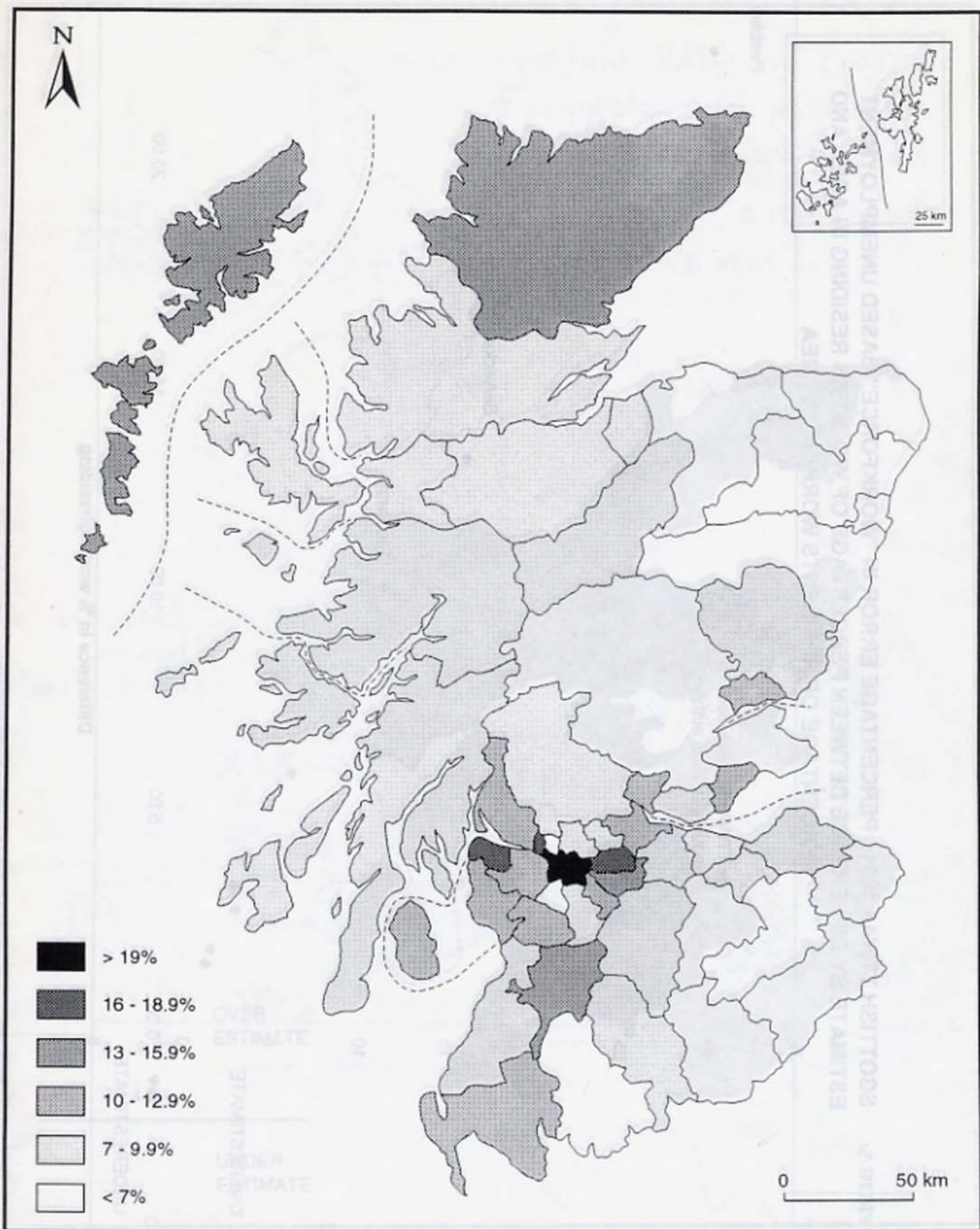
