Impact Project

Impact Centre
The University of Melbourne
153 Barry Street, Carlton
Vic. 3053 Australia
Phones: (03) 341 7417/8
Telex: AA 35185 UNIMEL
Telegrams: UNIMELB, Parkville

IMPACT is an economic and demographic research project conducted by Commonwealth Government agencies in association with the Faculty of Economics and Commerce at The University of Melbourne and the School of Economics at La Trobe University.

Paper presented to a meeting of the Victorian Branch of the Australian Population Association, held at the University of Melbourne, 24 February 1983

THE DEMOGRAPHIC IMPACT OF MIGRATION ON THE FUTURE GROWTH OF THE AUSTRALIAN POPULATION AND LABOUR FORCE

by

Dennis Sams and Pamela Williams
IMPACT Research Centre

General Paper No. G-45 Melbourne June 1983

ISBN 0 642 52370 3

Contents

List of Tables

List of Figures

Sams, Dennis (1981) "A Two Sided Marriage Model for the IMPACT Population Projection Facility", IMPACT Research Memorandum, BACHUROO Module, November.

Sams, Dennis, and Pam Williams (1980) "The IMPACT Project's Facility for Disaggregated Population Projections: A Brief Exposition and Progress Report", IMPACT Preliminary Working Paper No. BP-22, Melbourne, May.

Sams, Dennis, and Pamela Williams (1982a) "Some Projections of Australian Population and Labour Force 1980-2001", IMPACT Preliminary Working Paper No. BP-30, Melbourne, May.

Sams, Dennis, and Pamela Williams (1982b) "Demographic and Economic Influences on the Size and Composition of The Australian Labour Force, 1980-2000", IMPACT Draft Preliminary Working Paper, Melbourne, October.

Sams, Dennis C., Lynne S. Williams, Pamela J. Williams and Jim D. Stevenson (1981) "A Comparison between the ABS Population Projection 1980-2001 and a Compatible Projection Using the IMPACT Population Projection Facility", IMPACT Preliminary Working Paper No.BP-27, Melbourne, July.

Sheehan, P. (1982) "Immigration and the Macroeconomy: Some Empirical Results", in Douglas (ed.).

Stammer, D.W. (1982) "Immigration and the Economy", in Douglas (ed.).

Williams, Pamela, and Dennis Sams (1981) "Household Headship in Australia: Further Developments to the IMPACT Project's Econometric Model of Household Headship, "IMPACT Preliminary Working Paper No. BP-26, Melbourne, August.

Williams, Pamela (1981) "Marriage and Divorce in Australia: a Time Series of Fitted Distributions, 1921|22 to 1975|76", IMPACT Working Paper No. B-20, Melbourne, November.

Williams, Pamela, and Dennis Sams (1982) "Household Formation: Implications for Australia's Future", IMPACT Preliminary Working Paper No. BP-28, Melbourne, February.

Williams, Pamela, Dennis Sams and Vin Martin (1982), "Preliminary Projections of Victorian Household Formation", IMPACT General Paper No.G-43, Melbourne, December.

THE DEMOGRAPHIC IMPACT OF MIGRATION ON THE FUTURE GROWTH OF THE AUSTRALIAN POPULATION AND LABOUR FORCE

by

Dennis Sams and Pamela Williams

1. INTRODUCTION

The future growth of the Australian population is determined by its current size and structure and future levels of fertility, mortality and migration. Of these, only the level of migration intake has been subject to direct government control, via the imposition of annual migration targets. Following a protracted period of high unemployment, in January 1983 the Government announced a net migration target for 1982/83 of 125,000 persons. This involved a reduction of 10,000 in targeted entry under the Labour Shortage and Business category.[1] This decision, by forcing a contraction in the level of migration, is intended to lower growth in the working age population and to relieve pressure on the labour market.

In this paper, the IMPACT Population Projection Facility is used to analyse the impact of migration upon the future growth of the Australian population and labour force. Two population projections are presented and analysed: the first is comparable to the Series C projection produced by the Australian Bureau of Statistics (1982a), while, in keeping with the decision outlined above, the second simulates a sustained reduction of 10,000 persons in the migration intake. Projections of the Australian labour force consistent with these projected populations are also presented and analysed.

The IMPACT Population Projection Facility has been developed as one of a suite of models designed to provide a systematic framework for the analysis of the impact of economic, demographic and social change on the structure of the Australian economy.[2] The Facility produces conditional projections of the Australian population, labour force and numbers of households, subject to imposed demographic and economic scenarios. The projections of the population are made using conventional cohort-component methods, in which the population in each year is updated by applying a set of assumptions concerning migration, fertility, marriage, divorce and mortality, in accordance with a set of strict demographic accounting identities. The labour force and household projections are produced by applying projected rates of labour force participation and household formation for selected demographic sub-groups to their projected populations.[3]

The Facility's population projection technique is essentially identical to that used by the Australian Bureau of Statistics (ABS), with the added innovation of providing projections disaggregated not only by sex and single year of age but also by marital status. The marital status composition of the population is important in determining both the size and composition of the labour force and of households, since rates of labour force participation and household headship differ substantially between marital states. The addition of a marital status dimension increases the size and complexity of the algorithm required to project the population. First, sex, age and marital status specific rates of marriage and divorce are applied to the appropriate populations and, second, equality of the numbers of males and females undertaking marriage (divorce) is imposed via a two-sex marriage (divorce) model (Sams, 1981). In this manner, the marriage and divorce behaviour and the available

REFERENCES

Australian Bureau of Statistics (1982a) Projections of the Population of Australia, 1981 to 2001, Catalogue No.3204.0, Canberra, November.

Australian Bureau of Statistics (1982b) The Labour Force, Catalogue No.6203.0, Canberra, August.

Australian Council on Population and Ethnic Affairs (1983) Population Report 6, Australian Government Publishing Service, Canberra.

