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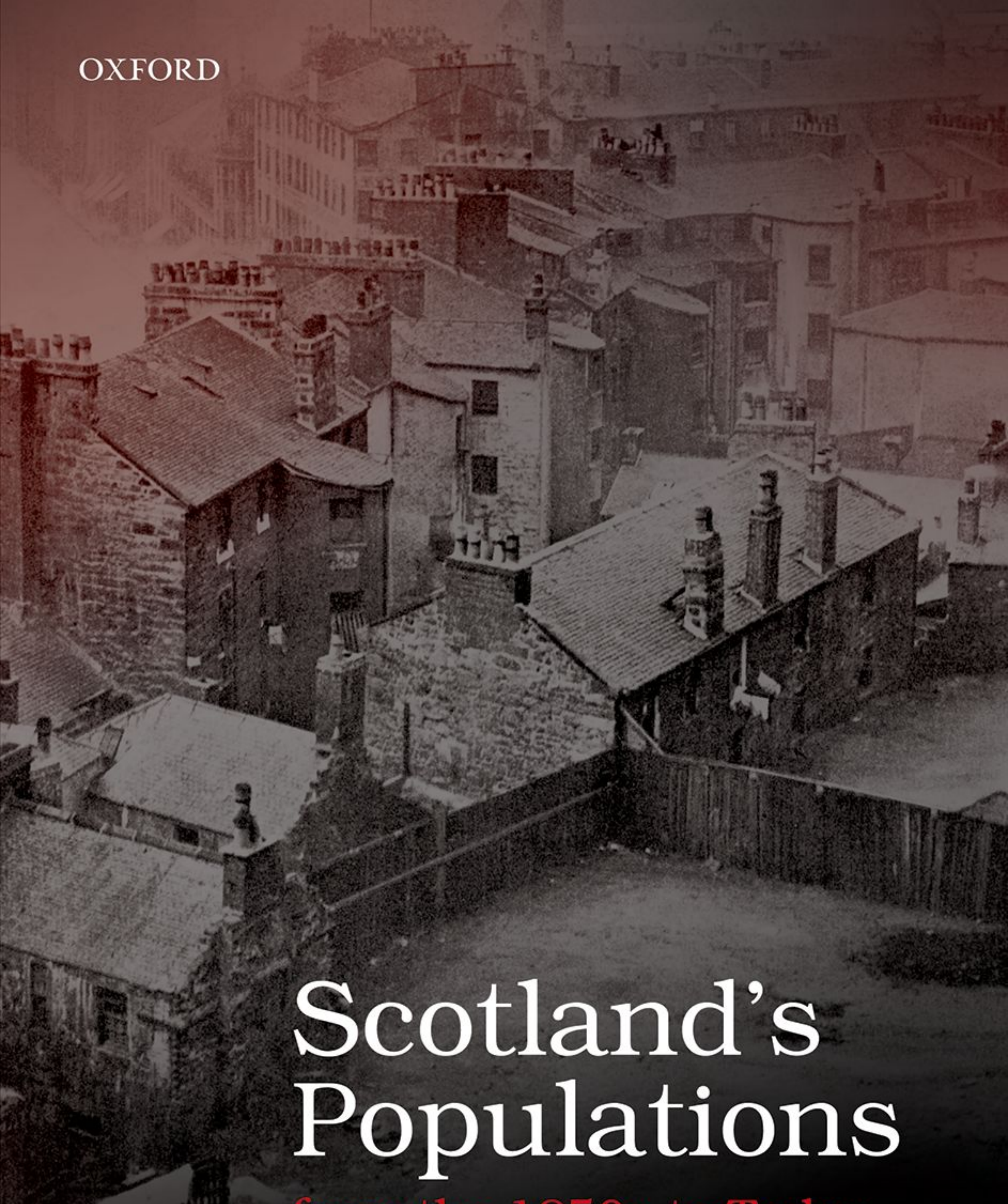

Scotland's Populations from the 1850s to Today

Michael Anderson
with mapping by Corinne Roughley

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Preface

This book explores the histories of Scotland's populations over roughly the past 165 years. It looks at how the demography of Scotland as a whole, and also of different parts of the country, have changed over time. It also offers answers to why they have changed and why Scotland's populations have been different, both from each other and from other parts of the UK and north-western Europe. The use of the plurals, 'histories' and 'populations' is deliberate. As I explore further in Chapter 1, there were times when most parts of Scotland shared a pattern of population change that was different from the dominant pattern in England and Wales and in other countries. However, as my research on Scottish demography has developed over the past more than forty years, I have increasingly seen that, just as with Scottish topography, language, or culture, the differences within the country are often as interesting as the similarities. So, in this book, I have tried to treat the differences on a par with the changing national patterns; these are, after all, only an aggregate of these often quite contrasting regional and local pictures.

What follows is an end-point of a long personal voyage of discovery: of the many different Scotlands; and of the many fascinatingly detailed sources available to study their population histories. My interest in Scottish demography began in the 1970s when, as a sociologist and historian of the family, I realized how changing mortality, nuptiality, and fertility had produced very different intra- and inter-generational life-course patterns across time, and between and even within countries. In particular, what was commonly thought of as 'new' quite frequently was not; and if it was not new, then very often it was a legacy from earlier periods. These two lessons show through again and again throughout this book.

It was while exploring these issues that I also began to see just how much hitherto untapped information could be obtained from the Scottish Census and Registrar-General's Annual Reports, comprehensively available on open-access shelves in the Edinburgh University Library. These, backed up more recently by the wonderful facility that is the University of Essex's histpop.org website and the fantastic resource that is the National Library of Scotland's online Ordnance Survey map collection, have helped enormously in my exploration of the diversity of Scotland's population histories.

In parallel with this work, I also in the 1970s undertook a major project to digitise a National Sample from the enumerators' books of the 1851 Census of Great Britain. This opened up relationships with staff at many levels in the General Register Office Scotland (now incorporated into the National Records of Scotland). Among many others in their staff, I am particularly grateful to Duncan Macniven and Kirsty MacLachlan for the encouragement and support that they have given to me to write this book. I must also thank Victoria Avila and Jay Gillam for their help on migration.

In 1979, I moved to the Department of Economic History in Edinburgh, where Michael Flinn, Christopher Smout, and Rosalind (Rowy) Mitchison had recently completed their *Scottish Population History* (Flinn 1977), the first (and until now, last) ever book-length study of this topic. Michael's and Christopher's departures allowed me for the first time to teach a historical demography course (initially, and to my great benefit, jointly with Rowy). The students on this course were very enthusiastic and stimulated many new ideas; some of their projects were also highly revealing (two are referenced in later chapters). This was also the period when research students were allowed free access to the Scottish census enumerators' books up to 1891, and to vital registers more than a hundred years old. These enabled eight of our doctoral students to do highly original case studies of the Scottish fertility decline. I learnt a huge amount from their work, which is also cited extensively in later chapters. Two of these graduate students, Donald Morse and Debbie Kemmer, subsequently became my co-researchers on larger projects, and without their work some of this book would not have been possible.

More recently David McCrone, Alice Reid, and Eilidh Garrett have been crucial in encouraging me to complete what has at times seemed an almost impossible task. They have read substantial parts of the book and made many penetrating and supportive comments. I am also very grateful to the two readers who assessed this book for OUP for their extremely lengthy and thought-provoking suggestions and comments; also to participants in the many seminars at which I have presented parts of the material included in this book over the past thirty years, to Elspeth Graham and many members of the ESRC Centre for Population Change for providing answers to my queries, and to the referees and editors of books and journals in which parts of my work have appeared. Needless to say, I have not quite always taken their advice, so the flaws and errors that remain are entirely my own responsibility. I am also very grateful to Stephanie Ireland and Cathryn Steele of OUP for their support and their many helpful replies to my questions, and to Howard Emmens for his very thorough and thoughtfully constructive copy-editing.

Finally, I owe a huge debt to my family. They have, of course, borne the usual problems of living with a husband/father often highly distracted by his work. But they have also over the past forty years singly or together accompanied me on zig-zag routes across Scotland so that I could achieve my ambition of seeing at least something of more than 95 per cent of all parishes in Scotland before the book went to press; they have also listened again and again to my sometimes predictably repetitive thoughts on the apparent potential productivity of bits of land or for what a semi-derelict building or even piles of stones might or might not have been used. In the last few years I have also benefited enormously from access to the personal book collection of Dugald MacArthur. But above all, I am hugely grateful to my daughter Dr Corinne Roughley of the University of Cambridge, who has produced new and more accurate map frameworks for the parishes of Scotland, and with great skill and care generated the maps in this book.

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Abbreviations and Acronyms

For definitions or further explanations of these abbreviations and acronyms, see the first occasion when each is used in this book.