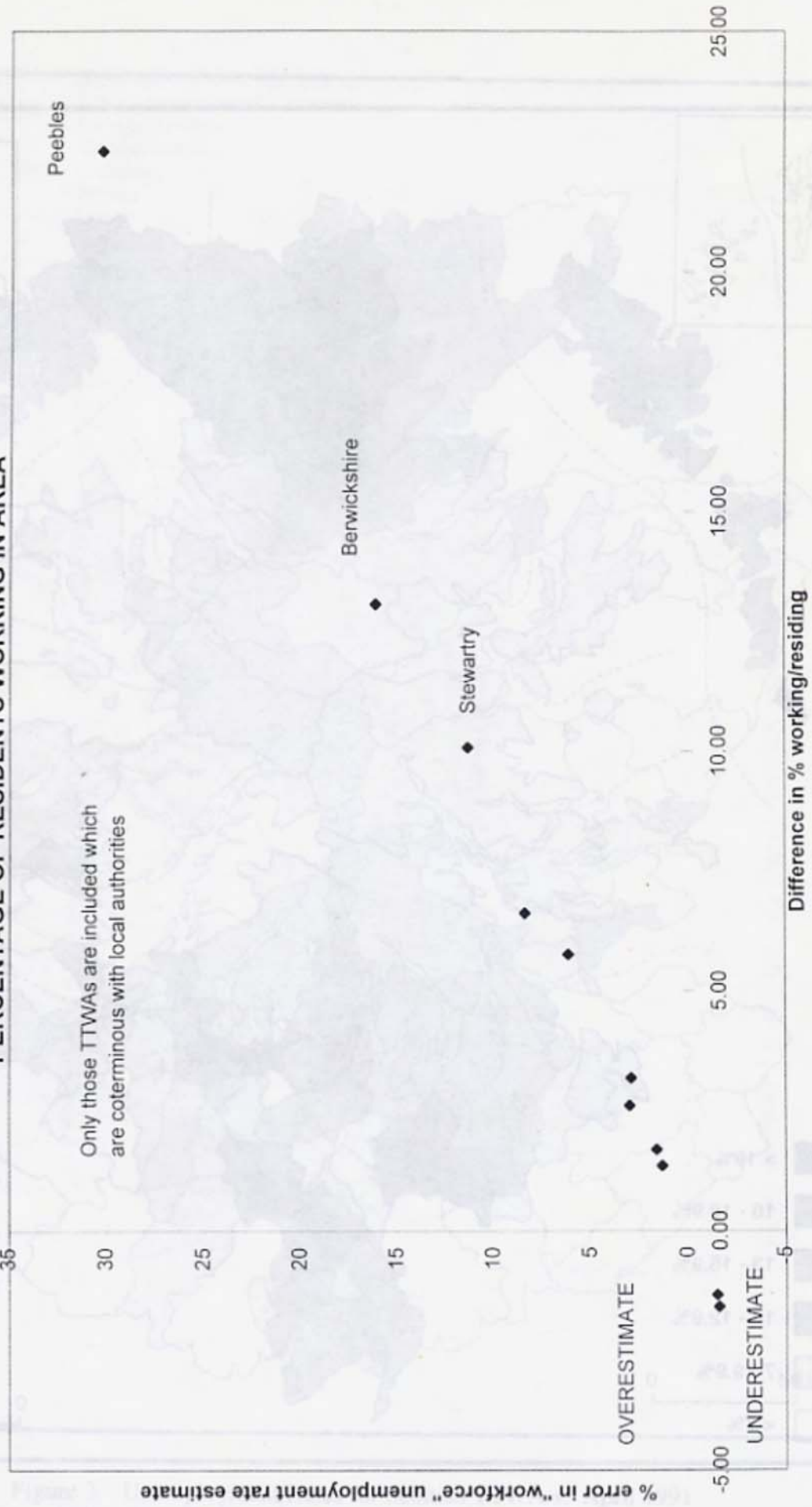