Brooks, Clive, Dennis Sams and Lynne S. Williams (1982) "An Econometric Model of Fertility, Marriage, Divorce and Labour Force Participation for Australian Women, 1921/22 to 1975/76," IMPACT Preliminary Working Paper No. BP-29, Melbourne, May.

Douglas, Daryl (ed.) (1982) The Economics of Australian Immigration, Proceedings of the Conference on the Economics of Immigration February 8-9, 1982, Sydney University Extension Programme, Sydney.

Department of Immigration and Ethnic Affairs (1982) Australia Population Forecasts for 1982-85 with Projections for Selected Years to 2021, Canberra.

Filmer, R.J., K.R. Fleming and J.D. Stevenson (1982) "Macroeconomic Effects of Immigration in the Australian Economy", in Douglas (ed.).

Fisher, N.W.F. (1982) "Immigration and the Australian Labour Market: Evidence and Issues", in Douglas (ed.).

Lloyd, P.J. (1982) "The Effects of Immigration on Economic Growth Via Technological Change and Economies of Scale", in Douglas (ed.).

Merrilees, W.J. (1982) "The Mass Exodus of Older Males from the Labour Force: An Exploratory Analysis", Australian Bulletin of Labour, Vol.8, No.2, March.

Miller, Paul W. (1982) "The Economic Position of Migrants: Facts and Fallacies - A Preliminary View", Australian Bulletin Labour, Vol.8, No.4, September.

Perkins, J. (1982) "Immigration and Consumer Demand in Australia", in Douglas (ed.).

Powell, Alan (1977) The IMPACT Project : An Overview, March 1977, First Progress Report of the IMPACT Project, Vol.1, Australian Government Publishing Service, Canberra.

Powell, Alan A. (1983) "Aspects of the Design of BACHUROO, an Economic Demographic Model of Labour Supply," in A.C. Kelley, W.G. Sanderson and J.G. Williamson (eds) Modeling Growing Economies in Equilibrium and Disequilibirum , Proceedings of an IIASA Meeting, 10-13 November 1980, Duke University Press, Durham.

Sams, Dennis (1979) "The Demographic Core of the IMPACT Project: An Overview," IMPACT Preliminary Working Paper No. BP-18, Melbourne, September.

3.0 per cent in 2000/01. A similar projection of marriage and divorce is reported in Sams and Williams (1982a), which provides a range of projections on the basis of different economic scenarios. The sensitivity of marriage and divorce behaviour to these changes in economic growth is of interest, but such sensitivity analysis has not been undertaken in this paper. Readers are referred to Sams and Williams (1982a) and (1982b) for examples of this analysis. The economic scenario should not be seen as a forecast of the future of the Australian economy, either in the short term or long term. In this paper, we use the econometric model to give a set of projections of marriage and divorce rates and female labour force participation rates. For the purposes of this paper we take these rates as given.

7. Female labour force participation rates for age groups 15-24, 25-54 and 55+ years are projected as part of the simultaneous econometric model of fertility, marriage, divorce and female labour force participation discussed in footnote 6. In this model, female labour force behaviour is related to labour market variables (including demand for female labour, unemployment and female wage rates) and, where appropriate, to fertility and the cost of children and to alternative sources of income (such as the old age pension and the widows pension). Readers are referred to Brooks, Sams and Williams (1982) for a description of the econometric model and to Sams and Williams (1982b) for an example of labour force projections using the model. The disaggregation of these projections into eight age groups is achieved via a simple disaggregation using proportions pertaining in August 1982 (ABS, 1982b).

8. In this projection, no distinction is made between the labour force participation rates of long-time residents and new migrants; the labour force participation rates used are the average over all Australians. Miller (1982) suggests that new migrants, especially married females, could have higher participation rates but that these differences are minimal. In Miller's opinion, differences generally observed in overall participation rates of new migrants are a result of the age distribution of migrants, which is more concentrated in the working ages.

9. For a discussion of the effects of migration on the economy in general, the reader is referred to papers from The Economics of Australian Immigration Conference (Douglas 1982); in particular, those by Perkins (1982), Fisher (1982), Stammer (1982), Lloyd (1982), Filmer et al. (1982) and Sheehan (1982).

10. A broader study of the impact of migration on the Australian economy is currently being undertaken jointly by the Committee for Economic Development for Australia and the Department of Immigration and Ethnic Affairs.

ACKNOWLEDGEMENTS

The authors would like to thank Kathy Meikle of the Committee for Economic Development of Australia (CEDA), and the Statistics Branch of the Department of Immigration and Ethnic Affairs (DIEA) for assistance in compiling migration data by eligibility category. This data was obtained from DIEA as part of a broader project on the economics of immigration being undertaken by CEDA. Special thanks are extended to Ralph Unverhau for producing the age pyramids presented in the paper and to Estelle Bogaars, Judi Herkes and Frances Peckham for typing, clerical and computing assistance. Responsibility for any errors rests with the authors and none of the above.

supply of partners of one sex are able to influence the behaviour of the other.

Another of the Facility's innovations is its use of econometrically estimated models of the behavioural relationships between fertility, marriage, divorce, labour force participation, household formation and the economic environment.[4] While not discussed extensively in this paper, the principal benefit of econometric models is that they permit the generation of projections of the population, labour force and households which are consistent with the chosen economic scenarios. Here we have used the econometric model to provide a single projection of marriage, divorce and labour force participation rates, under a chosen scenario of moderate economic recovery after 1985. Assumptions concerning fertility and mortality rates and the aggregate levels of overseas arrivals and departures were adopted from the ABS (1982a) Series C projection, with the refinement that the compositions of overseas arrivals and departures were calculated from profiles of migration by category of eligibility (for arrivals) and previous settler status (for departures).