3SA	*The Third Statistical Account of Scotland* (1951–92) (various editors and publishers)
AR	1855–2000 Registrar-General for Scotland: Annual Report (Edinburgh: General Register Office for Scotland) 2001– Scotland's Population: The Registrar General's Annual Review of Demographic Trends (Edinburgh: National Records of Scotland)
CBR	crude birth rate
CVD	cerebrovascular disease
CDR	crude death rate
CEB	census enumerators' book
DAR	Detailed Annual Report of the Registrar-General for Scotland
DDC	diarrhoea, dysentery, and cholera
GFR	General Fertility Rate
GROS	General Register Office for Scotland
HMD	Human Mortality Database
ICD	International Classification of Diseases
IHD	ischaemic heart disease
IMR	Infant Mortality Rate
LA	local authority
NRS	National Records of Scotland
NSA	*The Second Statistical Account of Scotland* (1845) (Edinburgh: William Blackwood)
ONS	Office for National Statistics
OS	Ordnance Survey
OSA	J. Sinclair, *The [first] Statistical Account of Scotland* (1791–9) (Edinburgh: William Creech)
RD	Registration District
SBR	standardized birth rate
SDR	standardized death rate
SIMD	Scottish Index of Multiple Deprivation
VERT	Vital Events Reference Table (National Records of Scotland, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/vital-events-reference-tables)

PART I

QUESTIONS AND CONTEXTS

1

Scotland's Population

Not just a History of Crises

For most of the last two centuries, one or more aspects of Scotland's demography have been seen by contemporaries as in, or as approaching, a crisis. In the final years of the twentieth century, many politicians and academics worried about the implications of the predicted future decline in Scottish population. In this same period, attention also focused on Scotland's appalling mortality record, far worse than England's, and with a crude death rate the highest in north-western Europe. In the first half of the twentieth century, a major source of anxiety in all parts of the UK was the apparent 'flight from parenthood' and, in some people's minds, the serious eugenic implications of its social class skew. In the decades up to and after World War One, the long-term impact of massive Scottish emigration, among the very highest in the whole of Europe, was subject to much comment. For much of the last eighty years of the nineteenth century there were major public debates about the demographic consequences of the terrible living conditions generated by rapid population growth in the cities and manufacturing areas of Scotland. In the first half of that century, but also right through to at least the 1880s, the issue of 'Highland Clearances' fuelled much public discussion.

In considering these concerns, three points are particularly striking. The first is how most of these discussions, at any period, have taken a very short-term view, with writers and commentators failing to set the events they were discussing in a longer-term historical context. In fact, to take just three examples, Scotland's population did not start to fall for the first time in the late twentieth century: it had fallen in a majority of years since the mid-1970s, in some years in the 1950s and 1960s, more significantly in the 1920s, and in at least four years before World War One (and possibly, briefly, even in the 1880s). If we include cohabitation in our figures, in the early twenty-first century a quarter of women aged 20–24 and three quarters of the 30–34 age group were either cohabiting or had been married, figures well above the proportion married and cohabiting at these ages in Scotland for any year before 1939; in this context, as in many others, it was the interwar and immediately post-war periods which were the anomaly, not the recent past. Finally, contrary to what is often asserted, at most ages Scottish mortality rates did not suddenly become among the worst in Western Europe in the 1980s or even after World War Two; they had been very bad in comparative terms for at least a century. In later chapters of this book we shall see many similar examples of incorrect assumptions that what we are seeing now is recent or new. We shall also see how

many of today's issues have long-standing underpinnings in the past, and how this past will continue to influence Scotland's demography in the future.

My second concern about much previous writing on Scottish population is its tendency either to treat 'Scotland' as a single entity, or to focus narrowly on just one part of the country. No serious scholar of Scottish geography, economy, or social or cultural patterns would ever treat Scotland as a homogeneous country or show no awareness of diversity within it. It is therefore not surprising that there is not a single unitary story called 'The Population History of Scotland'. Certainly, there are periods in which some of Scotland's national population statistics do reflect what is happening in most parts of the country; and certainly the national picture can never be totally ignored, if only for comparative purposes and because there are legal or cultural or economic reasons why Scotland as a country is sometimes a meaningful unit of analysis. But it is also important to be sensitive to regional and local patterns and trends, and to the particular factors which generate them. Indeed, the demography can often only be understood in these more localized contexts and it is the aggregate of these different, and often conflicting, patterns and trends which ultimately produce Scottish national totals and rates.

On the other hand, it is seldom the case that what happens in one part of the country is unique to it alone. To take one blatant example: until very recently, almost all the enormous amount of ink spilled on 'the Highland Clearances' failed to note that, for most of the second half of the nineteenth and almost all the twentieth centuries, rates of out-migration and emigration were at least as high from most areas of lowland Scotland as from the highlands and islands.[1] Indeed, for much of the period since the 1880s, not just rural areas but also the cities were major sources of outward migration, as they proved equally unable to provide employment for all who had been born there.

Thirdly, in line with much other writing about Scottish life, there has been an excessive emphasis on 'problems', rather than a balanced view which also celebrates success. Current Scottish death rates may be bad compared with other parts of Western Europe, but, for example, expectation of life at birth has roughly doubled since the 1860s, infant morality rates have fallen from about 120 to less than four per thousand live births, deaths from measles or whooping cough, which once killed thousands of children each year, are now very rare, as also are deaths of mothers during or as a result of childbirth. Scottish cancer mortality, though still among the highest in Western Europe, has seen very significant falls over the past forty-five years.

Changing demography has also altered family life in many ways. At the time of the 1911 census, over 30 per cent of women who had married in the early 1880s at the age of 20 had had ten or more children, and nearly nine per cent of those who had married at age 25. One consequence, when combined with far lower incomes, was serious overcrowding of housing in all parts of Scotland. Another consequence, had family size not fallen markedly thereafter, would have been

[1] For a recent review with references to important other work, see Dodgshon (2012).

severe constraints on what families could do in terms of consumption and leisure activities—for example, the modern family car, with all the opportunities that go with it, would have been totally impractical. Finally, at least in material terms, it can scarcely be doubted that huge numbers of those who emigrated overseas in the nineteenth century and since, if they survived the journey and the initial period of settlement, ended up significantly more comfortably situated than those who stayed behind (and certainly more so than they—and those who did not leave—could possibly have been, had they all attempted to stay).

There is also a further issue that needs to be confronted in a book like this. Too much Scottish history has been written as if Scotland lived isolated from the rest of the world, or as if what happened elsewhere was irrelevant to our understanding of what was happening here.[2] In fact, in demographic as in many other terms, Scotland is not unique: much of what happened here also happened elsewhere, though not always to the same degree or in quite the same way. Moreover, as we shall see throughout this book, the nearest comparators are not always with England or, indeed, with any other part of the UK; not infrequently it is Scandinavian countries or Belgium which provide the most interesting comparators.

This book therefore attempts to explore the 'multiple Scotlands' within a wider British and north-west European context, and to set these within their topographical, spatial, economic, and social settings. The next chapter offers a first overview of some of the overall patterns of population stability and change, setting Scottish experience within a wider UK and European context. Chapter 3 briefly reviews some topographical, economic, and social factors which help us to understand the changes that we shall observe in later parts of the book. Chapters 4 to 7 focus on the spatial patterns of overall population changes in Scotland, looking at different areas and kinds of places, and beginning to examine how they came about. Chapter 8 looks at the mechanisms that underlay national and more local demographic change, and particularly at the contrasting balance between the key drivers of mortality, fertility, and migration. Migration is explored in more detail in Chapter 9. Chapter 10 looks at the role of differentials in age structures in different parts of Scotland, Chapters 11 to 15 focus on fertility and marriage, and Chapters 16 to 19 consider mortality. Finally, Chapter 20 pulls out some of the key points of earlier arguments, asking in particular whether there were any specifically *Scottish* national factors that influenced our long-term demographic fate, and what our demographic past may suggest for the future.

The principal focus of this book is on the period since the 1850s. It was then for the first time that a body of reasonably robust statistical material became available, following the establishment of the Scottish General Register Office in 1855.[3] Also, as we shall see from the short summaries of events in the first half of the century

[2] Note for example that in Flinn (1977) even English comparators are hardly used, while relevant demographic experience of other nations is almost totally ignored.

[3] For more on sources see the Annex to this chapter.

which begin some chapters of this book, the 1850s was the decade when a number of largely new trends began to appear in Scottish demography and the contexts that have influenced it.

Finally, as I write in the middle of the second decade of the twenty-first century, a substantial body of work is under way to digitize census enumeration and vital registration returns at an individual level. This will in due course create what are by current standards huge individual-level datasets. These may eventually be linked to allow, for example, the fertility histories of women to be analysed in ways which can at present only be done on a tiny scale. Linkage will also allow at least some intercensal migration histories to be constructed, and mortality to be set in the context of earlier household and economic experience. By the early 2020s it is likely that our understanding of some aspects of demographic behaviour will be significantly enhanced by this work. Meantime, however, we have to rely largely (though not exclusively) on what can be gleaned from the huge and still largely unexploited mass of published official statistics which underpin most of the analysis in this book, and which will continue to provide the local, regional, national, and international contexts within which the new analyses will be set. My aim here has been to provide much of this context, and certainly much more than has ever been revealed before.[4]

ANNEX 1.1. A NOTE ON SOURCES

Until 1855, Scotland had no nationally organized system for collecting or publishing its demographic statistics.[5] The censuses were organized from London. Record-keeping for births, deaths, and marriages, which had never, except in a few places, been of a quality even approaching that of England let alone Sweden (so that the demographer's standard tool of family reconstitution is usually impractical), had almost collapsed following the disruption of the Church of Scotland in 1843. What was available, however, were two nationwide parish-based surveys, the Statistical Accounts, the first [*OSA*] completed in the 1790s and the second [*NSA*] in the 1840s. These, though of highly variable quality, do provide some demographic information on many parishes and, almost more importantly for the present purposes, much invaluable information on their social and economic contexts. Useful context material on some parishes and towns can also be found in the *Third Statistical Account* [*3SA*], published at various dates between the 1950s and the 1990s.

