

CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

An invited chapter from Elspeth Graham and Paul Boyle of the University of St Andrews.

Introduction

The Scottish population, in common with other European populations, is failing to reproduce itself. In 2002, Scottish fertility reached an historic low. In that year, 51,270 births were registered, just over half the number fifty years before, and the total fertility rate fell to 1.48 births per woman in the reproductive age groups. This low fertility looks set to continue. According to definitions used in the academic literature, Scotland is now a very low fertility country (with a total fertility rate of less than 1.5). Other very low fertility countries include Spain, Italy, Germany, Austria, Canada and much of Eastern Europe. Since around 2.1 births to each fertile woman are required for a population to replace itself in the absence of migration, the shortfall has provoked worries about Scotland's demographic future.

The fact that Scotland is currently experiencing fertility well below the level required for generational replacement results in at least two long-term effects that can be considered undesirable. First, in the absence of change in mortality or migration, continuing low fertility will result in the natural decline of Scotland's population. Scotland's demographic regime will be subject to negative momentum as smaller numbers of children than of parents mean decreases in the number of parents in the next generation and thus contribute to continued population decline (Lutz *et al.* 2003).

Second, the population will age as the proportion of younger people in the population declines. With low numbers of births each year and more people living longer, the average age within the Scottish population will continue to increase. Population ageing is now a common phenomenon throughout Europe but has become particularly apparent in Scotland since 1997 when the number of deaths exceeded the number of births and the population entered a period of increasing natural decline. If this trend continues until 2026, it could lead to a natural population loss of over 14,000 persons per annum.

Thus, low fertility is predicted to result in both natural population decline and population ageing. These demographic consequences of low fertility suggest an unstable future for Scotland's population with implications for Scotland's economy and society. Just what the impacts will be is currently a matter of debate but low fertility is widely viewed as having negative consequences.

The problems of low fertility

Scotland, unlike other countries in the European Union, is currently experiencing overall population decline. Whether this matters socially or economically is debatable. However, falling population can have negative implications, especially when apparently significant numbers are passed. For Scotland, press and political interest has been sparked by the expectation that, if trends continue as projected, the population will fall below 5 million before 2010.

Historically, countries associated population size with military, economic and political power, and a declining population with weakening national identity and loss of international standing (Teitelbaum and Winter 1985). Perhaps more importantly, population decline is often regarded as being symptomatic of poor economic performance and may even reduce confidence in the economy.

In any event, it is the potential impacts of changes in the age structure of the population that are the greater cause for concern. Population ageing could have severely negative effects on public services and the economy. According to the results from the 2001 census, for the first time in census history people aged 60 and above formed a larger part of the UK population than people aged under 16. Further, in comparison with the rest of the UK, the projected percentage of the population aged over 65 will soon be higher in Scotland than in England, Wales or Northern Ireland. Comparing projections for Scotland with those for England and Wales shows that, by 2040, older age dependency (or support) ratios are expected to be higher in Scotland, at 458 per 1,000, than in either England (399 per 1,000) or Wales (438 per 1,000).¹

Such ageing has various implications. Most notable will be the demands on health services, which are likely to increase as people live longer. By 2025 we can expect to see two or three times as many people aged over 80 in Europe and their consumption of health services will inevitably be much higher than average. The number of people dying annually is set to increase by approximately 20 per cent over the next thirty or so years and, given that currently 60 per cent of a person's health costs occur in the year preceding their death, this represents a potential challenge for health service provision (Watson 1996).

Ageing also means that the proportion of population of working age will decrease as the average age of people rises. This has implications for the ability of the labour force to generate enough income to support those who do not work. In the UK over the last twenty years, activity rates for men in all age groups, except the youngest, have been decreasing, while rates for women have been increasing. In combination, overall activity rates remain stable at a time when the dependent population is growing. Related to this is the projected increase of those over state pension age by more than 40 per cent over the next fifty years. The recognition that many pension schemes may be unable to accommodate this demographic shift underlines the potentially serious financial implications of population ageing.

Population decline and population ageing are driven, in part, by low fertility. Both are increasing faster in Scotland than in the rest of the UK. Given the implications for the economy and service provision, it is important to understand the reasons for such low levels of fertility.

¹ Older age dependency ratios are the number of people over state pension age per 1,000 persons of working age (16 to pension age) for a given year. Between 2010 and 2020 state pension age will change from 65 years for men and 60 years for women, to 65 years for both sexes.

CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

The reasons for low fertility

Very little research has been carried out on this topic in Scotland but evidence from other countries suggests a complex picture with a variety of factors producing low levels of fertility. For example:

Biological	Economic	Socio-Cultural
low ability to conceive	economic insecurity	changing role of women in society
reliable contraception	expansion of higher education participation of women in the labour force high costs of raising children high costs of other goods and services, including housing	growing secularisation rise in individualism changing attitudes to marriage and family
	Practicalities lack of childcare provision inflexible working hours non-family friendly working practices lack of gender equality in the domestic sphere	

These factors are inter-related and can be expected to affect the fertility of different groups in a population in different, and sometimes contradictory, ways.

Fertility varies, for example, by the age of the mother (see **Chapter 2**). This is of particular significance because low fertility is universally associated with the delay of childbirth until older ages. In Scotland during the high fertility of the baby boom years in the 1950s and 1960s, the age group with the highest number of births was 25-29. In contrast, the baby bust has been accompanied by a steady increase in the average age of mothers so that, by 2002, the age group with the highest number of births was 30-34. This coincidence between low fertility and delay in childbirth suggests several possible reasons for fertility decline.