The balance of this paper is organized as follows. In Section 2 we report the results of a standard projection incorporating a net migration gain of 125,000 persons. There we discuss our assumptions regarding future patterns of fertility, mortality, migration and male labour force participation, as well as our econometric projections of marriage, divorce and female labour force participation. We also analyse the resultant projections of population and labour force. The effects upon the population and labour force of a reduction in the migrant intake of 10,000 persons in the Labour Shortage and Business eligibility category are analysed in Section 3, while Section 4 contains concluding remarks.

2. A PROJECTION WITH 125,000 NET MIGRATION GAIN

Fertility and mortality

The fertility and mortality assumptions adopted in the standard projection reported in this section are those used in the ABS (1982a) Series C projection; full details of these assumptions should be sought in ABS (1982a) and in Department of Immigration and Ethnic Affairs (1982). In brief, the Series C projection assumes a relatively low fertility scenario in which total fertility rates are assumed to increase from 1,936 per thousand in 1981/82 to 2,010 in 1984/85 and then to decline to 1,900 by 1987/88 and to remain constant thereafter. This scenario implies a net reproduction rate of approximately 0.9 after 1987/88. In our standard projection, age specific fertility rates consistent with this scenario are applied to women of each age, irrespective of marital status (as in the ABS projection). The Series C mortality scenario is based on projections of death rates disaggregated by sex, age and cause of death. From 1981/82 to 1986/87, these disaggregated death rates are projected to continue the short-term trend of rapid decline experienced between 1970 and 1980. From 1987/88, however, death rates are projected to decline at the slower long-term rate experienced between 1961 and 1980. In the projection reported here, these sex and age specific death rates are assumed to apply uniformly to all marital states (as in the ABS projection).

Migration

The ABS Series C migration scenario assumes a net gain of 125,000 persons in each projection year, composed of 155,000 arrivals and

FOOTNOTES

1. This decision was announced on January 12, 1983 by the then Minister of Immigration and Ethnic Affairs (Mr Hodges) in a press release entitled, "Skilled Migrant Numbers Cut".

2. The IMPACT Project is an inter-agency initiative of the Commonwealth Government in co-operation with the University of Melbourne and La Trobe University; for further general information concerning the IMPACT Project see Powell (1977); for a general discussion of the approach followed by the Project in the modelling of labour supply, see Powell (1983). The Population Projection Facility enables the user to project the effects of changes in the economic and demographic environment on the size and composition of the Australian population, labour force and numbers of households. The Facility is outlined in Sams (1979), Sams and Williams (1980), Williams and Sams (1981), and Brooks, Sams and Williams (1982). Applications are reported in Sams, Williams, Williams and Stevenson (1981), Williams and Sams (1982), and Sams and Williams (1982a) and (1982b). Although designed principally for Australia-wide projections, the Facility may be used for sub-national projections (Sams, Williams and Martin, 1982). The Facility is available to the public via a computer implementation on the CSIRONET Computing System, which can be accessed by those with appropriate computing facilities, expertise and finance. Anyone wishing to use the Facility should contact the IMPACT Project.

3. The population projections are disaggregated by two sexes, single years of age (0 to 100+), and four marital states (never married, married, divorced and widowed); the labour force projections are disaggregated by two sexes, eight age groups (15-19, 20-24, 25-34, 35-44, 45-54, 55-59, 60-64 and 65+), and two marital states (married and unmarried) for females; and projections of the number of households are disaggregated by two sexes, eight age groups (as above) and four marital states (as above).

4. The model of fertility, marriage, divorce and female labour force participation rates is reported in Brooks, Sams and Williams (1982). This model represents a first attempt and is currently being revised and reestimated. The model of household formation is reported in Williams and Sams (1981). Currently the Facility does not model male labour force participation rates; these must be supplied exogenously.

5. Prior to April 1982, the eligibility categories for settler arrivals were those presented in Table 1 and Figure 1. Recent changes in categories have resulted in the Family Reunion and Refugee categories being retained, the General Eligibility category being replaced by a Labour Shortage and Business, and an Independent category, and the Special Eligibility category being divided into Trans-Tasman and Special categories. For details of these new categories, see Australian Council on Population and Ethnic Affairs (1983).

6. The econometric model has been used to project parameters of marriage and divorce behaviour for males and females on the basis of a chosen scenario of moderate economic recovery after 1985/86. To summarize, the projection assumes that real GDP per head declines over the first few years of the projection period and then increases from 1984/85, whilst the unemployment rate increases from 5.6 per cent in 1981/82 to 10.0 per cent in 1984/85 and 1985/86, before falling continually to a level of

the Australian economy, including the effect of migration on the demand for labour and on the structure and efficiency of product markets, has not been attempted. In particular, our projections are conditional upon the assumed demographic and economic scenarios and upon the sex, age, marital status and eligibility composition adopted for the migration intake. In a broader study, many aspects of our assumed demographic and economic environment, including fertility, labour productivity and unemployment, could themselves be functions of the level of migration intake, especially in the long term.[10]

30,000 departures, with an age profile for each sex based on the average profile for permanent movements in the three years 1978, 1979 and 1980. While maintaining the same migration levels, we have developed our age profiles on the basis of (a) the average age profiles of settler arrivals in four eligibility categories[5] in 1980/81 and 1981/82, scaled to 155,000 arrivals; and (b) the age profiles of permanent departures in two categories (Former Settlers and Others) in 1980/81, scaled to 30,000 departures. The number of settler arrivals in 1980/81 and 1981/82 and permanent departures in 1980/81 in each of the above categories is given in Table 1, along with the assumed numbers in each category for our scenarios of a net migration gain of 125,000 persons (the standard projection) and of 115,000 persons (the low migration projection).