[4] As of 2017, most of the census enumerators' books for Scottish censuses from 1851 to 1901 are available in coded digital transcript form from the University of Essex's Integrated Census Microdata Project (though problems remain in the robustness of some of these data). Also, a major project, under the title 'Digitising Scotland', is under way, aiming to digitize the Scottish civil registers for 1855 to 1973, bringing together NRS with researchers at the universities of Edinburgh, Cambridge, and St Andrews.

[5] The best survey of Scottish sources before and after 1855 remains Flinn (1977), Part 2.

The establishment in 1855 of the General Register Office for Scotland (GROS), incorporated into the new National Records of Scotland (NRS) in 2011, for the first time put the administration of Scottish and English census and vital registration on a similar basis, though the Scottish Registrar-Generals have never slavishly followed their English counterparts where they believed that specifically Scottish problems or conditions merited taking a different line. In setting up GROS, some lessons were learnt from the English experience, notably by placing a legal obligation on relevant parties to report vital events. As a result, we can assume that numbers of marriages, births, and deaths were reasonably robustly recorded by the mid-1860s at the latest, though causes of death were often poorly distinguished. By contrast, on certain topics, notably with respect to birth registration, more information was collected in Scotland than south of the border.

From 1861, GROS also took responsibility for the decennial censuses. Some gaps and errors in recording are noted at relevant points in later chapters, and significant revisions have been required at various points to take account of subsequently recognized over- or under-estimates of census populations, notably since 1981. Overall, however, there is no reason to believe that Scottish post-1841 census statistics are any more unreliable than those for other parts of the UK, and one critical set of data, on house occupancy levels, was collected earlier in Scotland than anywhere else in Britain.

For vital registration, one important cross-border difference relates to the units for which data collection was organized and information was published. In England and Wales, the Poor Law Union boundaries were adopted for 'Registration Districts', thus in many cases combining towns with their surrounding countryside. In Scotland, the primary units, also called 'Registration Districts' (RDs) were and are even today in most cases the rather over 900 parishes, or subdivisions or aggregations of them. Vital statistic summaries were published at parish or registration district level until 1919. One consequence was that it took some time to prepare the Registrar-General's Annual Reports (ARs) and this was solved, until interrupted by wartime economies in 1914, by producing two reports each year, an Annual Report, and a Detailed Annual Report (DAR).[6]

For analysis of mortality, registration districts up to 1910 were allocated to different size categories. This meant that quite detailed data could be published for a steadily growing number of 'Principal Towns'; from the start in 1855 tables were also included on aggregates of town, mainland-rural, and insular-rural RDs. Over time the 'Town' category was subdivided in slightly changing ways. From 1871, the 'Principal Town' category included all districts located within or containing towns of more than 25,000 people. 'Large Town' districts included all which contained towns of more than 10,000 and less than 25,000. 'Small Town' districts contained towns with populations between 2,000 and 10,000. Districts with no towns of

[6] DARs and ARs up to 1919 are available in scanned digital form on the website www.histpop.org, as also are all Scottish census reports up to 1931. Census and Annual Reports for England and Wales for roughly the same period (ARs from 1837 to 1920) can also be found there.

more than 2,000 people were placed in 'Mainland Rural' or 'Insular Rural' groups.[7] Reports from before 1871 treat as 'Towns' all districts with a population of more than 3,000.[8] After each census, some districts where populations had crossed a threshold moved to the higher category, so the groups are not entirely consistent over time, except for years between any two censuses.

The result is that Scottish mortality data up to World War One are available on a reasonably consistent basis for many more, and much more socially and demographically meaningful, aggregations than south of the border.[9] I shall exploit these data in later chapters. From 1911, detailed separate data are available for a few years for 'Public Health Districts', but from the 1920s the amount of vital registration data published for smaller spatial units declined quite markedly, and what was published was produced in highly unhelpful forms.

The many changes in local government (see Chapter 3) meant that over time GROS had to change the higher-level units at which it published census and vital registration data. So, for example, pre-1891 counties and burghs of various kinds changed to post-1891 counties and their burghs and landward areas, and then to regions and districts, and finally to local authorities and health boards. However, consistency was mostly maintained at the lowest spatial level (except notably as a result of major boundary changes around 1891 and in the 1950s) because every census from 1851 to 2011 provided at least population counts (and sometimes much more) for civil parishes. This has allowed a database to be constructed containing the populations of all civil parishes starting from 1755. Donald Morse assembled data for censuses up to 1951 from tabulations provided in the 1951 census, and these were used in Anderson and Morse (1990; 1993a; 1993b). For this book, these data have been rechecked and corrected where necessary. Populations up to 2001, and some to 2011 have been added from subsequent censuses. A major exercise was undertaken jointly with Corinne Roughley of the University of Cambridge to create new parish-level map frameworks for pre- and post-1891 civil parishes, some of it associated with the University of Essex's ICeM project (which partly funded the work). It is these populations and the resultant maps that are used in this book.

Publication of a 'Registrar-General's Annual Report', with a mass of detailed statistical material, continued until 2000, though the coverage began to decline from the 1970s. The Reports, were then replaced by 'Annual Reviews' (also ARs in the references), which contain many fewer statistical tables, more commentary, and many more maps and graphs. In parallel, however, a growing mass of extremely useful data became available through the 'Vital Events Reference Tables' (henceforth VERTs), available as pdf or Excel files on the NRS website (as also are the Scottish censuses from 1991 onwards). Initially, it was not possible to obtain the data which underlay the graphs in the new ARs, though this has been possible

[7] Sup. to DAR 1901–10: vii. [8] DAR 1871: 12.

[9] The mixed populations of most English RDs make it difficult robustly to isolate urban effects (Woods and Shelton, 1997: 17–18).

from the 2005 AR onwards. Most ARs from 2002 onwards also contain an essay by an academic relating to some aspect of Scottish demography.

In the chapters that follow, because of changes in almost every year in the tabulation and formatting of the published material, I have not cited table or page numbers where data are taken from censuses or ARs, except where I think that a source may be difficult to find. It is usually very easy to locate data from the indexes. Unless otherwise stated, 'Census' and 'ARs', as cited sources, refer to Scotland.

2

The Broad Patterns of Population Change

At the start of the nineteenth century, Scotland's population was about 1.6 million, having probably risen since the 1750s by about a quarter.[1] In the next fifty years, numbers grew much more rapidly, on average by around 10 per cent in every decade, to almost 2.9 million, but over the following sixty years there was a marked slowdown, growth exceeding 10 per cent in only the 1870s and 1890s, and falling as low as 6 per cent in the 1850s and 6.5 per cent in the 1900s; the 1911 total was 4.76 million. For the rest of the twentieth century the picture was more depressed, population falling in several years before World War One and in the 1920s. Overall, growth was just 7 per cent between 1911 and 1951, and the census population peaked at 5.23 million in 1971. This was followed by a fall to just 5.06 million in 2001, with NRS estimating that population fell in every year from 1977 to 1988, and again from 1995 to 2000, but a steady recovery in and after 2001 produced a figure approaching 5.4 million in 2015.

Table 2.1 compares the Scottish figures with data from the rest of the Great Britain and Ireland.[2] It shows how, compared with England, Scottish population growth lagged markedly in almost every decade within our period; it almost certainly also did in every decade well back into the eighteenth century. Overall, between 1851 and 2011, the population of England grew by about 216 per cent, compared with 83 per cent in Scotland. Before World War One, Scottish growth never even nearly matched that of England except in the 1870s and 1890s. Thereafter, Scottish population was even more depressed, with rates being negative in four of the nine periods, while in England the lowest growth was the 1.7 per cent rise in the 1970s.

[1] Webster's (1755) total was 1.265 million, but many of its component numbers are little more than guesses (Anderson 2011).

[2] Except for 1939, the Great Britain figures in Table 2.1 are based on the censuses up to 1961 and thereafter are mid-year estimates, adjusted retrospectively by ONS to take account of perceived inaccuracies in the 1991 and 2001 censuses. The 'Ireland' figures relate to the whole island throughout and all the figures relating to Ireland are census-based. Because the Republic of Ireland held a census in 2002 rather than 2001, the percentage change figures in the last two rows of the Ireland column are for 1991–2002 and 2002–11. No census was held in any of the constituent countries in 1941 and in Ireland no census was held in 1921 or 1931. The 1939 figures are from the *National Register, Statistics of Population Report* (General Register Office 1944), based on an enumeration of the civilian (and non-mercantile) population held on 29 September of that year. The figures have been uprated, in line with estimates in that *Report* (ix–xv), to include the excluded categories, and the Wales and England figures have been adjusted to take account of the impact of evacuation of civilians (this was roughly neutral in Scotland).