First, there may be a biological effect. Female fecundity, the ability to conceive, varies across a woman's reproductive lifespan. In general, fecundity decreases as women enter their 30s and is almost gone by the time they pass into their 40s (Gosden and Rutherford 1995). Thus, in a population of several million, a significant delay in attempts to conceive until women are in their early or even late 30s could be expected to reduce the fertility level as some couples find that they are subfertile or infertile. The rise in demand for in vitro fertilisation treatment is evidence of this effect. Yet the use of assisted reproduction technology also counterbalances the biological effect of reduced fecundity, increasing the number of live births to older women. The overall effect of delaying decisions to have children is still unclear but it is likely to account for only a small percentage of the European fertility decline over the past thirty years.

Another possible additional biological effect relates to semen quality among men. Emerging evidence from Denmark suggests a decline in semen quality in successive birth cohorts. More than 30 per cent of the youngest cohort born around 1980 was found to have sperm counts in the subfertile range (Jensen *et al.* 2002). The relationship between poor semen quality and low fertility is still a matter of controversy but it seems unlikely that cohort-related declines in male fecundity account for more than a very small proportion of current low fertility in European populations. The consensus is that profound social changes play the major role.

Demographers and social scientists broadly agree that attitudes to childbearing, especially to its timing, have changed in most developed countries. There is less agreement about the causes of this change. The introduction of the oral contraceptive pill in the 1960s and 1970s has been identified as an important cause of fertility decline in Britain, since it allowed women unprecedented control over their fertility (Murphy 1993). Other researchers point to less favourable economic conditions in the 1980s and 1990s, coupled with growing insecurity in job tenure. Most explanations for very low fertility see the increasing participation of women in the full-time labour force as a central concern (Caldwell *et al.* 2002), although this trend itself is ascribed variously to economic necessity and/or the changing role of women in society. Increasing secularisation and individualism, reflected in rising rates of cohabitation and births outside marriage in north-west European countries, are seen as the catalysts to changes in attitudes to childbearing (Van de Kaa 1987). Women are seeking greater gender equality, economic security and self-fulfilment outside motherhood. Many men too appear to share the belief that fatherhood is best entered into once they are at least in their 30s, have established a career and enjoyed the freedoms of a childless lifestyle.

Possible reasons for Scotland's low fertility

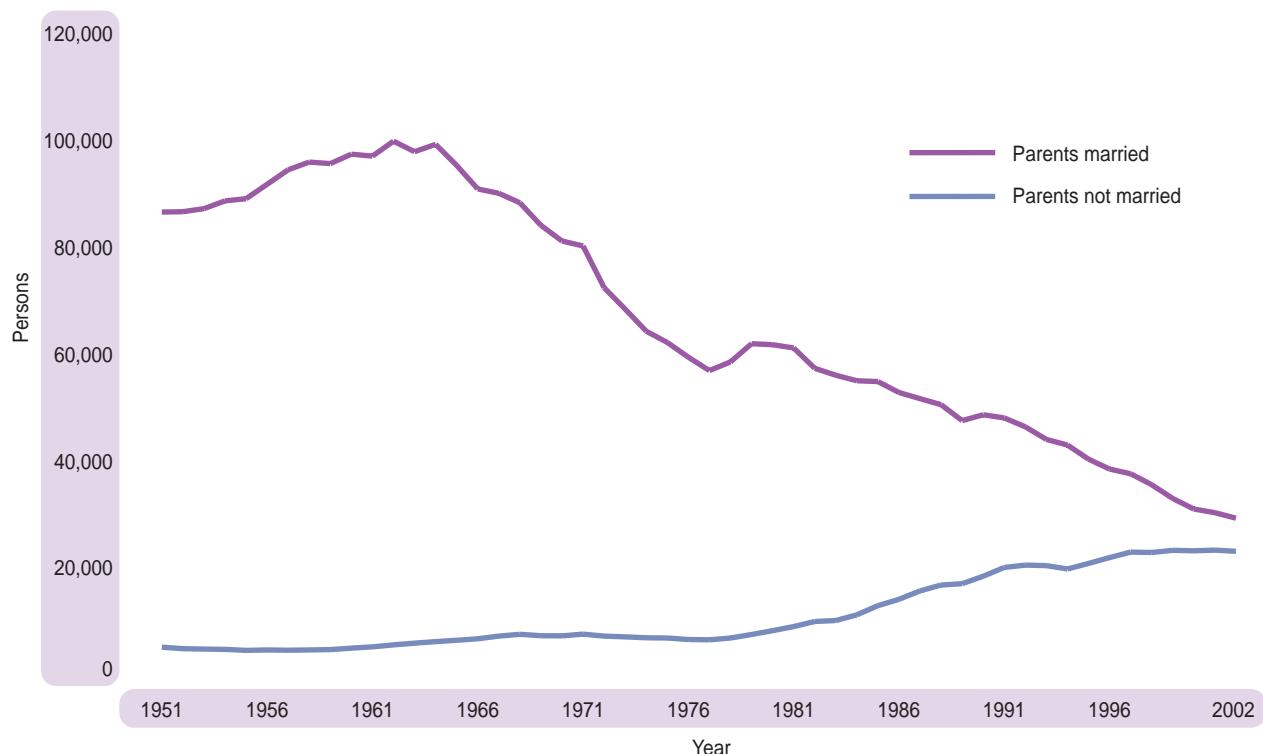
There is a paucity of research examining the reasons for low fertility in Scotland but it seems safe to assume that some of the explanations above are common across north-west Europe. In the case of Scotland, two key questions still need to be addressed. First, why are young adults choosing to wait until they are in their 30s to begin childbearing? Second, why is fertility at such a low level, with couples in Scotland having fewer children, on average, than couples in England? Some possible answers suggest themselves but, at present, they are little more than speculation.