As Figures 1 and 2 illustrate, the sex, age and marital status distributions of settler arrivals and permanent departures vary substantially according to category. For settler arrivals, the composition of the Family Reunion intake is dominated by women aged between 15 and 35 years. Men of the same age group constitute a smaller, but still an important proportion of the Family Reunion intake. A substantial proportion of this intake is also centred on the retirement ages of 60 and 65 years for women and men, respectively. The General Eligibility intake, however, is dominated by men and women (predominantly married) aged between 20 and 40 years, and by children. Compared with the General Eligibility category, the Refugee intake is composed of fewer children and a higher proportion of young adults. In contrast, the Special Eligibility category is dominated by children and young adults of both sexes. A significant number of the children in the last category (1545 in 1980/81 and 1177 in 1981/82) are children born overseas of Australian parents. Further discussion of

TABLE 1 : Migrant Arrivals and Departures by Category

	1980/81	1981/82	Projected annual numbers Standard	Low Migration
Settler arrivals by eligibility category				
- family reunion	19,569	21,768	35,000	35,000
- general eligibility	45,189	57,528	65,000	55,000
- refugees	21,848	21,919	30,000	30,000
- special eligibility	24,586	17,489	25,000	25,000
- total	111,192	118,704	155,000	145,000
Departures by category				
- former settlers	10,888		20,000	20,000
- other	8,608		10,000	10,000
- total	19,496		30,000	30,000
Net Migration	91,696		125,000	115,000

Source: Department of Immigration and Ethnic Affairs.

intake concentrated in the Labour Shortage and Business category would bias the composition of the population towards prime-aged males and females, and children.

The future growth of the labour force will be affected by the growth in the population and changes in labour force participation rates. In these projections, the proportion of the population in the labour force grows from 45.1 per cent in 1981 to 49.8 per cent in 2000. Whilst the age specific labour force participation rates of migrants are assumed to be the same as those for the rest of the population, the age structure of net migration is such that 47.2 per cent of persons in the net migration gain in 1981 enter the labour force. This proportion increases over time as the assumed age specific participation rates increase. Between 1981 and 2000, allowing for fertility and mortality, net migration gain contributes in total 2.9 million persons to the population and 1.5 million persons to the labour force.

Our projections suggest that a sustained cut of 10,000 persons from the Labour Shortage and Business category of migrant intake would reduce the labour force by 21,000 after four years (equal to 0.3 per cent of the labour force in 1985) and, by the year 2000, would reduce the labour force by 128,000. The impact of such a migration cut on the growth of the total labour force would appear to be small. However, a migration cut of the same size, targetted at particular occupations which were heavily oversupplied, could help to relieve labour market pressure in these particular occupations.

The projections reported here are concerned with detailing the demographic impact of migration on the size and composition of the Australian labour force. Quantification of the full impact of migration on

4. CONCLUSION

The projections presented in this paper were produced using the IMPACT Population Projection Facility, which provides disaggregated and internally consistent projections of the Australian population and labour force on the basis of scenarios of economic and demographic change. The Facility allows the user to vary these scenarios, but in this paper only one set of assumptions relating to fertility, mortality, marriage and divorce, and one variation upon the migration scenario are considered. Further analysis could consider the sensitivity of the results to these chosen scenarios.

On the basis of these projections, the future growth of Australia's population is largely determined by the level of migration and the current age structure of the population, except at young and old ages where, respectively, fertility and mortality are more important. The bulge in the age structure due to the baby boom of the 1950's serves to inflate the population of working age over most of the projection period, and to lead to relatively lower numbers of births as these women age beyond the child-bearing years. Migration can, however, alter the level and composition of the population. In these projections, migration initially contributes about the same as natural increase to the growth of the population, but by the late 1990's its contribution exceeds that of natural increase (even in the low migration projection). The sex, age and marital status profile of migration also differs from that of the population; migrants tend to be younger and are more likely to be either married, to be in the prime aged groups, or to be children. The profile does, however, vary according to eligibility category; a migration intake concentrated heavily in the Family Reunion category would bias the composition of the population towards women and older persons, whereas an

the age composition of migration by eligibility category is given in Australian Council on Population and Ethnic Affairs (1983). Observing the marital status distribution of each category, we see that the General Eligibility intake consists predominantly of married persons and children, while the Refugee and Special Eligibility intakes have relatively fewer married persons and more children and young never married adults. In contrast, the Family Reunion intake consists of relatively fewer children, more married women than married men, and a relatively large proportion of widows.

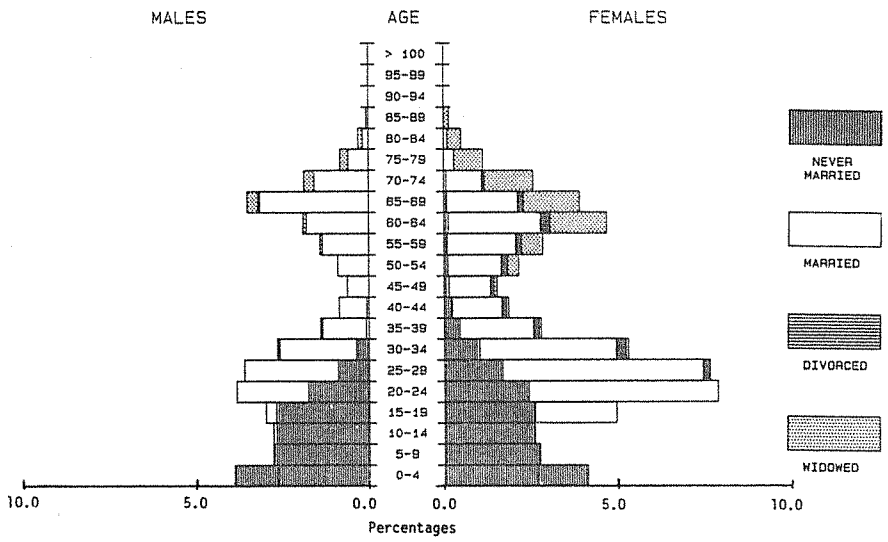
For permanent departures, the Former Settler category is dominated by persons aged 20 to 35 years, who are married and accompanied by children. However, others who leave Australia permanently are even more heavily concentrated in the 20 to 35 year age group, with a slightly larger proportion of children than in the Former Settler category.