Table 2.1. Intercensal rates of increase or decrease of population, component parts of Great Britain and Ireland, 1851–2011

From	To	England	Scotland	Wales	Ireland
1851	1861	12.0	6.0	11.4	–12.9
1861	1871	13.5	9.7	9.3	–6.7
1871	1881	14.6	11.2	10.9	–4.4
1881	1891	11.6	7.8	12.7	–9.1
1891	1901	12.1	11.1	13.6	–5.2
1901	1911	10.3	6.5	20.4	–1.5
1911	1921	4.7	2.5	9.7	–
1921	1931	6.0	–0.8	–2.4	–
1931	1939	4.7	3.4	–5.4	–
1939	1951	5.3	1.8	6.0	–
1951	1961	5.6	1.6	1.4	0.3
1961	1971	6.8	1.1	4.0	3.9
1971	1981	0.9	–1.1	2.7	10.5
1981	1991	2.3	–1.9	2.1	2.8
1991	2001	3.3	–0.4	1.3	9.4
2001	2011	7.4	4.6	5.3	14.1

Sources: see footnote 2.

The figures for Wales show a rather different pattern. Overall, growth was about 163 per cent over the 160 years after 1851. Decadal rates were not very different from Scotland in the 1860s, 1870s, and 1890s, markedly lower in the interwar period, then much higher in the twenty years before World War One and probably, though the data are based on approximate estimates, during and immediately after World War Two. Wales also performed noticeably more strongly than Scotland in the last half of the twentieth century.

Irish population followed a very different pattern, still marginally smaller in 2011 than in 1851, with continuing falls from the mid-1840s until the early 1930s. Particularly notable in the post-war period, however, was the growth of more than 10 per cent in the 1970s and of around 14 per cent in the 2000s, both markedly above that of any country of Great Britain in those decades.

Figure 2.1 shows the Scottish, Welsh, and Irish changes within the context of a number of other smaller north-western European countries. To facilitate comparison, population data are plotted on a logarithmic scale. As a result, growth at any particular rate is represented by a line with a similar angle of slope, regardless of the size of a country's population.

Even up to 1911, and in spite of a rapidly advancing manufacturing and commercial capacity, Scotland's population growth was already lagging behind continental comparators, and even behind some less industrialized countries in the area. While Scottish population grew by 65 per cent between 1851 and 1911, the same period saw growth of 95 per cent in Denmark, 92 per cent in the Netherlands, and 70 per cent in Norway. These were all countries where agriculture, fishing, and forestry were far more dominant than in Scotland. Belgium, by this period probably the most industrialized small country in mainland Europe, saw growth only a little

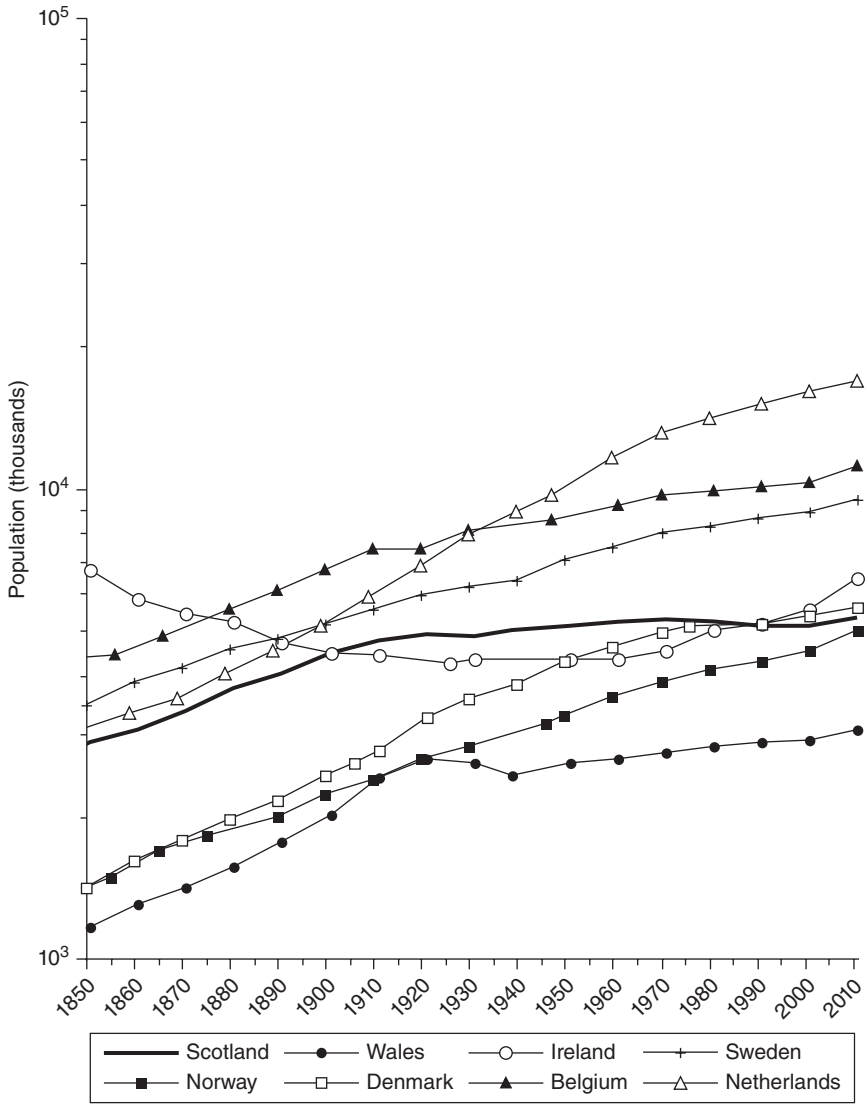

Figure 2.1. Population, selected north-western European countries, *c*.1850–2011
Source: Rothenbacher (2002; 2005); ARs.

faster than Scotland's, at 71 per cent, held back both by its relatively high mortality and low fertility. Sweden, with a more mixed economy, had even lower growth at just 59 per cent. Only Ireland, still recovering from the long-term consequences of the famine of the 1840s, was clearly and consistently a worse performer.

It was after World War One that Scotland's relative demographic depression became very obvious. Of the small countries shown in Figure 2.1, only Scotland,

Wales, and Ireland saw actual falls over the 1920s. The decline in Wales and Ireland continued into the 1930s, but Scotland experienced some modest recovery after 1930, with a growth of over 3 per cent by 1939. Nevertheless, between 1921 and 1951 Scottish population rose by only 2 per cent, compared, in the nearest comparable thirty-year periods, with around 17 per cent in England and Belgium, 19 per cent in Sweden, 31 per cent in Denmark, 41 per cent in Norway, and 49 per cent in the Netherlands.

The scale and duration of Scotland's population decline in the last years of the twentieth century stands out even in a Europe-wide context. Only in Scotland did population fall at least once in every decade. Indeed, of all the EU member states, only Hungary, Latvia, and Estonia had, like Scotland, a smaller population in 2001 than in 1971.[3] Scotland's population in 2001 was about 32,000 less than in 1951, but elsewhere in north-western Europe populations were growing everywhere in this period, in some cases quite rapidly. Top of the growth table was the Netherlands with over 50 per cent, but Sweden, Norway, Denmark, and the whole island of Ireland all exceeded 20 per cent; England grew by 19 per cent and Wales by 12 per cent. In this context, Scotland stands out as almost unique anywhere in Western Europe. Only Denmark, where population change was briefly negative in the 1980s, had any significant period that matched the Scottish persistent depression in the decades after 1971. After 2001, Scottish population began to rise, but even then at a slower rate than most other parts of Western Europe.

However, one of the principal arguments of this book is that it is usually highly misleading to treat Scotland as a single coherent socio-spatial unit. We can see this very clearly if we look at Figure 2.2 which breaks down the overall population figures into the separate regions of the country. The 1975–96 Scottish regions are used for this purpose, except that Argyll is included in Highland rather than Strathclyde.[4]

Figure 2.2 approximately shows the changing regional make-up of the population of Scotland between 1851 and 2011. Between 1851 and 1971, the combined populations of the Highlands (including Argyll) and of the Western and Northern Isles fell from somewhat over 400,000 to around 300,000, with some reduction in almost every decade in almost every county in the area. A significant rebound occurred in the 1970s, associated particularly with oil-related developments; this raised the combined populations by about 40,000 over the next decade; by 2011 they had climbed further to about 350,000.

[3] Office for National Statistics, *Population Trends*, 118 (Winter 2004): Table 1.1.