- *Changing values and attitudes*

In 1991, 3.8 per cent of households in Scotland included couples who are cohabiting. The 2001 Census revealed that this figure has increased to 6.9 per cent. Furthermore, the proportion of households with dependent children where the parents are cohabiting has risen from 6.9 per cent to over 13.9 per cent in the same period. And while the overall fertility rate has declined, births outside marriage have increased steadily since the 1970s, reaching 44 per cent of all births by 2002 (**Figure 3.1**)

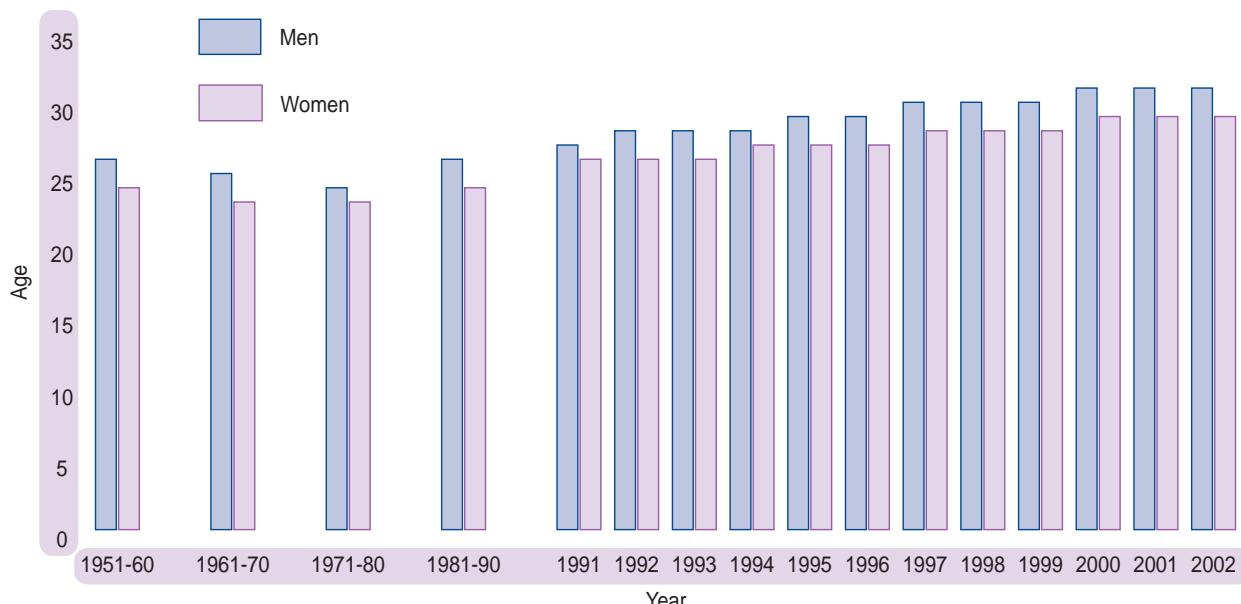
CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

Figure 3.1 Live births by marital status of parents, Scotland, 1951-2002



Such trends are indicative of changing social attitudes towards the family and, perhaps, a rising tide of individualism as younger adults choose consumerism and enjoyment over the commitments of marriage and children. Mean age at first marriage for both men and women in Scotland fell during the high fertility years between the 1950s and 1970s but has steadily increased since. In 2002, on average, women were marrying at age 29 and men at age 31 (Figure 3.2).

Figure 3.2 Average age at first marriage, by sex, Scotland, 1951-2002



However, changing social attitudes have weakened the connection between marriage and fertility and **Figure 3.2** must be interpreted with caution. Marriage is no longer the social prerequisite for childbearing that it once was, and some couples only enter formal marriage after they have had a child. Nevertheless, the combination of delays in both marriage and childbearing over the past three decades suggests a change in the aspirations of younger people in Scotland.

- *The expansion of higher education*

The Government's policy of expanding higher education is encouraging more young people to invest time in obtaining post-school qualifications. The benefits of this policy, both for the economy and the individual, must be recognised but its demographic consequences may not be so positive. Few students find themselves in a position conducive to starting a family. Not only does the period of study delay entry into the labour market but paying off the burden of debt built up by most students reduces disposable incomes in the crucial years after graduation. Further, women may have an additional incentive to delay childbearing since maternity leave soon after starting a new job could jeopardise career prospects. Housing market conditions may also provide incentives for delay as young couples find it impossible to afford family housing. It is notable that cities like Edinburgh, where house prices are particularly high, have the lowest levels of fertility in Scotland.

- *The increase in female participation in the labour force*

The increasing participation of women in higher education is a welcome sign of advances in gender equality and brings with it a number of economic advantages. It tends to increase the overall size of the labour force and, in the longer term, promises to reduce poverty in older age as more women acquire work-based pensions. In 2002, 75 per cent of women aged 16 to 59 were economically active in Scotland, compared to 70 per cent in 1990. Without this increase, support ratios in relation to the older population would be less favourable and the negative effects of population ageing more pronounced. Yet, along with these gains, there is also a demographic cost.

Studies in other developed countries have shown that the most highly educated women have the lowest fertility. Explanations for this are complex but the emotional and economic stresses of combining a demanding career and motherhood are prominent among them. In Singapore, for example, a recent survey of graduate women found lack of time to devote to children to be the most frequently cited reason for not having a/another child (Graham *et al.* 2002). More generally, the maintenance of work-life balance in relation to the often conflicting expectations of employers and family appears to be problematic and, when compromises are demanded, it is women rather than men who tend to adjust their working practices (Hanson and Pratt 1995). In strictly economic terms, highly paid women have the most to lose (higher opportunity costs) if they decide to leave employment or reduce their working hours.

CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

- *Difficulties of combining work and family*

The difficulties faced by couples when combining work and family responsibilities draw attention to various practical barriers to higher fertility. There is a relative lack of affordable and accessible childcare in Scotland. The state provision of nursery places has increased over the past two decades (pre-school education is now available on demand to all 3 and 4 year olds in Scotland) but childcare for young babies is largely provided by the private sector, with parents bearing the quite substantial costs. Further, the ethos of the workplace is still some way from being family friendly despite advances in terms of flexible working hours. Paid maternity leave is less generous than in some other European countries and encourages mothers to return to work a few months after the birth of a child. Paternity leave only covers the immediate period after a birth and employers' attitudes to parents taking leave to look after sick children are often ambivalent at best. More controversially, the responsibility for children is rarely shared equally between the two parents and Scotland may be lagging behind England in terms of gender equality in the home. Greater pressures on women dealing with the combined demands of work and family may be contributing to the difference in fertility between England and Scotland.

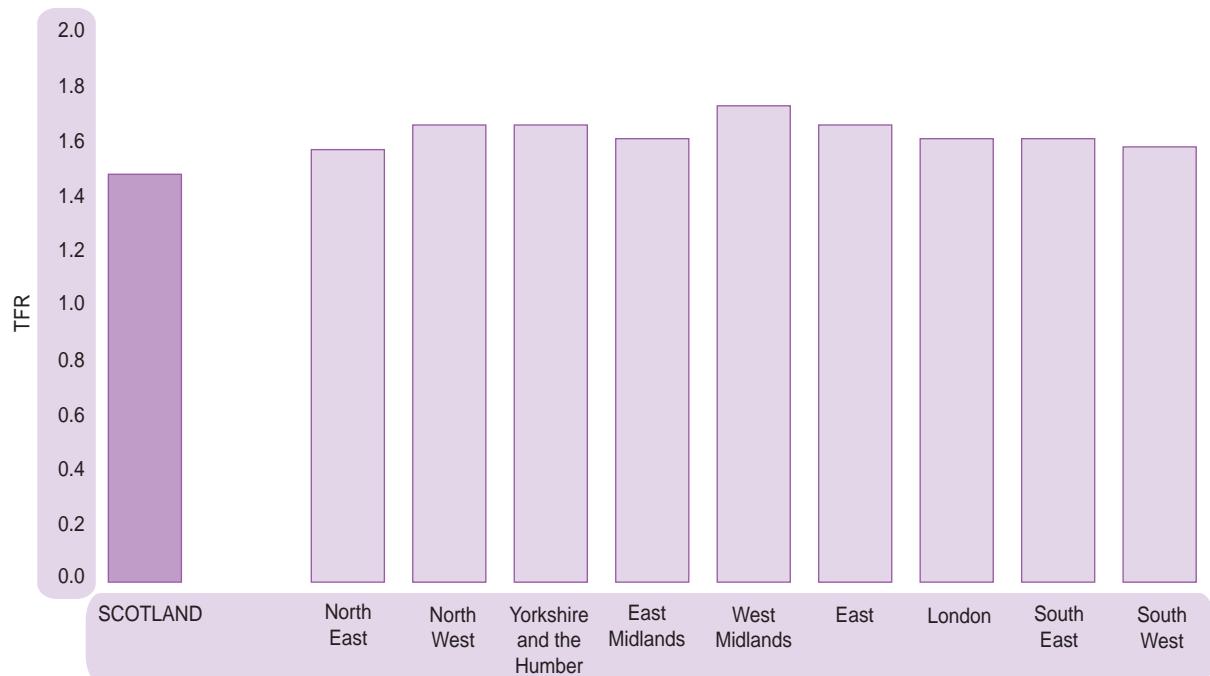
- *The state of the economy*

Scotland's economy, like that of the UK as a whole, is profoundly influenced by global economic conditions. In this respect, wider economic upturns and downturns affect all parts of the UK. However, Scotland's economy is smaller and less diverse in its range of employment opportunities than England's, which may be one reason that Scotland has a net outflow of younger people (**Figure 1.15**). England, in contrast, is a net loser of older people.

Labour market conditions can have a considerable impact on fertility through their influence on incomes and job security. In particular, a lack of confidence in Scotland's economy may be serving to depress fertility generally. Some evidence for this can be seen in the comparison of fertility levels in Scotland with those for regions in England. **Figure 3.3** shows that Scotland had a lower total fertility rate in 2001 than did any of the English regions. Scotland's near neighbour, the north-east of England, experienced the lowest fertility in England but its total fertility rate of 1.58 was nevertheless substantially higher than that in Scotland.

More research is required before we can gain a secure understanding of the reasons for Scotland's very low fertility. Changing values and attitudes, the expansion of higher education, the difficulties of combining work and family, and the state of the economy are all potential but complex influences, combining a variety of factors. If some of these factors were to be modified by Government policy, would fertility rates rise in the future?

Figure 3.3 Total fertility rates, Scotland and the English regions, 2001



The scope for policy intervention

In the policy context, there are two ways of responding to the challenges of low fertility:

- to modify institutions in order to counteract the perceived negative effects of population ageing and decline;
- to intervene directly with policies calculated to raise fertility.