Figure 4 CENSUS Unemployment Rates for Local Authorities 1991



FIGURE 5: SCOTTISH TTWAs 1991: PERCENTAGE ERROR IN "WORKFORCE"-BASED UNEMPLOYMENT ESTIMATE BY DIFFERENCE BETWEEN PERCENTAGE OF WORKERS RESIDING IN AREA AND PERCENTAGE OF RESIDENTS WORKING IN AREA





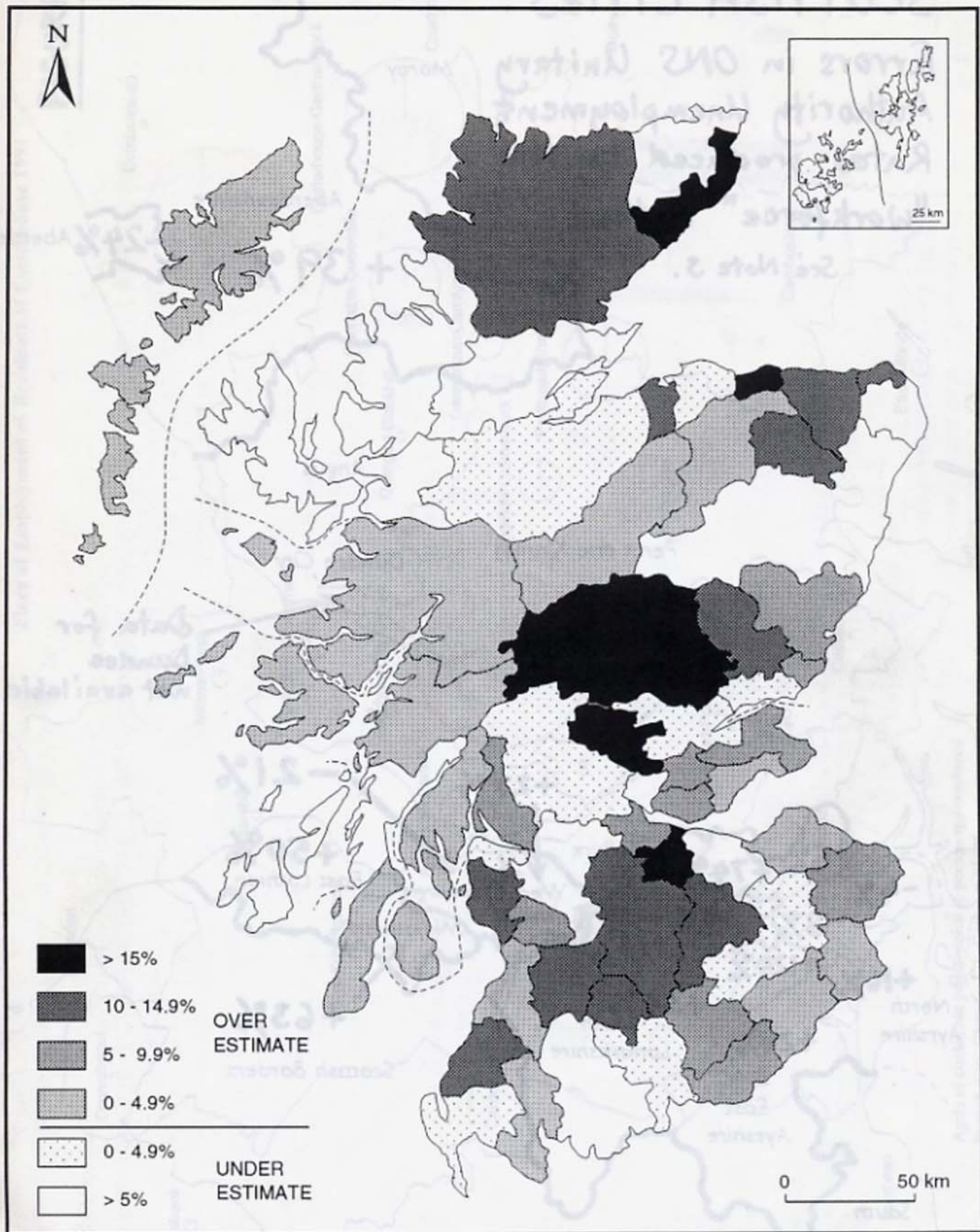


Figure 6 Estimated percentage errors for Scottish 1981 - based TTWA Unemployment Rates at April 1981

Figure 7

**SCOTTISH CITIES :**

Errors in ONS Unitary Authority Unemployment Rates produced by the "workforce" method

See Note 3.