[4] The major local government reorganizations in 1975 and 1996 impede our ability to use consistent boundaries throughout the whole period. However, GROS published population figures for the 1980s administrative regions of the country for 1891 to 1991 (Census 1991, Regional Reports: Tables A). I have reconstructed approximately comparable figures for 1851, 1871, 2001, and 2011. The 1980s Regions have considerable social, economic, and demographic coherence for most of our period, with one exception: the area covered by the old county of Argyll. For almost all of our period Argyll's dominant underlying economy, as well as its dominant society and demography, was much closer to the highland and island areas than to the West Central Belt counties, with which it was administratively linked under regionalization. I have therefore approximately moved Argyll's figures to Highland. The resulting figures are not exact, but the overall trends are clear.

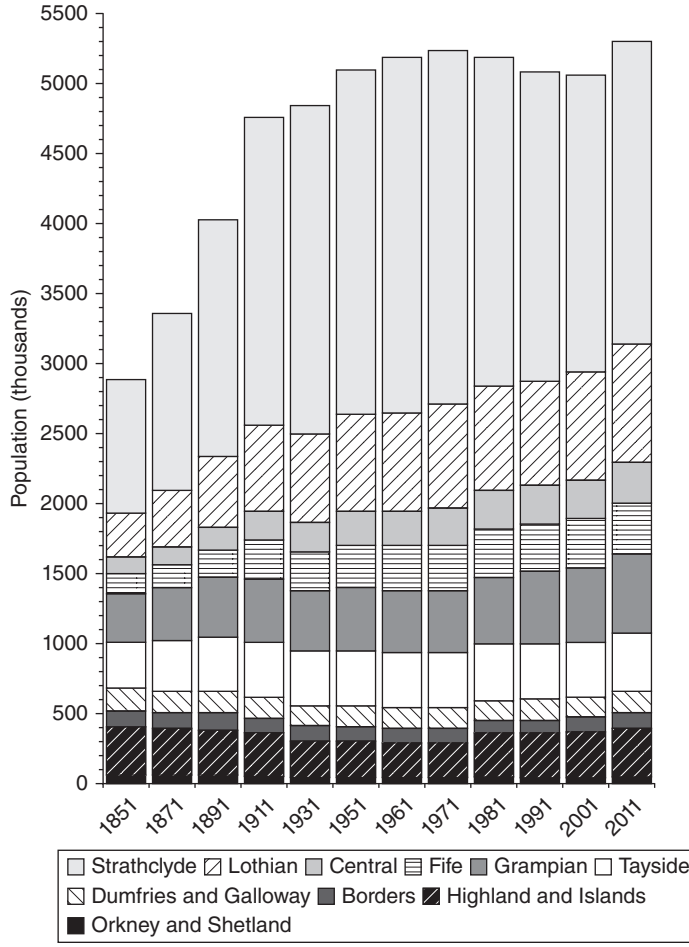

Figure 2.2. Populations of the regions of Scotland, 1851–2011
Sources: see footnote 4.

Numbers in Borders and Dumfries and Galloway were more stable over long periods of time. Borders Region had about 110,000 people in 1851. Thereafter, in spite of almost continuous decline in Berwickshire, growth of textile manufacturing in the west of the region produced a peak of about 130,000 in 1891, but numbers then fell back to a low point of just under 100,000 in 1971, rising sharply to 114,000 by 2011. Dumfries and Galloway, after a fall from about 165,000 in 1851 to about 150,000 in 1891, thereafter consistently had populations of between 140,000 and about 150,000, with declines in Wigtown and to a lesser extent in Kirkcudbright increasingly offset by modest growth in Dumfries. Tayside, driven initially by textile manufacturing in Dundee, saw its population rise from about 325,000 in 1851 to about 395,000 in 1891, with little subsequent change, at no census falling much below 380,000 or rising much above 410,000.

Elsewhere, change was much more dramatic. The population of Grampian, driven above all by continuing expansion of Aberdeen, grew from around 340,000 in 1851 to about 455,000 in 1911, fell back a little in the interwar period and, after some recovery, dropped again after World War Two. Thereafter, in response especially to energy-related developments, numbers surged from about 439,000 in 1971 to around 570,000 in 2011. At regional level, Fife and Central, driven particularly by coal mine expansion, grew from a combined figure of about 270,000 in 1851 to somewhat over 350,000 in 1891, and then rapidly to over 470,000 by 1911. Thereafter growth was slower but their combined population still reached about 660,000 by 2011.

All three of the ancient counties of Lothian saw very significant growth (but in this case particularly in the years before World War One and again linked to a considerable extent to mining). Their total rose from under 320,000 in 1851 to about 615,000 in 1911. However, unlike many other parts of Scotland, growth continued through the period before and after the two World Wars, with the combined population reaching over 745,000 by 1971; it then stagnated until a further spurt took the 2011 figure to over 860,000.

Finally, and in marked contrast to any other region of Scotland, massive industrialization meant that Strathclyde (less Argyll) grew from about 950,000 in 1851 to over 2.2 million by 1911 (Lanarkshire alone grew by over 290,000 between 1891 and 1901). By contrast, the whole fifty-year period after 1911 saw a rise of less than 320,000, to only a little over 2.5 million in 1961. Thereafter a steady and increasingly rapid decline took place across many parts of the region, to a total by 2011 of around 2.15 million, less than at any period since the early 1900s, and a fall of around 17 per cent in fifty years.

These very significant changes also impacted on the regional distribution of Scotland's population. In 1851, the Northern and Western Isles and the Highland areas (including Argyll) made up about 14 per cent of Scotland's population, and the Borders and Dumfries and Galloway had another 9.5 per cent. By 1971, their combined share was down to 10 per cent, and, even after some repopulation in the last forty years of the period, their share was still less than 12 per cent by 2011. At the other extreme, Strathclyde (less Argyll), starting in 1851 with 33 per cent of the population, rose to 49 per cent in 1961, but by 2011 was below 41 per cent, a lower share than at any census for a century. The only area whose share rose consistently at every census was Lothian, up from 11 per cent in 1851 to 14 per cent in 1951 and approaching 16 per cent in 2011. Fife and Central both fell modestly (from a combined 9.4 per cent to 8.8 per cent) to 1891, and then both took slowly increasing shares to reach about 12.5 per cent by 2011. Finally, Grampian, which had nearly 12 per cent of Scotland's population in 1851, had just 8 per cent in 1971, and, in spite of oil developments, still had below 11 per cent by 2011.

These different patterns of growth have multiple socio-economic and demographic causes and consequences, and these will be explored further in later chapters. The changing demographic performance of Strathclyde, in particular, has had a huge influence on overall Scottish demographic trends. So too, but to a much more

limited extent, did change in the Highlands and Islands and the two border regions in the earlier part of our period.

How did these Scottish regional changes compare with what was happening south of the border in the same period? Figure 2.3 contrasts developments in the areas of the two countries which were most subject to industrial expansion at different points in our period. While Strathclyde grew even faster than the northern regions of England up to 1911, thereafter its decline was much greater. In parallel, Tayside and Grampian's slow overall growth is very obvious and Fife and Central's rapid coal-driven expansion between 1871 and 1911 also slowed dramatically after World War One, though not as much as in the more northerly parts of England. What stand out in Figure 2.3, however, are the two midland regions of England, with sustained growth throughout and particularly strong performances from the 1930s onwards.

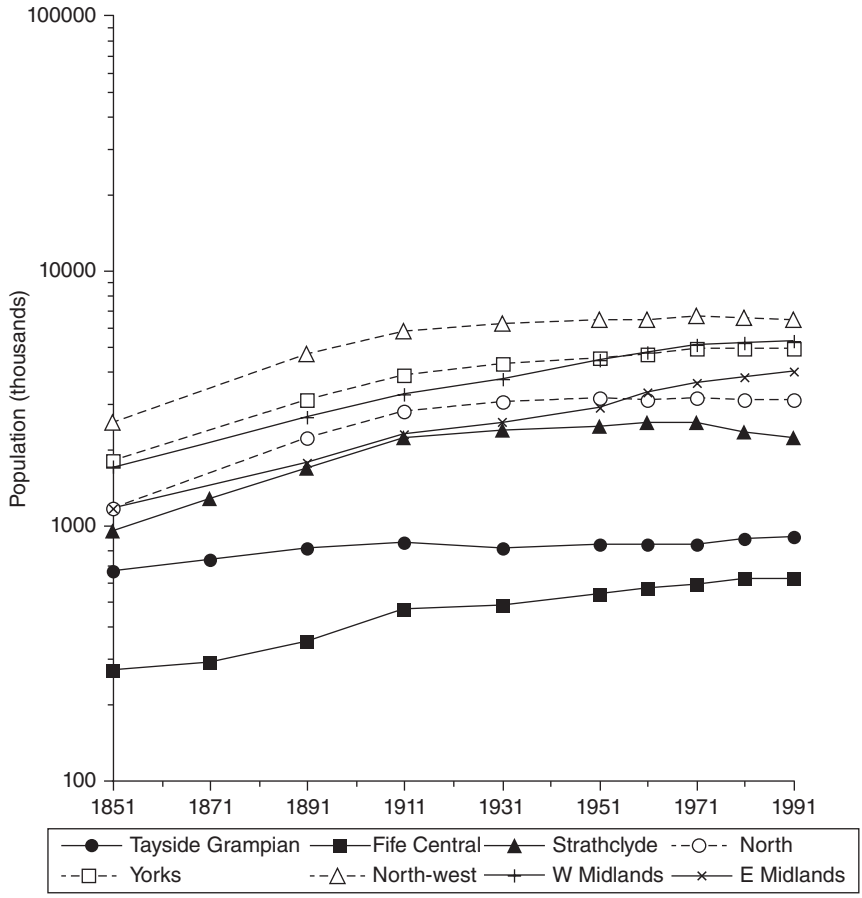

Figure 2.3. Populations of Scottish and English manufacturing regions, 1851–1991

Sources: Scotland: as Figure 2.2; England: Coleman and Salt (1992: 90) and Census 1991.