Most European countries are considering, or have already developed, strategies in the former category. The shift towards private pension provision in the UK is one example. As numbers in the working population suffer decline relative to the older population and support ratios worsen, the retirement burden on the state is expected to become unsustainable. An increase in private pensions is thus one policy that can moderate the economic effects of population ageing. In contrast, the UK Government has never actively sought to influence the size or composition of the population. Official statements adopt the view that decisions about fertility and childbearing are for people themselves to make (Dunnell 2001). Policies in the second category would require a change in Government thinking and a public acceptance of active pronatalism.

CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

A disadvantage of moderating policies is that they tend to treat the symptoms rather than the cause. Change in pension arrangements will have no impact on the ageing trajectory. On the other hand, evidence on the effectiveness of pronatalist policies is limited. In the past, most countries that have adopted explicit population policies have sought to decrease, rather than increase, fertility; China's one-child policy is the best-known example. Policy instruments with potential to increase fertility include some that would be socially unacceptable. The withdrawal of easily available contraception, for example, would increase fertility in the short term but is not a policy likely to be pursued by any Government in a liberal democracy. If pronatalist policies were to be adopted in Scotland, we need to ask both what works and what would be acceptable.

Singapore is the country that, to date, has invested most in strong and explicit pronatalist policies. Worries about skill shortages and the threats of ageing to future economic prosperity first arose in the 1980s. Since then the Singapore Government has used a suite of policy measures in its attempts to raise fertility. Incentives include priority in housing and school choice for families with three or more children, tax relief and bonus payments for births. These were accompanied by a vigorous education campaign emphasising the individual and national benefits of higher fertility. In an attempt to reverse the increasing delay in childbearing, especially among graduates, a computer dating service was set up to facilitate earlier partnership and marriage (Graham 1995).

Initially, the fertility response to these initiatives seemed to be positive and fertility rose slightly. This rise has not been sustained, however, despite adjustments to the incentives and a broadening of the focus of the education campaign to the role of the family in Singaporean society. In 1987 when new pronatalist policies were introduced, the total fertility rate in Singapore was 1.62. In 2001, after more than a decade of policy effort, the total fertility rate had declined to 1.42, a level comparable to that of Scotland where no attempts have been made to raise fertility. It seems that the raft of policies tried in Singapore have not had the effect the Government desired. Whether fertility would have been even lower in their absence is an open question since it is difficult to isolate the policy effects from other influences on fertility such as the general state of the economy.

In most European countries, including Scotland, the scope for policy intervention is more limited than it is in Singapore. Neither the UK Parliament nor the Scottish Parliament has the same control over the housing market and any attempt to manipulate school choice to give preference to higher parity children would almost certainly prove unworkable. In any case, the evidence points to the failure of strong pronatalist incentives as tried in Singapore. There is also evidence that the Singapore Government has not sufficiently addressed barriers to higher fertility associated with the conflicting demands of work and family faced by Singaporean women. In Europe, welfare state structures suggest rather different opportunities for policy development.

Many of the policies likely to raise fertility have been incorporated in social welfare provision somewhere in Europe over the past half century (Caldwell *et al.* 2002). France has a long-standing family policy and, after Ireland, has the highest total fertility rate in the European Union at 1.9 children per woman of childbearing age. The French government has recently announced an additional 'birth bonus' and promised another 20,000 crèche places to help mothers return to work (*The Economist* 2003). Again, the effect of these weaker pronatalist policies on low fertility is unclear. Generous maternity leave schemes may have prevented what would have been a more rapid fall in fertility, but they may also have depressed the number of mothers in full-time employment thus exacerbating the problems of population ageing.

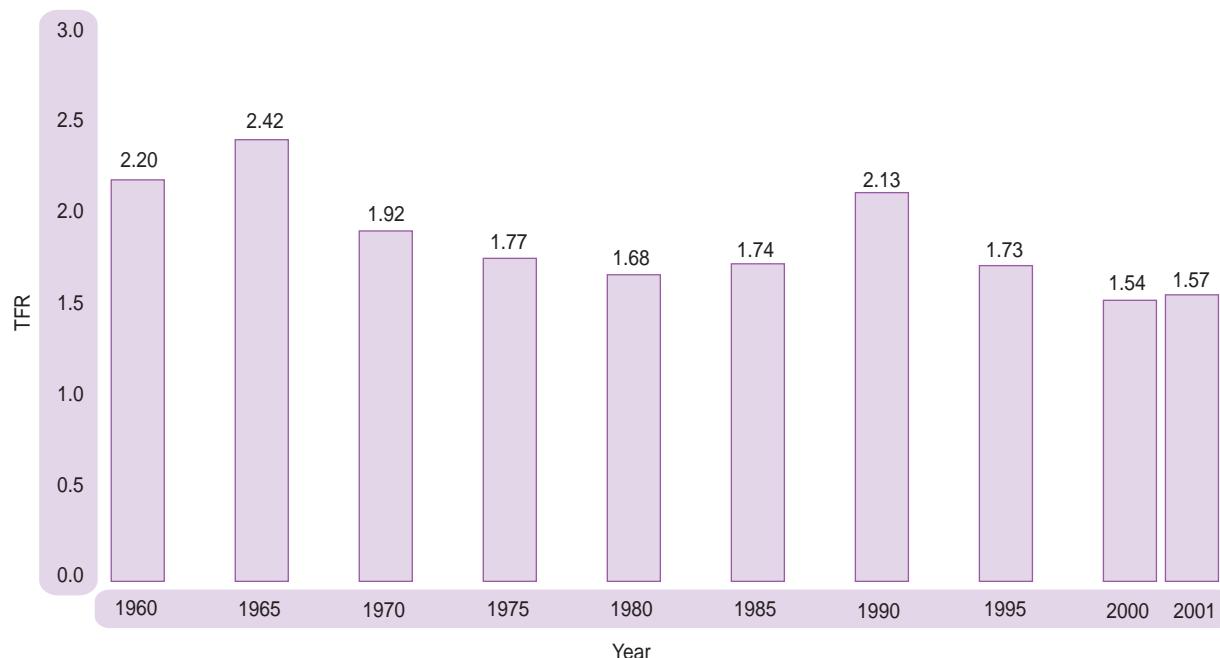
Most of the reliable evidence on the effectiveness of family policy comes from Sweden, and it too leaves room for debate. Sweden, like Scotland, has experienced fertility decline and a trend towards later childbearing since the 1970s. However, unlike other industrialised countries, Swedish fertility rates rose sharply in the 1980s. The rise corresponded to a rapid expansion of family policy, incorporating measures to make it easier for parents to both work and have children. These included:

- generous paid maternity leave for new parents;
- a special maternity leave scheme giving both parents the right to paid absence from work to look after children;
- greater gender equality in tax policies;
- the widespread provision of subsidised day care facilities;
- higher child allowances for higher parity children;
- protective employment legislation including rights to work part-time.

CHAPTER 3 – LOW FERTILITY IN SCOTLAND: A WIDER PERSPECTIVE

In 1990 the total fertility rate rose to 2.13, above generational replacement level, and it seemed that the policies had worked. However, by 2000 the total fertility rate had fallen back to 1.54, below that of Sweden's Scandinavian neighbours, leading to a more pessimistic interpretation of policy effects (**Figure 3.4**).

Figure 3.4 Total Fertility Rates (TFRs), Sweden, 1960-2001



The fertility downturn may have been a response to the economic dislocation of the 1990s (Santow and Bracher 2001). Despite massive government expenditure aimed at reducing the costs of having children and compensating for loss of earnings, Sweden's family policy has probably had minimal long-term effect on the level of fertility, which appears to respond more to general economic conditions. Perhaps the lesson for Scotland is that, in the absence of economic optimism, it would be difficult to create a family policy generous enough to reverse fertility decline.

Fertility is only one of the three key variables influencing the size and composition of a population. An alternative to pro-natalist policies, therefore, might be to seek population growth by encouraging immigration. Scotland has historically been a country that has experienced net out migration and the current situation is one of a small net loss (see **Chapter 1**). The reversal of this situation through the attraction of economically active migrants with relevant skills could improve dependency ratios. Indeed, the Scottish Executive appears to be giving this strategy serious thought. However, such a policy may be difficult and costly to implement and there are good demographic reasons why it may not succeed in solving the population ageing problem.

Attracting immigrants may not be a simple policy to implement. Europeans are already free to move into Scotland for employment, but few are coming. This may be because of a perceived, or real, lack of economic opportunities in Scotland, compared to other countries in the EU. Other aspects of Scotland, such as the climate, may also be acting as a deterrent. Perhaps these issues can be addressed by some careful marketing, but even were it possible to persuade immigrants to come, the lack of a legal border between Scotland and the rest of the UK means that there would be little to prevent them moving elsewhere if the opportunities appeared more attractive.

More importantly, stimulating immigration is unlikely substantially to offset Scotland's projected population decline and ageing. Recent work suggests that, while migration can slow population decline, even substantial migration flows make very little difference in tackling population ageing. One set of projections for Scotland assumes a total fertility rate of 1.5 and demonstrates that continuing zero net migration would result in 36 per cent of the total population being aged 65 and over in 2101. However, if Scotland were to experience a net gain of 10,000 migrants (adults and children) a year, the comparable percentage of older people would decrease by only 1 per cent, to 34 per cent of the total population (Wilson and Rees 2003). Indeed, this study takes us full circle, arguing that only through increasing fertility will Scotland regain demographic stability. Thus, however welcome a policy of encouraging immigration may be from an economic, social and cultural point of view, its likely success as a solution to population ageing is debatable.

Conclusion

Fertility is a crucial aspect of the population decline and population ageing that Scotland is experiencing. And it is possible that fertility will decline further – both Italy and Spain have experienced total fertility rates of 1.2. Regardless of whether Scottish fertility does continue to fall, there are already problems that most would agree need to be addressed.

Various policies are possible, but those that are chosen need to have a marked and long-term impact. A rise in fertility tomorrow would take twenty or so years before it had an impact on the number of economically active people in the population, assuming that most young adults decided to stay in Scotland. Certainly, increasing fertility would have a bigger impact on population ageing than increasing immigration, although there is no reason why both policies could not be implemented in unison. We should also recognise that addressing the delay in childbearing may be as effective as trying to fashion a society that encourages people to wish for more children. It may even be that couples' desire for children is not currently being realised because of significant impediments to combining work and family. Reducing these barriers would be a reasonable policy aim, but effective policies require a good evidence base and, for Scotland, the research is yet to be done.

As far as both attracting immigrants and increasing fertility are concerned, one reasonably convincing argument is that economic buoyancy is the most effective stimulus. Improving the Scottish economy so that people feel more confident about job security and are more willing to have more children earlier may be fruitful. It may have the added bonus of discouraging young adults from moving elsewhere for jobs. Reducing the considerable direct and indirect costs of raising children through the wider provision of affordable childcare may also have an impact on fertility. If economic improvements are combined with family-friendly policies that enable women to combine motherhood and career, and also encourage men to provide more assistance within the household, they may be even more effective.