As indicated above, the demographic composition of each category of settler arrivals and permanent departures varies and this can influence the overall sex, age and marital status distribution of net migration and, therefore, the composition of the Australian population. For example, a migration intake composed solely of persons in the Family Reunion category could be expected to have a greater impact on the ageing of the population in the short term than an intake composed of persons in the General Eligibility category.

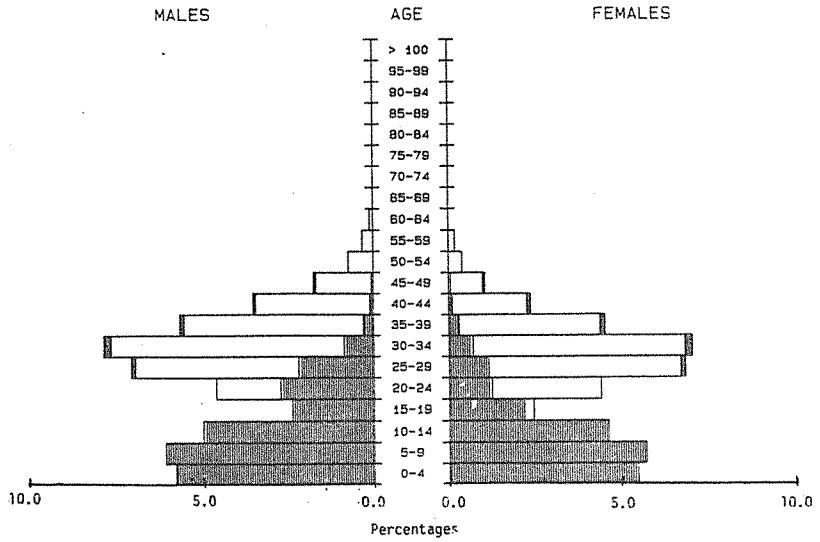
Marriage, divorce and widowing

To complete our cohort-component projection of the population disaggregated by sex, age and marital status, we require the numbers of

FIGURE 1. AGE, SEX AND MARITAL STATUS DISTRIBUTION OF SETTLER ARRIVALS BY ELIGIBILTY STATUS



FAMILY REUNION



GENERAL ELIGIBILITY

cut on individual age and marital status groups is similar to that reported for the year 2000, with the exception that it is smaller at younger ages. This is because there are relatively few migrants aged 15-19 years in the Labour Shortage and Business category, and there is, in the short term, no indirect effect on this age group from the children of migrants. Similarly, there is little effect in the short term on the number of older workers (60+ years) since there are so few of them in the Labour Shortage and Business category.

In summary, the demographic impact of a sustained 10,000 cut to 1985 in the Labour Shortage and Business category intake is to reduce the size of the labour force cumulatively by 5,250 in each year concentrated in the prime working ages. In the long term the impact is greater and more spread across ages. However, even after nineteen years of a sustained migration cut of 10,000 persons, the size of the labour force is reduced by only 1.3 per cent. On the basis of its demographic impact, such a migration cut appears limited as an instrument for relieving short term labour market pressures; if the cut were sustained to 1985 the reduction would only be of the order of 0.3 per cent of the labour force.

Moreover, it must be emphasized that in this paper we have only considered the demographic effects upon labour supply of the simulated reduction in migration. An intake of migrants contributes not only to the supply of labour but also to the demand for goods and services within the economy and, indirectly, to the demand for labour. As well, a sustained program of migration may lead, via its effect on the growth of the population, to beneficial scale effects within Australian industry, to greater levels of innovation or to more diverse skills within the labour force, and thus to increased national income per capita. Analysis of the net effect of these contributions to employment and unemployment is not considered in this paper.[9]

FIGURE 8. NET EFFECT OF MIGRATION CUT ON LABOUR FORCE NUMBERS IN 1985 BY AGE, SEX AND MARITAL STATUS

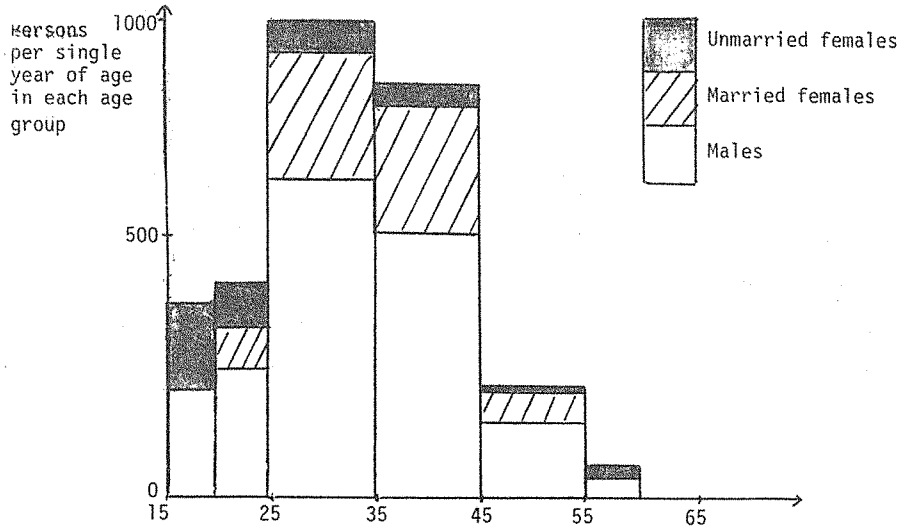
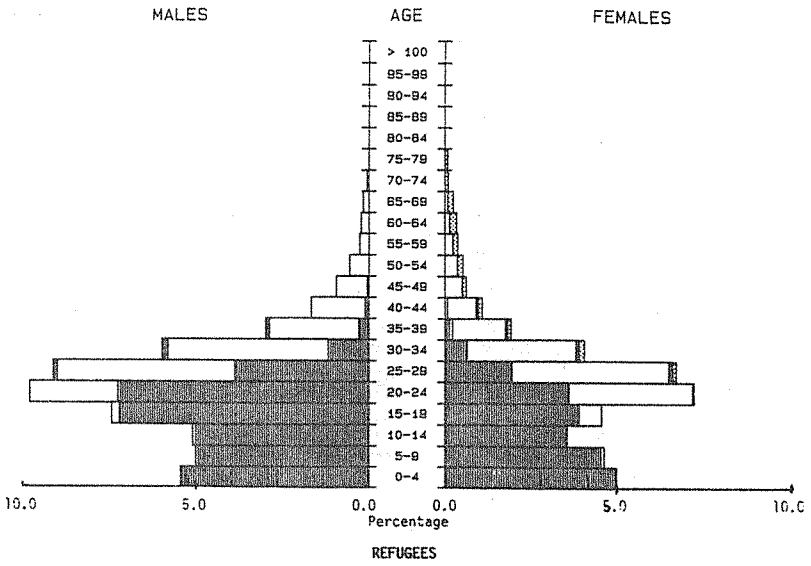