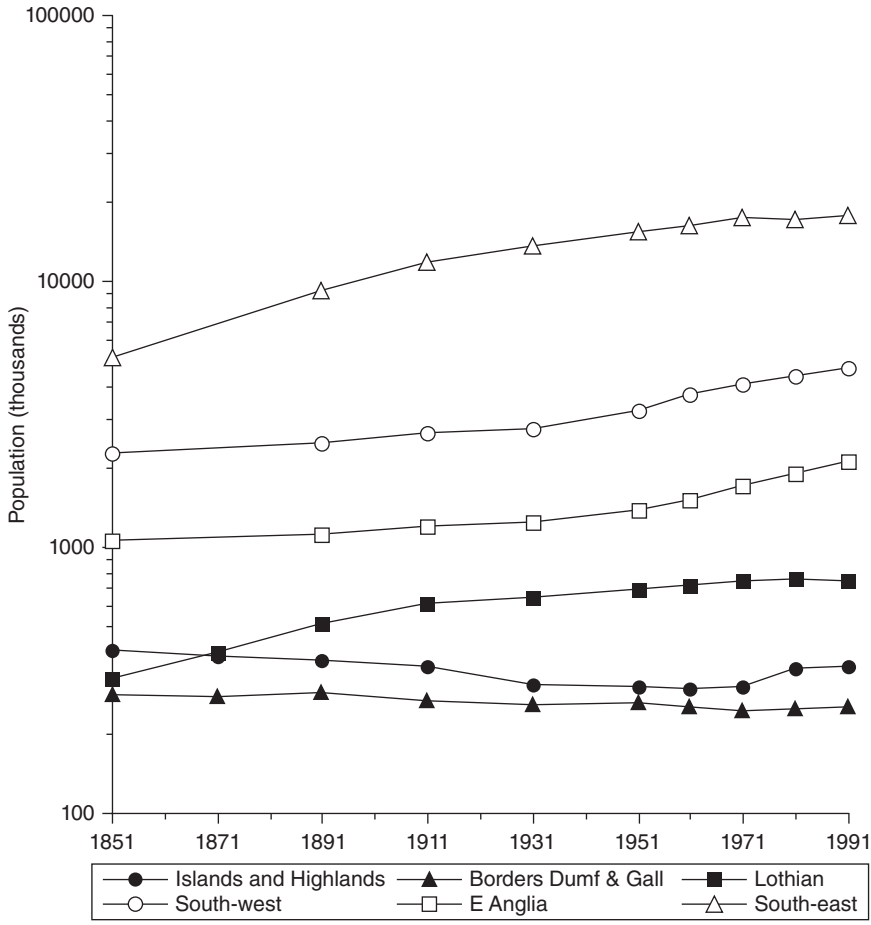

Figure 2.4. Populations of Scottish and English less manufacturing regions, 1851–1991
Sources: as Figure 2.3.

Figure 2.4 looks at the remaining regions of the two countries. There is a clear contrast between Lothian and the south-east of England, which was driven above all by the growth of London and its ever-expanding suburbs. Scotland had no area that grew so fast or consistently as this. Even more important, however, is the contrast between the two more rural regions of England (with growth throughout, accelerating in the interwar period, and then taking off dramatically after 1945), and the two Scottish areas, Borders and Dumfries and Galloway (where population was at best flat over time), and the Highlands and Islands (where even the rapid oil-driven growth of the 1970s and 1980s still left them with populations below where they had been in 1851).

If we look further afield at the major pre-World War Two staple industry regions of continental Europe, it is very difficult to find comparators of any size which matched the demographic depression of Strathclyde (Taulbut et al. 2011).

More particularly, in Belgium, all nine provinces had higher populations in 2001 than in 1947; indeed, in spite of a very significant shift in the share of population away from the core manufacturing and extractive region of Wallonia, there was actual population growth at every successive census in every province, except for a fall of less than 3 per cent in Hainaut between 1970 and 2001. In France, the major staple industry départements in Lorraine and Pas de Calais mostly show relatively flat demographic trends in the post-war period, with only Meuse seeing an actual population decline between the 1960s and 1999, and even then of well under 15 per cent. The same applies in the central southern industrial départements in Rhône-Alpes and Bourgogne.

As for regional change elsewhere, in post-World War Two Sweden, even in the rural areas in the far north (Norbottens and Västerbottens) populations grew in absolute terms between 1950 and 2000, though the three still largely rural län immediately to their south all lost population (but none by more than 12 per cent). In Norway, while populations expanded rapidly in the three largest urban areas (though in their suburbs rather than in the city cores), even the most remote northerly fylker, while significantly losing population share between 1950 and 2000, all saw their absolute populations grow, as also did the central mountain regions. Finally, in Denmark, while the urban core around Copenhagen experienced significant population decline after 1950, the population of the whole of Zealand, only marginally larger than that of Strathclyde, saw significant redistribution within the island, but overall did not fall between 1970 and 2000.[5]

It is, of course, possible to identify some smaller regions of Scotland that at certain periods out-performed many parts of England and the rest of Europe: for example parts of Grampian in the years immediately after 1971. But these relatively small areas are exceptional and could easily be matched by many subregions of England and elsewhere. The conclusion is clear: however the problem is addressed, in a UK and a wider north-western European context, with the exception of the pre-World War One dynamism of Strathclyde, the dominant pattern of Scottish demographic change in the 160 years up to 2011 was, at best, one of sluggish growth and consistent relative decline. In consequence, while in 1851 Scotland had 13.9 per cent of the population of Great Britain, by 1911 this was down to 11.7 per cent; it fell to 10.4 per cent in 1951 and to 8.6 per cent by 2011.

[5] Population data are from Rothenbacher (2005).

3

Physical, Social, and Economic Contexts

INTRODUCTION

Demographic changes are never context free. While there are occasions when mortality surges from diseases which have arrived from elsewhere, evolved into more lethal forms, or spread from another species to our own, even these changes are often in part the result of alterations in human behaviour, whether through movement into new areas, the growing of new crops, consumption of new foods, or changes in living conditions. More commonly, fertility, mortality, and migration rates alter through more direct changes in the opportunities or constraints that open up or limit where any particular number of people can live, how many children they can successfully rear, or how long they can survive. Some of these constraints are physical: climate, vegetation growing seasons, presence in the environment of particular minerals, access to rivers or the sea. Some are technical: new methods of raising food or manufacture, new forms of transport or building materials. Nearly always, there is also a social component: how resources are allocated between individuals, how production is organized, how and at what age certain forms of behaviour are considered appropriate and by whom. Finally, religious and other cultural beliefs, and the injunctions positive and negative that they place on how people conduct their activities, also have effects.

Many of these factors impact on several different aspects of demographic behaviour, so, to save repetition and digressions later, this chapter pulls together some details on various economic, social, and cultural changes in Scotland in our period that have demographic impacts; I have also set out briefly the wider physical context within which life went on.[1]

TOPOGRAPHY AND NATURAL RESOURCES AND THEIR EXPLOITATION

Throughout history, Scotland's settlement patterns, and the economic bases on which they depend, have been strongly influenced by its geography. The country

[1] In this chapter I have not footnoted general historical information which can be found in most of the excellent general books now available on the social and economic history of this period, notably Smout (1986); Fraser and Morris (1990); Devine (2000: parts 3 and 4); a number of chapters individually noted below from Devine, Lee, and Peden (2005) and Devine and Wormald (2012); Paterson, Bechhofer, and McCrone (2004); and Lee (1979). Valuable regional background for the pre-1850 period is in Levitt and Smout (1979).

as a whole is unambiguously 'northern'. The Shetland Islands lie north of Oslo, Stockholm, and Helsinki. The southern Borders are on roughly the same latitude as Copenhagen. The Mull of Galloway, the southernmost point in Scotland, is over 500 km north of Lands End in the south-west of England. One consequence is that sea level mean annual temperatures are some five degrees centigrade colder in Shetland than in Cornwall, with eastern Scotland's mean some three degrees colder than East Anglia's. This is one factor producing shorter growing seasons in Scotland. Lying further north also means that the country is more exposed to long successions of Atlantic depressions, producing more rain and many fewer days of sunshine, especially in the west. While more favourable areas like East Lothian, Fife, and the Moray Firth average about 700 mm of rain per year, many parts of East Anglia have less than 500. The upper Clyde, Ayrshire, and Dumfries and Galloway average nearly 1,000 mm, the north-west coast over 1,700, and the western Highlands over 4,000. While the Fife coast and Tiree average over 1,450 hours of sunshine per year and East Lothian around 1,400, Shetland has only around 1,100 (compared with around 1,750 hours on England's south coast).