References

- Caldwell JC, Caldwell P and McDonald P (2002) Policy responses to low fertility and its consequences: a global survey *Journal of Population Research* 19 1-24
- Dunnell K (2001) Policy responses to population ageing and population decline in the United Kingdom, *Population Trends* 103 47-52
- Gosden R and Rutherford A (1995) Delayed childbearing, *British Medical Journal* 311: 1585-1586
- Graham, E (1995) Singapore in the 1990s: can population policies reverse the demographic transition?, *Applied Geography*, 15: 219-232
- Graham E, Teo P, Yeoh B and Levy S (2002) Reproducing the Asian Family across the Generations: 'tradition', gender and expectations in Singapore, *Asia-Pacific Population Journal*, 17: 61-86
- Hanson S and Pratt G (1995) *Gender, Work and Space* London: Routledge
- Jensen TK, Carlsen E, Jørgensen N, Berthelsen JG, Keiding N, Christensen K, Peterson JH, Knudsen LB and Skakkebæk NE (2002) Poor semen quality may contribute to recent decline in fertility rates, *Human Reproduction* 17: 1437-1440
- Lutz W, O'Neill BC and Scherbov S (2003) Europe's Population at a Turning Point, *Science* 299: 1991-1992
- Murphy M (1993) The contraceptive pill and women's employment as factors in fertility change in Britain 1963-1980: A challenge to the conventional view, *Population Studies*, 47: 21-43
- Santow G and Bracher M (2001) Deferment of First Birth and Fluctuating Fertility in Sweden, *European Journal of Population* 17: 343-363
- Teitelbaum MS and Winter JM (1985) *The Fear of Population Decline* London: Academic Press
- The Economist (2003) The French Family. Keep it up, *The Economist* May 3rd 2003: 46
- Van de Kaa DJ (1987) Europe's Second Demographic Transition, *Population Bulletin* 41, Population Reference Bureau: Washington DC
- Watson R (1996) Europe's aging population, *British Medical Journal* 312: 1442
- Wilson T and Rees P (2003) Why Scotland needs more than just a migration policy, Queensland Centre for Population Research, University of Queensland

APPENDIX 1 – SUMMARY TABLES

Table 1 Population and vital events, Scotland, 1855-2002

Year	Estimated population ('000s)	Live births		Stillbirths ²		Infant deaths		Deaths		Marriages		Divorces
		Number	Rate ³	Number	Rate ⁴	Number	Rate ⁵	Number	Rate ³	Number	Rate ³	Rate
1855-60	3,018.4	102,462	34.1	...	...	12,250	119.6	62,644	20.8	20,645	6.8	19
1861-65	3,127.1	109,764	35.1	...	...	13,166	119.9	69,265	22.1	22,013	7.0	14
1866-70	3,275.6	114,394	34.9	...	...	13,971	122.1	71,974	22.0	22,832	7.0	9
1871-75	3,441.4	120,376	35.0	...	...	15,314	127.2	77,988	22.7	25,754	7.5	24
1876-80	3,628.7	126,086	34.8	...	...	14,921	118.3	74,801	20.6	24,956	6.9	54
1881-85	3,799.2	126,409	33.3	...	...	14,864	117.6	74,396	19.6	26,176	6.9	74
1886-90	3,943.9	123,977	31.4	...	...	14,943	120.5	74,320	18.8	25,702	6.5	94
1891-95	4,122.5	125,800	30.5	...	...	15,895	126.4	78,350	19.0	27,962	6.8	115
1896-1900	4,345.1	130,209	30.0	...	...	16,857	129.5	78,021	17.9	31,771	7.3	146
1901-05	4,535.7	132,399	29.2	...	...	15,881	119.9	77,313	17.1	31,838	7.0	181
1906-10	4,679.9	128,987	27.6	...	...	14,501	112.4	75,534	16.1	31,811	6.8	195
1911-15	4,748.3	120,654	25.4	...	...	13,604	112.8	74,466	15.7	33,857	7.1	264
1916-20	4,823.8	109,750	22.8	...	...	10,869	99.0	72,365	15.0	37,437	7.8	531
1921-25	4,879.6	112,245	23.0	...	...	10,299	91.8	67,652	13.9	34,720	7.1	427
1926-30	4,845.1	96,674	20.0	...	...	8,260	85.4	66,017	13.6	32,605	6.7	478
1931-35	4,905.1	89,306	18.2	...	...	7,212	80.8	64,839	13.2	34,986	7.1	507
1936-40	4,956.8	87,734	17.6	...	...	6,650	75.8	67,166	13.5	42,941	8.6	750
1941-45	4,711.9	91,593	19.4	3,393	35.7	6,202	67.7	66,302	13.8	43,772	8.5	1,413
1946-50	5,054.3	101,222	20.0	3,047	29.2	4,789	47.3	63,854	12.6	43,206	8.5	2,435
1951-55	5,103.6	91,366	17.9	2,390	25.5	3,009	32.9	61,838	12.1	41,718	8.2	2,274
1956-60	5,145.2	98,663	19.2	2,307	22.9	2,755	27.9	61,965	12.0	41,671	8.1	1,792
1961-65	5,201.0	102,642	19.7	2,000	19.1	2,568	25.0	63,309	12.2	40,235	7.7	2,253
1966-70	5,204.3	93,033	17.9	1,415	15.0	1,970	21.2	62,797	12.1	42,832	8.2	4,056
1971-75	5,234.7	75,541	14.4	939	12.3	1,421	18.8	63,808	12.2	41,404	7.9	6,604
1976-80	5,213.9	65,758	12.6	529	8.0	900	13.7	64,343	12.3	37,801	7.3	9,068
1981-85 ⁶	5,151.9	66,422	12.9	389	5.8	695	10.5	63,723	12.4	35,756	6.9	11,941
1986-90 ⁶	5,089.5	65,544	12.9	350	5.3	550	8.4	62,796	12.3	35,440	7.0	12,067
1991-95 ⁶	5,093.5	63,571	12.5	382	6.0	418	6.6	61,171	12.0	32,866	6.5	12,548
1996-2000 ⁶	5,077.5	56,856	11.2	327	5.7	316	5.6	59,478	11.7	29,965	5.9	11,984
2001	5,064.2	52,527	10.4	301	5.7	290	5.5	57,382	11.3	29,621	5.8	10,631
2002	5,054.8	51,270	10.1	278	5.4	270	5.3	58,103	11.5	29,826	5.9	10,826

¹ Live births only, prior to 1939.