Figure 1 (Cont'd)



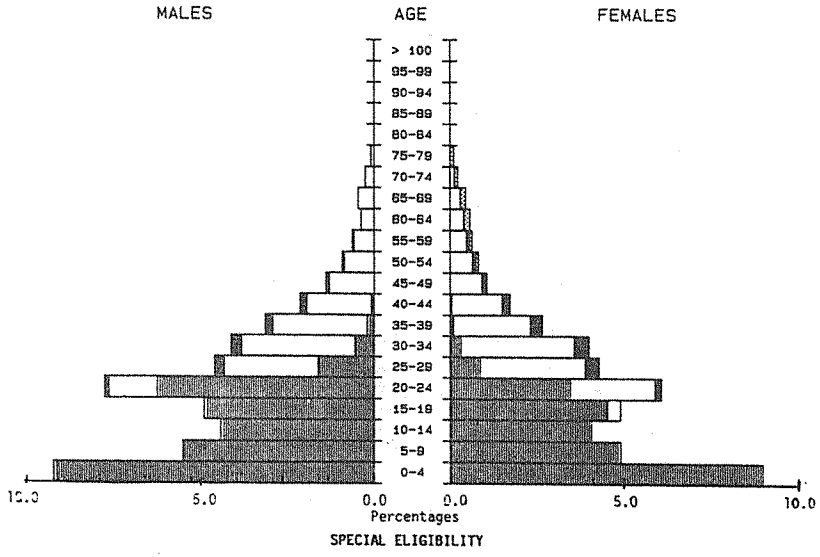
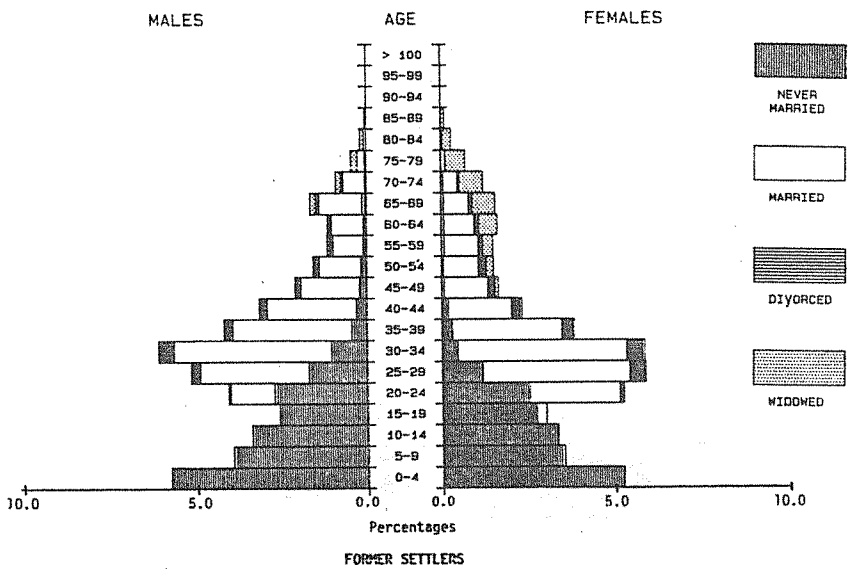
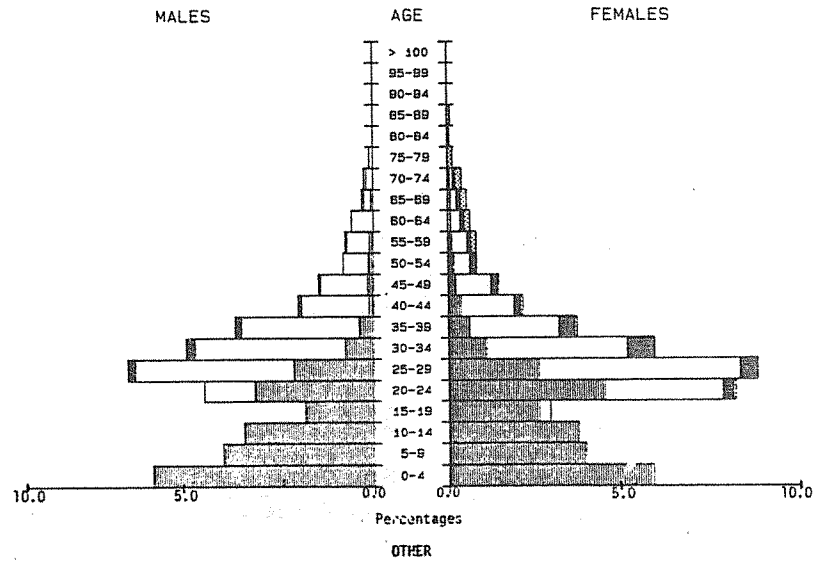