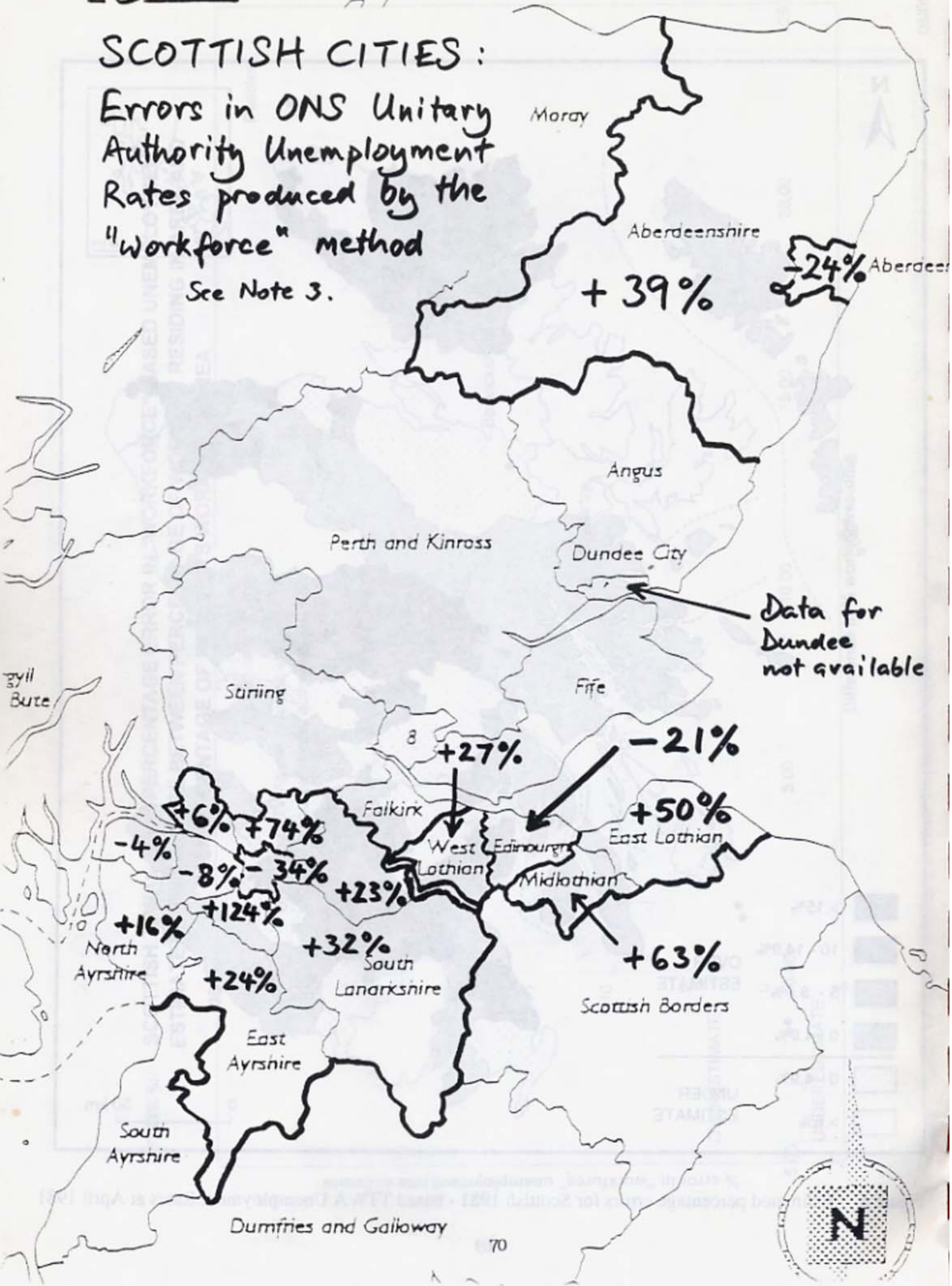