² See Notes and Definitions.

³ Rate per 1,000 population.

⁴ Rate per 1,000 live and still births.

⁵ Rate per 1,000 live births.

⁶ Population and corresponding rates for 1982-2000 are based on revised population estimates for 1982-2000 which were revised to take account of the final Census-based population estimates for 2001.

Table 2 Estimated population, births, stillbirths, deaths and marriages, numbers and rates, by Council area, Scotland, 2002

Area	Estimated population at 30 June	Live births			Stillbirths ²		Infant deaths		Deaths			Marriages
		Number	Rate ¹	Standardised rate	Number	Rate ²	Number	Rate ³	Number	Rate ¹	Standardised rate	
SCOTLAND	5,054,800	51,270	10.1	10.1	278	5.4	270	5.3	58,103	11.5	11.5	29,826
Council areas												
Aberdeen City	209,270	2,098	10.0	8.8	13	6.2	4	1.9	2,208	10.6	10.9	1,005
Aberdeenshire	227,280	2,326	10.2	11.5	9	3.9	8	3.4	2,074	9.1	9.6	1,032
Angus	108,130	1,014	9.4	11.0	3	2.9	4	3.9	1,347	12.5	10.8	397
Argyll & Bute	91,030	755	8.3	10.8	6	7.9	3	4.0	1,188	13.1	11.0	652
Clackmannanshire	47,930	480	10.0	10.7	2	4.1	2	4.2	511	10.7	11.6	159
Dumfries & Galloway	147,310	1,343	9.1	11.2	6	4.4	7	5.2	1,789	12.1	10.1	6,110
Dundee City	144,180	1,436	10.0	9.5	11	7.6	11	7.7	1,829	12.7	11.6	520
East Ayrshire	119,740	1,157	9.7	10.1	4	3.4	6	5.2	1,427	11.9	12.0	341
East Dunbartonshire	107,310	942	8.8	10.3	4	4.2	6	6.4	1,040	9.7	9.9	342
East Lothian	90,750	910	10.0	11.2	5	5.5	4	4.4	1,036	11.4	10.5	446
East Renfrewshire	89,630	916	10.2	11.9	8	8.7	3	3.3	844	9.4	9.4	492
Edinburgh, City of	448,080	4,477	10.0	8.1	26	5.8	23	5.1	4,545	10.1	10.2	2,721
Eilean Siar	26,200	242	9.2	11.7	1	4.1	1	4.1	403	15.4	12.1	94
Falkirk	145,560	1,507	10.4	10.3	6	4.0	11	7.3	1,711	11.8	12.3	574
Fife	350,700	3,536	10.1	10.5	19	5.3	26	7.4	4,012	11.4	11.1	1,784
Glasgow City	577,350	6,386	11.1	9.2	43	6.7	44	6.9	7,688	13.3	14.1	2,607
Highland	208,140	1,977	9.5	11.1	11	5.5	7	3.5	2,381	11.4	10.8	1,545
Inverclyde	83,600	787	9.4	9.9	3	3.8	6	7.6	1,137	13.6	13.3	296
Midlothian	80,500	863	10.7	11.3	5	5.8	3	3.5	917	11.4	12.1	676
Moray	86,740	876	10.1	11.6	4	4.5	3	3.4	971	11.2	11.0	399
North Ayrshire	135,650	1,379	10.2	10.7	9	6.5	3	2.2	1,622	12.0	11.8	649
North Lanarkshire	321,350	3,664	11.4	10.9	16	4.3	14	3.8	3,489	10.9	12.8	1,089
Orkney Islands	19,210	164	8.5	10.5	1	6.1	-	-	211	11.0	9.9	93
Perth & Kinross	135,160	1,245	9.2	11.0	5	4.0	7	5.6	1,594	11.8	9.9	937
Renfrewshire	171,940	1,797	10.5	10.6	15	8.3	14	7.8	2,063	12.0	12.5	499
Scottish Borders	107,400	1,021	9.5	11.5	3	2.9	7	6.9	1,384	12.9	10.8	701
Shetland Islands	21,940	209	9.5	10.6	-	-	-	-	214	9.8	10.2	91
South Ayrshire	111,670	955	8.6	10.1	6	6.2	7	7.3	1,507	13.5	11.2	745
South Lanarkshire	302,110	3,076	10.2	10.4	19	6.1	17	5.5	3,384	11.2	12.0	1,038
Stirling	86,150	833	9.7	9.8	4	4.8	1	1.2	905	10.5	10.5	764
West Dunbartonshire	92,830	939	10.1	10.1	4	4.2	8	8.5	1,145	12.3	12.8	420
West Lothian	159,960	1,960	12.3	11.4	7	3.6	10	5.1	1,527	9.5	12.8	608

¹ Rate per 1,000 population. ² Rate per 1,000 live and stillbirths. ³ Rate per 1,000 live births.