FIGURE 2. AGE, SEX AND MARITAL STATUS DISTRIBUTION OF PERMANENT DEPARTURES BY CATEGORY





be entering the workforce as young adults by 2000. Similarly, the Australian-born children of migrants would be entering the labour force with a lag of 15 to 20 years. Thus, although the direct demographic impact of a migration cut is concentrated on those ages heavily represented in the Labour Shortage and Business category, an indirect effect occurs as each annual intake of migrants moves up the age profile of the population. Figure 8 illustrates the differences arising from the migration cut in the size of the labour force for each age group and marital status by 2000. The major impact is on males aged 25-44 years with a significant, but smaller, impact on the number of married women in the same age group. Reductions in the number of workers in the young (15-24 years) and old (60+ years) age groups are magnified by the indirect effects of the sustained cut, since the children of the excluded migrants would have entered the younger age group and the excluded migrants themselves would have aged into the older group. When related to the size of the labour force in each age group, the impact of the cut in migration is still very small at older ages; although, these apparently small changes represent approximately the same percentage change as experienced by the larger prime-age groups.

In the short term, the impact of the migration cut will obviously be less because it will have been applied for fewer years and there will be no effect from the subsequent reduction in Australia-born children of migrants entering the workforce. The results reported in Table 9 for 1985 should be interpreted as the consequences of a migration cut which has operated for four years, since our projections (and the low migration intake) begin in 1981. Overall the labour force is reduced by 21,000 (or 5,250 per year), which implies that the short term multiplier for the impact of one less migrant in the Labour Shortage and Business category is 0.525 (compared to 0.640 in the year 2000). The effect of the

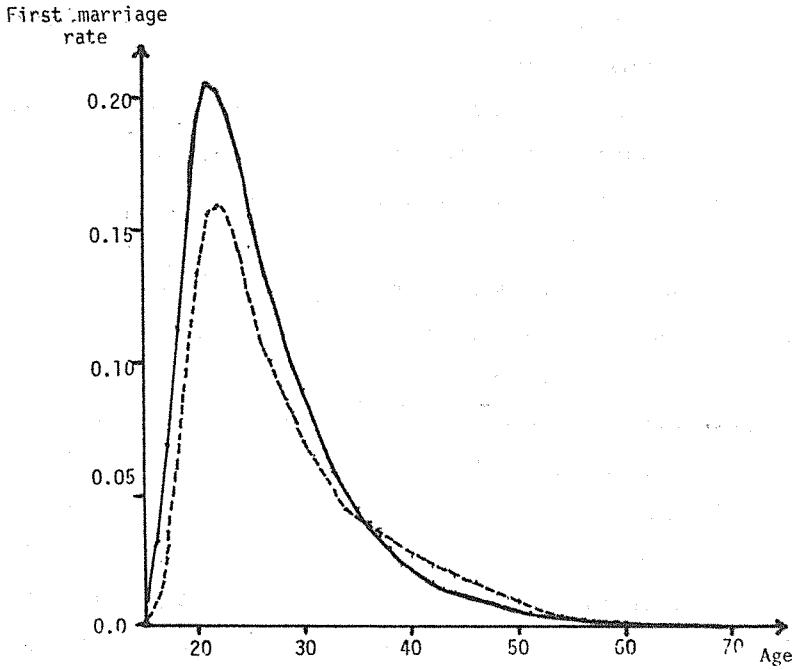
TABLE 9 : Comparison of Labour Force Numbers (in thousands) under Standard and Low Migration Projections, 1981 to 2000

	15-19	20-24	25-34	35-44	45-54	55-59	60-64	65+	Total
Males									
1981	402.8	585.4	1131.0	899.2	709.0	301.4	151.8	64.1	4245.0
1985 - standard	422.7	625.7	1251.0	1063.0	703.6	296.0	153.7	54.4	4569.0
- low migration	421.7	624.6	1245.0	1058.0	702.2	295.8	153.7	54.4	4556.0
- difference	1.0	1.1	6.0	5.0	1.4	0.2	0.0	0.0	13.0
2000 - standard	424.0	620.0	1507.0	1489.0	1215.0	357.5	234.1	97.3	5945.0
- low migration	418.2	612.2	1490.0	1466.0	1199.0	354.5	232.9	97.2	5870.0
- difference	5.8	7.8	17.0	23.0	16.0	3.0	1.2	0.1	75.0
Married females									
1981	13.9	153.7	461.2	455.7	300.4	77.2	23.5	7.8	1493.0
1985 - standard	7.7	130.7	446.1	493.1	280.4	70.1	21.0	9.3	1458.0
- low migration	7.7	130.2	443.7	490.7	279.8	70.1	21.0	9.3	1452.0
- difference	0.0	0.5	2.4	2.4	0.6	0.0	0.0	0.0	6.0
2000 - standard	28.1	257.4	685.0	826.6	602.6	152.3	37.4	21.6	2611.0
- low migration	27.7	253.9	675.1	811.1	594.0	151.6	37.2	21.6	2572.0
- difference	0.4	3.5	9.9	15.5	8.6	0.7	0.2	0.0	39.0
Unmarried females									
1981	340.9	291.9	171.1	70.9	62.3	33.1	14.0	13.7	998.0
1985 - standard	340.2	306.1	241.9	112.6	81.8	34.3	16.7	16.6	1150.0
- low migration	339.4	305.7	241.3	112.2	81.7	34.2	16.7	16.6	1148.0
- difference	0.8	0.4	0.6	0.4	0.1	0.1	0.0	0.0	2.0
2000 - standard	324.5	245.9	327.4	246.5	189.2	46.4	16.2	21.5	1418.0
- low migration	320.1	242.7	324.6	244.1	187.5	46.3	16.2	21.5	1403.0
- difference	4.4	3.2	2.8	2.4	1.7	0.1	0.0	0.0	15.0

marriages and divorces by sex and age for each year of the projection period. These are calculated, for each sex, by applying age specific rates of first marriage, remarriage of divorcees, remarriage of widow(er)s, and divorce to the population at each age of never married, divorced, widowed and married persons, respectively. The two-sex marriage (divorce) model then adjusts these projections to ensure that there are sufficient men at each age to meet the demand for marriage (divorce) of such men by women, and vice versa. Thus, the Facility provides a projection of marriages and divorces and of the marital status composition of the population. This projection is consistent with the composition of the population at the start of each year and with the availability of partners of the other sex, and can be influenced by changing attitudes towards marriage and divorce (as embodied in the age specific rates).