Temperature is not the only factor limiting Scottish agricultural production. Sixty per cent of Scotland's surface area lies above 500 ft (*c.*150 m), compared with 21 per cent in England and 22 per cent in Ireland; this is one among several reasons why no part of the Highlands and Islands of Scotland ever even approached the population densities of pre-famine Ireland. Even in the south, a band of hills almost never below 300 ft, and mostly much higher, starts right on the west coast of Ayrshire and spreads across to Berwickshire and southern East Lothian. Thirty-one per cent of Scotland's surface area lies above 1,000 ft, compared with just 6 per cent in England and 4 per cent in Ireland. Temperatures fall by roughly one degree centigrade for every 500 ft, making frosts more likely for a greater part of the year and, in addition, rainfall is heavier as height increases, sunshine hours are lower, and wind exposure much higher.

These climatic conditions have consequences for Scotland's demography. Winters are only very occasionally cold enough, or summers hot enough, to create circumstances favourable to the extreme mortality surges that were common in the past in northern Europe on the one hand and southern Europe on the other. High rainfall and sloping hills also facilitated provision of good water supplies and sewage systems (though they were a long time coming in some parts of the country).

Climatic conditions mean that even in the most favourable areas of Scotland spring comes later than in most of England, and growing seasons are shorter. It also means that under pre-modern agricultural conditions, annual crop yields were markedly more variable. At its worst, as in the seventeenth century, this could lead to one harvest in four being seriously deficient, in marked contrast to much of England and the Low Countries which have even today among the lowest annual variability in crop yields anywhere in the world. In addition, wheat was a risky crop almost everywhere, so the principal grain crops were always in our period the more climate-tolerant but lower yielding oats and barley. Equally importantly, especially given the underlying rock formations, cold damp conditions facilitate peat formation. This, operating over thousands of years, has left large areas of Scotland covered

with blanket bog of a kind that it was almost impossible to drain until modern machinery became available (and even then most of it was only economically useable for the extensive afforestation that followed the two World Wars). Much of the rest of the higher ground had at one time been forest, but centuries of clearance have left it as heathery or very damp grassy or gorse-covered moorland. The higher levels are mostly scattered scrub or, in the exposed locations, nothing beyond a few ground-creeping plants. Before the arrival of clay drainage pipes in the nineteenth century, swampy conditions also predominated in most lowland valley bottoms, except where steeper slopes led to rapid run-offs. Even in the south-east, the principal arable region today, many of the soils are naturally poorly drained and difficult to plough. Where this is not so, as in much of coastal East Lothian and in the machair-covered outer fringes of the north-west and the Western Isles, the soils are frequently sandy and yield reasonable grain harvests only if heavily mulched and manured.

The consequence of all this is that the only significant areas of Scotland's land surface which are today considered reasonably suitable for intensive arable farming are small areas around the Dornoch and Moray Firths, quite limited parts of Moray, Aberdeenshire, and Angus away from the hills, East Fife, the Lothians, and the Merse area of the Borders, and small near-coastal strips of Ayrshire and Wigtown. The 1950 Ordnance Survey Land Classification estimated that these intensive arable areas took in just 11 per cent of the country's land surface (the comparable figure for England was 28 per cent—only four Scottish counties reached this figure). A somewhat wider area is deemed today to be suitable for mixed agriculture, with grain production alternating with animal husbandry. These areas include the western fringes of the Western Isles, the Caithness plain, most of the rest of eastern Aberdeenshire, Lanark, Renfrew, and Stirling away from the hills, Clackmannan, and parts of western Ayrshire, and coastal Dumfries and Galloway. At the other extreme, except for artificially improved grassland on the lower slopes of some glens, and tiny ribbons of mixed agricultural land along the lower reaches of the mountain burns and rivers, almost all the rest of the highland counties, south into much of Perthshire and across all the border hills, are only deemed capable of supporting rough grassland at best. The OS estimate for 1950 put 63 per cent of Scottish land in the lowest 'poor quality' categories, compared with just 13 per cent in England.[2] The result is that today something like two thirds of Scotland's agricultural land is rough grazing (compare less than 28 per cent in Wales and 11 per cent in England). At the extremes, through the years 1877–1960, only about 2.5 per cent of land in Sutherland was under crops, about five per cent in Argyll, and just over 6 per cent in Ross-shire (Cameron 2005: 187–8).

[2] The information in this paragraph is from the Macaulay Land Use Research Institute www.macaulay.ac.uk/explorescotland/lca_map.pdf, and from Ordnance Survey, *Planning Maps: Explanatory Texts*, No. 1, 'Land Classification' (Chessington: 1950). Before modern drainage, some land which is today deemed to be available for arable farming would have been useable only as summer pasture. However, some patches of land deemed today only suitable for pasture would have been cropped with oats or potatoes, but most, even if heavily fertilized, drained, and dug, could never produce more than poor crop yields.

Turning to other natural resources, in the later eighteenth century much of Scotland's coastline still teemed with fish, and rivers were a valuable food source. By the later nineteenth century, however, industrial and domestic pollution had killed almost all the fish and other food sources in many rivers and estuaries, while overfishing was beginning to deplete the sea, a process that was largely complete in most areas by the 1950s and often long before.[3] Meanwhile, on land, huge parts of the 'least productive' areas of the Highlands and the Borders were converted in the later nineteenth century into grouse moor and deer forest. Much of this had previously been used for summer pasture for cattle or sheep, perfectly adequate as long as the animals were taken to lower ground in the harshest months of the winter. At the extreme, by 1912 two fifths of the land area in Ross and Cromarty and Inverness was 'deer forest' (Smout 2012: 31).

One natural resource that only in a few areas became exhausted in our period was peat, the principal fuel of most of the west coast and the islands until, as transport improved in the twentieth century, coal became the preferred fuel. Meanwhile, from the later eighteenth century, coal became the key driver of Scotland's industrial revolution, as well as an important export commodity. By the mid-nineteenth century there were collieries across a broad swathe of land from the south of Fife, south-west across the central lowlands to Ayrshire and north Dumfriesshire, with other major fields in the Lothians. Lanarkshire also had large iron ore resources and it was these that largely determined the location of Scotland's iron, steel, and heavy industry manufacturing in the nineteenth century—and went on doing so even after the ore was mostly exhausted in the last decades of the nineteenth century. Also important in determining particular industrial locations were the discovery and exploitation of shale oil in West Lothian in the later nineteenth and earlier twentieth centuries. In many ways this foreshadowed the major petroleum processing plants at Grangemouth, and the impact of North Sea oil and gas in later twentieth-century Aberdeenshire and Shetland in particular.

TRANSPORT AND COMMUNICATIONS

By 1850, transport had moved a long way from the situation of a century before. Extensive work had created a road network between the major urban settlements across the country, though many routes still posed challenges even to riders on horseback in bad weather, and long distance movement of horse-drawn goods was slow at all times and often impossible in the winter. Away from the main routes, and into the furthest corners of the country, little had changed, but in the Central Belt the construction of canals made possible the movement of substantial bodies of freight, though by the 1840s the rapid spread of railways was already rendering many almost redundant. For coastal communities, where by the 1850s a large proportion of the population of the north-west lived, communication by sea had always been far more important than by land. The opening of the Crinan and

[3] For an excellent account of the impact in one major estuary, see Smout and Stewart (2012).

Caledonian Canals (in 1801 and 1822 respectively) replaced hazardous coastal routes and dramatically shortened journey times from Glasgow to the west coast and through to Inverness and the Moray Firth. As a result of these developments, most even of the rural population in Scotland were already in 1850 in considerably better communication with the rest of the country than was the case in Ireland or even most of Scandinavia. Nevertheless, until well after 1850, the livestock trades continued to move most animals on foot along traditional drove routes to the Central Belt (Haldane 2008).

The second half of the nineteenth century filled most of the major gaps in the transport networks except for the most remote parts of the north-west. The railway arrived in the far north at Wick and Thurso in 1874. On the west coast, Strome Ferry on Loch Carron was reached in 1870, Stranraer from Glasgow in 1877, and Oban in 1880. Meanwhile, on the west coast and the islands, coastal steamer routes expanded steadily, calling at ever more local quays or tiny settlements in bays. To take just one example, in 1894 at least forty-four sailings left Oban each week to around thirty calling points, routing south to Glasgow, north to Inverness and to places up the coast as far north as Gairloch and Ullapool, and west to a dozen Hebridean islands (Murray 1894: 394). These regular services were supplemented by increasing numbers of small freight boats ('puffers') which could pull up onto beaches, where they were unloaded, then refloated as the tide rose.