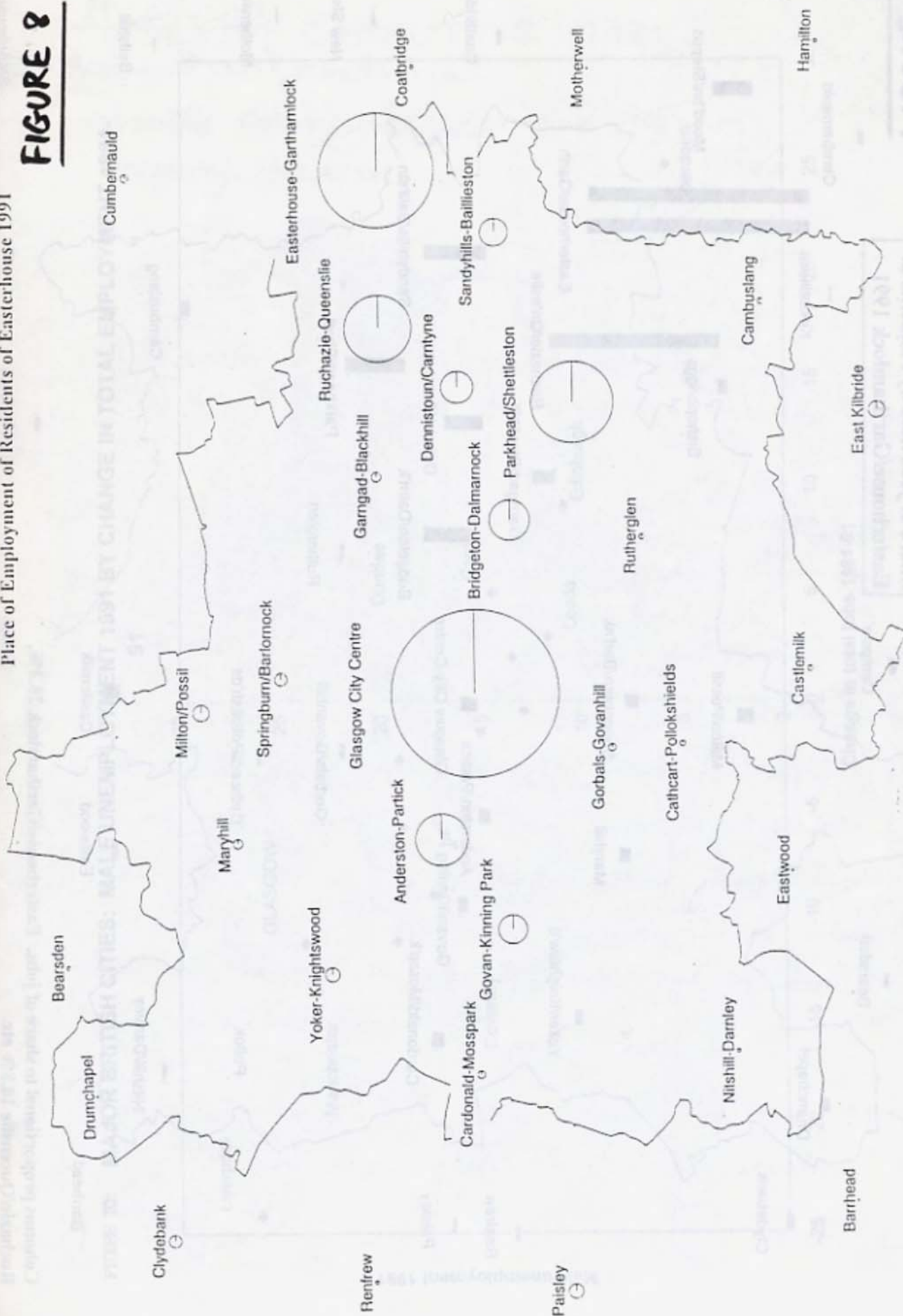