Between them, extended rail and steamship services transformed many aspects of life in remoter parts of the country, allowing rapid transfer of north- and west-coast fishing catches to the cities and to many parts of England, and opening up even quite remote crofts and farms to visiting cattle merchants who then used railways and small ships to carry their purchases away, thus largely replacing droving. In return, coal and a whole range of new consumer items became much more available to remote communities, in some ways reducing the perceived disadvantages of such locations (though until electricity arrived in the 1950s many amenities by then widely available elsewhere remained unusable). The new routes also facilitated migration: on an annual seasonal basis from the north-west, and from Ireland through fast and regular steamer routes into Wigtownshire in particular. It is often suggested that penetration of railways encouraged the spread of urban values and the attractiveness of less arduous work and shorter hours in the towns (Devine 2000: 465). Certainly for the first time railways opened up huge areas of the north of Scotland and the islands both to tourists and to members of the new rich who used them to visit their sporting estates. Meanwhile, an ever-increasing network of branch lines reached out into almost all parts of the rural south, encouraging increasing farm specialization, notably into dairying in Ayrshire and the south-west, with significant impact on the gender pattern of local labour demand.

At the same time, a dense network of branch lines and sidings penetrated every manufacturing area, allowing cheap movement of coal, iron ore, and other raw materials into the rapidly expanding factories (and also coal to the towns) and manufactured goods out to markets all over the world. Around the cities, new suburban railway lines (and later electric trams) allowed the middle classes to move further away from city centres to new homes whence the men could commute daily

to their urban places of work; this was a key contributor to the rapid population growth of communities like Corstorphine on the outskirts of Edinburgh and Broughty Ferry to the east of Dundee. Some of the professional classes made even longer commuting journeys by train, west from Haddington or North Berwick in East Lothian into Edinburgh, or east from Helensburgh or Gourock into Glasgow; by doing so they enabled their families to avoid the worst of the pollution and recurrent infectious epidemics of the towns.

Transport and communication improvements also impacted on emigration in the second half of the century. In particular, the rapid shift in the 1860s of most trans-Atlantic travel to steamships rather than sail (to Australia mostly in the 1870s) made emigration both cheaper and more predictable. Costs of passage fell markedly, while reduced journey times cut the period when income was foregone. Steamships also for the first time made return migration more attractive, while improved communication increased the rate of information flow about opportunities abroad and thus affected both timings and choice of emigrant destinations (Baines 1985: 79–80; Harper 2004: 107, 197, 203).

The interwar period saw the beginnings of a massive change in transport systems, as motor lorries and then cars began to take business away from the railways. Initially, the demographic consequences were limited, but from the 1960s spreading car ownership widened commuter belts, allowing even manual workers to commute daily to their work from nearby villages and towns (and also in reverse directions to remote work-sites in, for example, rural glens). The opening of faster roads also increased tourist traffic, allowing some people who would otherwise have had to leave to find new jobs in the countryside.

FARMING REGIONS: LAND USE, AND THEIR WORKERS AND PRODUCE

I noted earlier in this chapter the implications for agrarian systems of the differences in climate and soil in the different areas of Scotland, and the previous section discussed how the spread of railways and steamboats encouraged greater regional specialization in agricultural production.

There were, however, major contrasts in landholding and farming systems even by the 1830s: for example, large farms with a strong emphasis on arable production, and principally worked by landless labourers, dominated much of the eastern lowlands, while small croft systems in which farming could only provide a part of a family's subsistence were widespread across much of the Highlands and the Hebrides. A variety of systems involving at least some tenant farming remained in some other parts of the country, and in parts of the south-west there were significant numbers of small owner-occupiers.

These differences were linked partly to different patterns of land ownership, but mainly to the dominant crops and livestock and how they were produced. Grain production predominated in much of the south-east, with large numbers of ploughmen living in cottages around the farms so they could care for their horses

for up to sixteen hours per day seven days a week (less on Sundays). In some of the large-scale cattle-fattening areas further north, a similar system developed, especially once the railways allowed the easy movement of cattle; this system also required intensive arable production (mainly of turnips), so again there was a requirement for ploughmen, but it also provided for much of the nineteenth-century opportunities on the less productive land for small 'peasant-like' tenants who raised the calves to a marketable size (Smout 1986: 14–15; Campbell and Devine 1990: 52; Carter 1979). By contrast, from the second half of the nineteenth century, an increasing number of farms in south Ayrshire and Dumfries and Galloway shifted from cattle rearing to milk production, focused on small to medium-sized farms employing family labour supplemented by women for milking and cheese-making.

The biggest contrast of all lay in the north-west and the Hebrides. Almost right across this vast area, a fundamental transformation of the agrarian system took place between the early eighteenth and the late nineteenth centuries, though the timing, the number of stages involved, and the pace of change differed widely, even from one landlord to his immediate neighbour. Amid all this change, however, several things remained largely constant. In particular, only a tiny proportion of the land area of the Highlands and Islands was ever used for arable production. Before modern drainage techniques arrived in the later nineteenth century, the bottoms of most straths and glens were too wet and boggy for successful growing of crops, while the higher hill land was too cold and exposed, and much of the rest was too rocky or boggy to be capable of useful cultivation. This meant that food cropping was always concentrated on what were often quite scattered patches of gently sloping land on the lower slopes of the valleys, or down to the side of lochs or the sea (and then, preferably, only if some shelter was available from the worst of the prevailing westerly gales).

Although much of the mountain and hill land was scree or largely bare of any vegetation, or was covered in impassable peat bog, some of the higher land was used productively for part of the year as summer pasture. The same applied to many small offshore islands. The result was a widespread pattern of seasonal migration which continued in some areas even into the twentieth century. Families, or some of their members, moved for several months to temporary housing (in many areas called 'shielings') in the hills or on islands, where butter and cheese were made, before the animals were brought down to the lower ground for the winter months.

The result was that permanent settlement was almost entirely confined to very limited areas. We can see this very clearly from Roy's mid-eighteenth-century map of Scotland (Roy 1747–55). This shows settlements as clusters of red dots reflecting small groups of houses that dominated settlement patterns before the reorganizations of the following hundred or more years. The overwhelming impression for the whole of the land north and west of the Great Glen is of vast areas of higher land with no houses at all. Lower down, even the most densely populated inland straths seldom show sets of red dots located less than about half a kilometre apart in the lower reaches; in their middle sections there are rarely less than one per kilometre; and higher up they peter out almost entirely. Many straths and glens were much less settled than this, with just a few scattered settlements where the

land allowed. Some strips of coastline had rather denser patches of settlement spread out for a few kilometres, but in the mid-eighteenth century most of the coast was either completely without houses or had just odd groups clustered on a headland or around the head of a small bay.

Starting in the seventeenth century, some landlords in the south-west and in Perthshire had begun to change settlement patterns on their land, attracted by the much higher incomes that could be made from letting to tenants who conducted large-scale animal husbandry. Where this was done, people had to be moved from the valley bottoms because these were essential under the new systems to grow winter fodder crops and to keep the new tenants' animals over the coldest months. Elsewhere, the first stage of change was often for landlords to reorganize holdings so that formerly shared arable was subdivided into individual 'crofts', but access to common grazing normally remained. Many of these crofts were originally held by multiple tenants, and in some areas landlords deliberately encouraged subdivision in order to maximize available labour, both for military recruitment and, by the later eighteenth century, on some coasts for kelp production. The resultant rapid population growth of these areas through a process of subdivided or shared tenancies was similar in many ways to what had happened in Ireland, and in both cases it was quite different from the systems of many continental European peasant societies, where varying combinations of communities and landlords enforced rigid restrictions to prevent overgrazing and overintensive cropping of land, and thus inhibited significant population growth (Anderson 2000).

After 1815, falling kelp prices and increasingly frequent failure of potato crops, which by then provided the staple food for a majority of crofters, meant that most landlords sought to eliminate subdivision and remove landless labourers, with the result that the norm became one family responsible for each croft, often supplementing its income by seasonal migration to the lowlands, by fishing, or through other by-activities. In some areas, this remained the pattern right through to the end of the nineteenth century, and indeed, in some places it still operates today.

More widely, however, and in some areas already by the later eighteenth century, landlords sought to raise their incomes by renting out very large parcels of their tenanted land for sheep, evicting tenants altogether or moving them to new and typically tiny and closely packed crofts elsewhere, mainly on the coasts. The final straw in many areas came with the almost complete failure of the potato crop in the late 1840s, which reduced incomes right across the crofting communities, leaving most small tenants not merely unable to pay their rents but even to earn enough to keep their families alive. Faced with the loss of rental income, and in some cases after having paid out large sums to assist their tenants in distress, many landowners went bankrupt, and by the 1850s a new generation of landowners had largely taken over. Like those who had cleared their tenants earlier, these new landlords wished as far as possible to obtain an income from their estates; further clearances followed, though as time went on more of these were aimed primarily at converting land into shooting and fishing estates.

From the third quarter of the nineteenth century, there were increasingly serious outbreaks of hostility as families sought to acquire land for new crofts. This led in