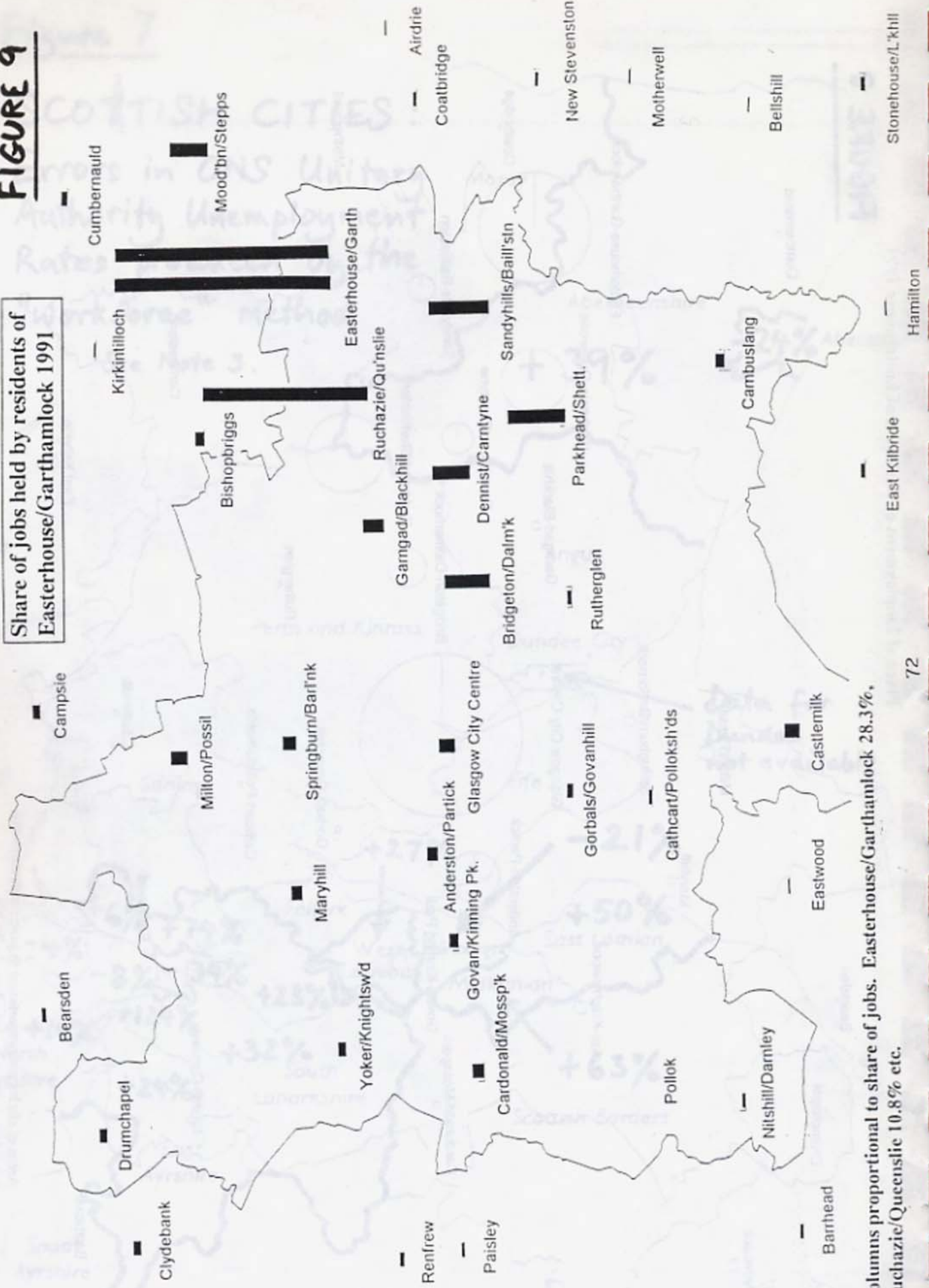
FIGURE 8



Areas of circles are proportional to percentage employed in each area. Glasgow City Centre = 17.7%

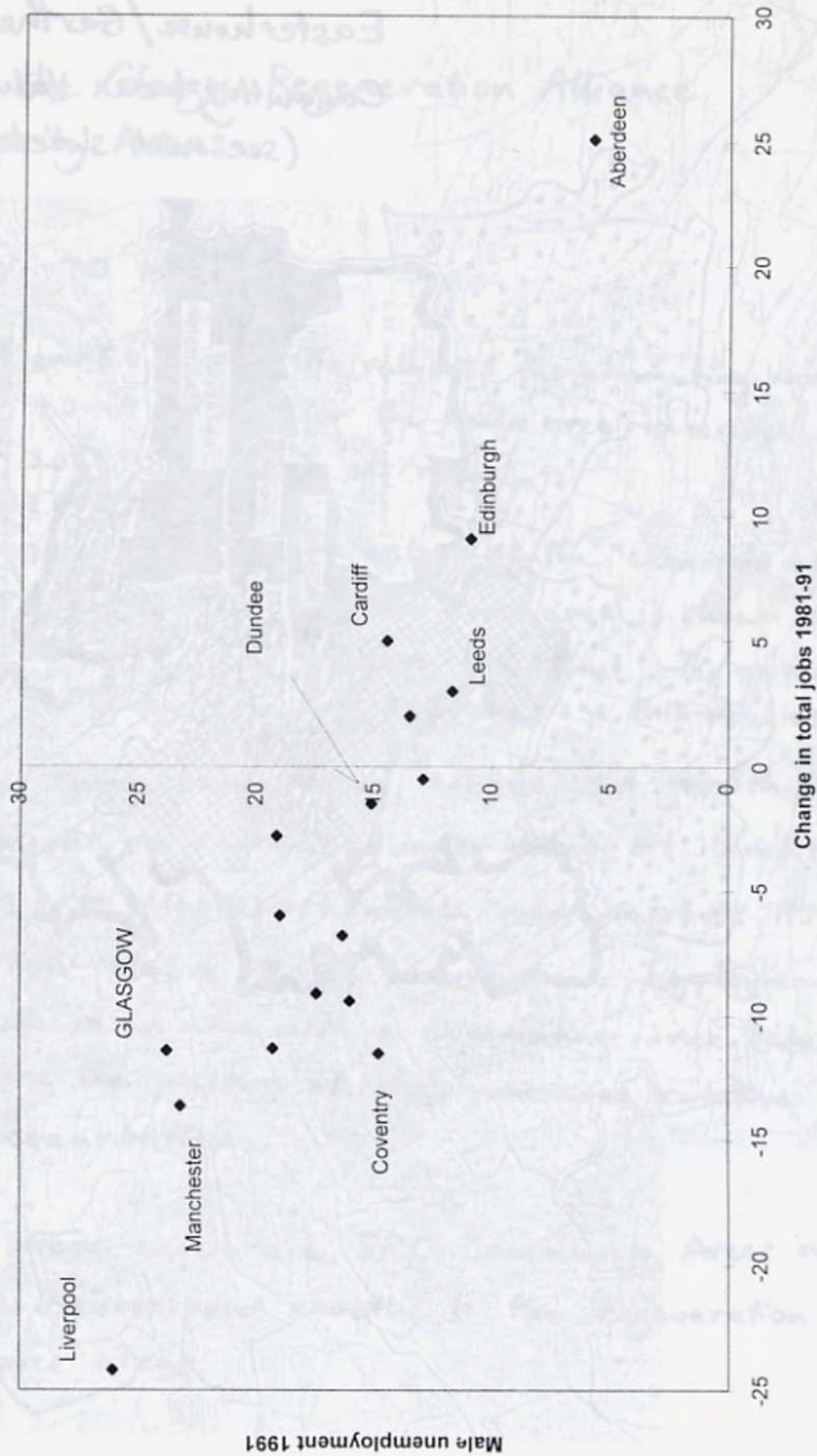
**FIGURE 9**

Share of jobs held by residents of Easterhouse/Garthamlock 1991



Columns proportional to share of jobs. Easterhouse/Garthamlock 28.3%, Ruchazie/Queenslie 10.8% etc.

FIGURE 10: MAJOR BRITISH CITIES: MALE UNEMPLOYMENT 1991 BY CHANGE IN TOTAL EMPLOYMENT 1981-91

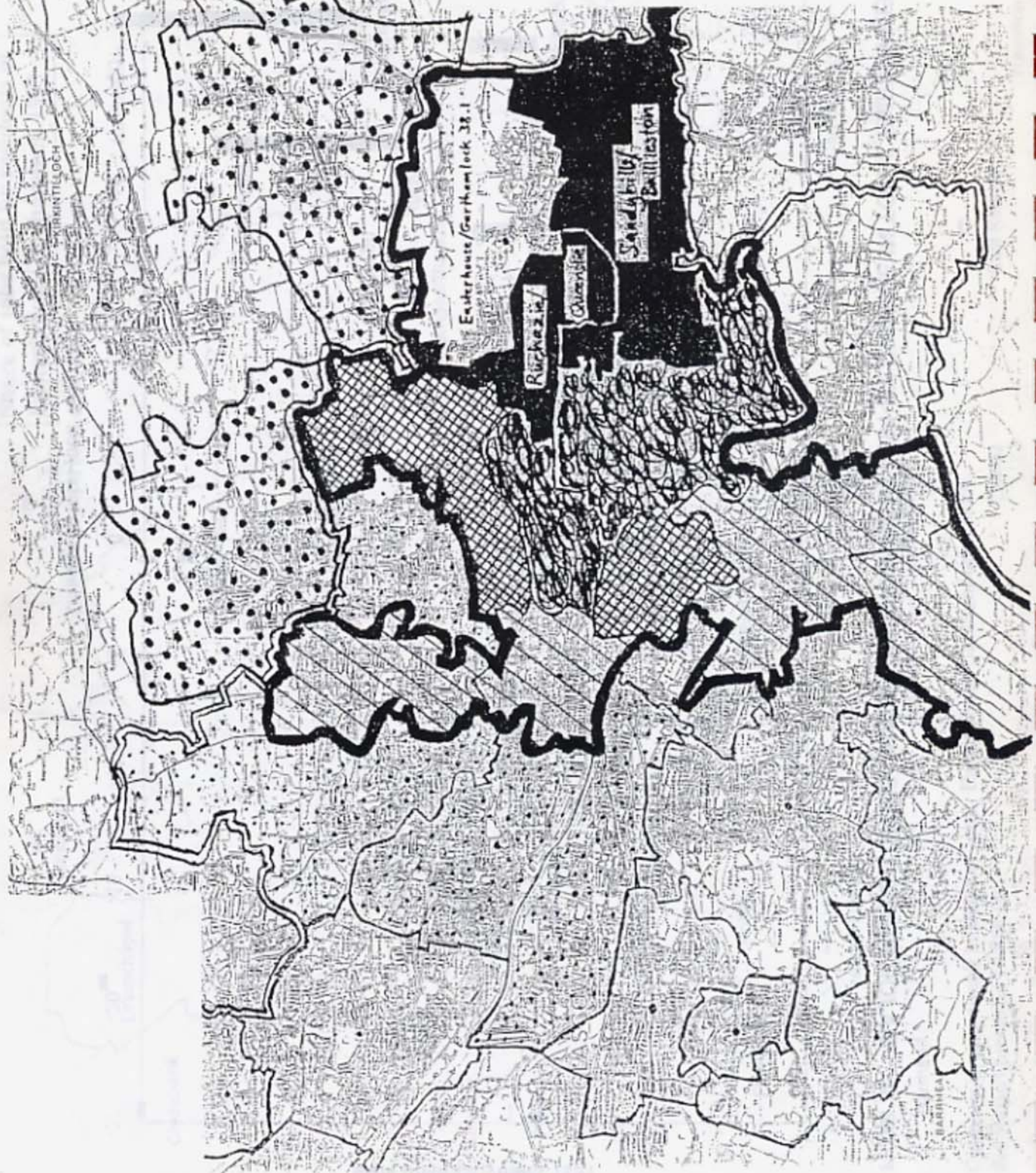


Sources: Census Key Statistics for Local Authorities; Workplace and Transport to Work



FIGURE 11

Easterhouse/Garthamlock 1981:  
Commuting Index Values  
(see next sheet)





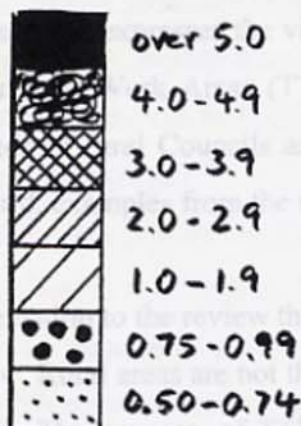
# INDEX OF COMMUTING 1981

## for the Glasgow Regeneration Alliance Priority Areas

Alan Campbell

Information & Research Manager, Aberdeenshire Council

### KEY TO MAPS



The value of the commuting index for the home area is written next to its name.

The extent of the "economic base" for each home area is shown by a heavy black line. The approximate City boundary is a thin double line.

Other things being equal, employment growth in an area with a commuting index value  $> 1$  benefits the home area disproportionately and improves its position relative to the conurbation. Employment growth in an area with a commuting index value  $< 1$  worsens the position of the home area relative to the conurbation.

The areas shown are SRC Community Areas and do not correspond exactly to the Regeneration Alliance areas.