Eight sets of age specific rates of marriage and divorce (four for each sex) are calculated within the Facility via a technique which involves generating a smooth approximation to each set of rates (Williams, 1981). Such smooth approximations (as illustrated in Figure 3 for first marriage rates of women in 1981/82 and 2000/01) have been shown to successfully capture changes in marriage and divorce behaviour for both males and females over an extended historical period (Williams, 1981). Using these smooth approximations, the whole age distribution of marriage or divorce rates in a given year can be determined from only three statistics -- first, the total marriage (or divorce) rate, which is calculated analogously with the total fertility rate as the sum across all ages of the age specific rates of marriage (or divorce); second, the mean age of the distribution and, third, the spread of the distribution across age as measured by the variance in age of the distribution. By way of example, the projected first marriage rate distributions in Figure 3

FIGURE 3. PROJECTED AGE DISTRIBUTIONS OF FIRST MARRIAGE RATES FOR FEMALES, 1981/82 (---) AND 2000/01 (——)



projection. As a result, by the year 2001, the population is 232,695 persons smaller in the low migration projection, implying a migration multiplier over the projection period of 1.16. This multiplier implies that for every migrant who is excluded from the intake, the population in 2001 will be 1.16 persons smaller than it would have been.

Under this low migration scenario, the labour force grows at 2.02 per cent per year (compared with 2.09 per cent in the standard projection).[8] The total labour force is therefore 128,000 less in the year 2000 than in the standard projection, implying that for every migrant who is excluded from the intake, the labour force in 2000 will be 0.64 persons smaller than it would have been. As shown in Table 9, by the year 2000 the major differences occur for males (75,000), while lesser differences occur for married females (39,000) and unmarried females (15,000). However, the reduction in labour force size varies between 1.49 per cent for married females, 1.26 per cent for men and 1.06 per cent for unmarried females. These differences occur as a result of the differential growth in the population between ages and marital states. In particular, the population of married women is reduced most in those age groups with high participation rates.

Differences in the age structure of the migration intake have both a direct and indirect demographic effect upon labour force size. Directly, there are fewer persons at all ages under the migration cut scenario, with the reduction in the adult population being most heavily concentrated in the age group 20 to 40 years, where participation rates are higher. Indirectly, the ageing of the population spreads the impact of migration over all ages. For instance, those migrants who arrived aged around 20 years at the beginning of the projection period would be around 40 years by 2000, whilst those who arrived as children in the 1980's would

TABLE 8 : Component Analysis of Growth (in percentages) in Projected Population under Lower Migration Scenario, 1981/82 to 2000/01

	1981/82	1985/86	1990/91	1995/96	2000/01
Crude birth rate	1.58	1.61	1.52	1.46	1.38
Crude death rate	0.74	0.71	0.75	0.79	0.81
Crude rate of natural increase	0.84	0.90	0.77	0.67	0.57
Crude migration rate	0.76	0.72	0.66	0.62	0.58
Total population growth rate	1.60	1.62	1.43	1.29	1.15

indicate that first marriage rates are projected to increase in such a way that the age distribution of first marriage rates is higher, younger and narrower. In terms of our three statistics, we have therefore projected an increase in the total first marriage rate and a decline in the mean age and variance in age of first marriage. For each sex and marital flow, it is these three statistics which are directly projected in our econometric model, and from which we derive our projections of marriage and divorce.[6]

Table 2 presents the projected total marriage and divorce rates between 1981/82 and 2000/01. Over the last decade or so, the popularity of first marriage has declined substantially and the age at first marriage has increased for males and females. Our projections imply a continuation (at a slower rate) of this decline in the total first marriage rate over the early 1980's, followed by an increase over the remainder of the projection period, while the age at first marriage initially increases and then declines. By the year 2000/01, however, first marriage rates of males and females are projected to recover only to levels experienced in the early 1970's. In contrast to first marriages, remarriage for divorced males and females declined in popularity over the 1960's and 1970's and the age at remarriage increased. In the mid-1970's, however, changes to divorce legislation reversed these trends. Our projections indicate a general continuation of this reversal, although for males the total remarriage rate is projected to decline to the late 1980's before increasing. Historically, remarriage rates for widowed males and females have followed a declining trend since the 1950's, with the age at remarriage increasing over the same period. Our projections indicate a continuation of these trends, with the exception that the total remarriage rate bottoms out in the 1990's and rises slightly to the end of the projection period (although never reaching levels experienced historically). Changes in divorce legislation in the mid-1970's forced a

TABLE 2 : Total Marriage and Divorce Rates[1], 1981/82 to 2000/01

	1981/82	1985/86	1990/91	1995/96	2000/01
Total first marriage rate					
- males	2.00	2.00	2.10	2.17	2.27
- females	2.16	2.19	2.31	2.50	2.70
Total remarriage of divorcees rate					
- males	8.65	8.13	7.79	8.05	8.56
- females	7.93	8.23	8.93	9.98	11.10
Total remarriage of widow(er)s rate					
- males	2.70	2.61	2.68	2.76	2.84
- females	2.10	1.98	1.94	1.97	2.03
Total divorce rate					
- males	0.658	0.741	0.899	1.031	1.185
- females	0.635	0.717	0.869	0.992	1.124

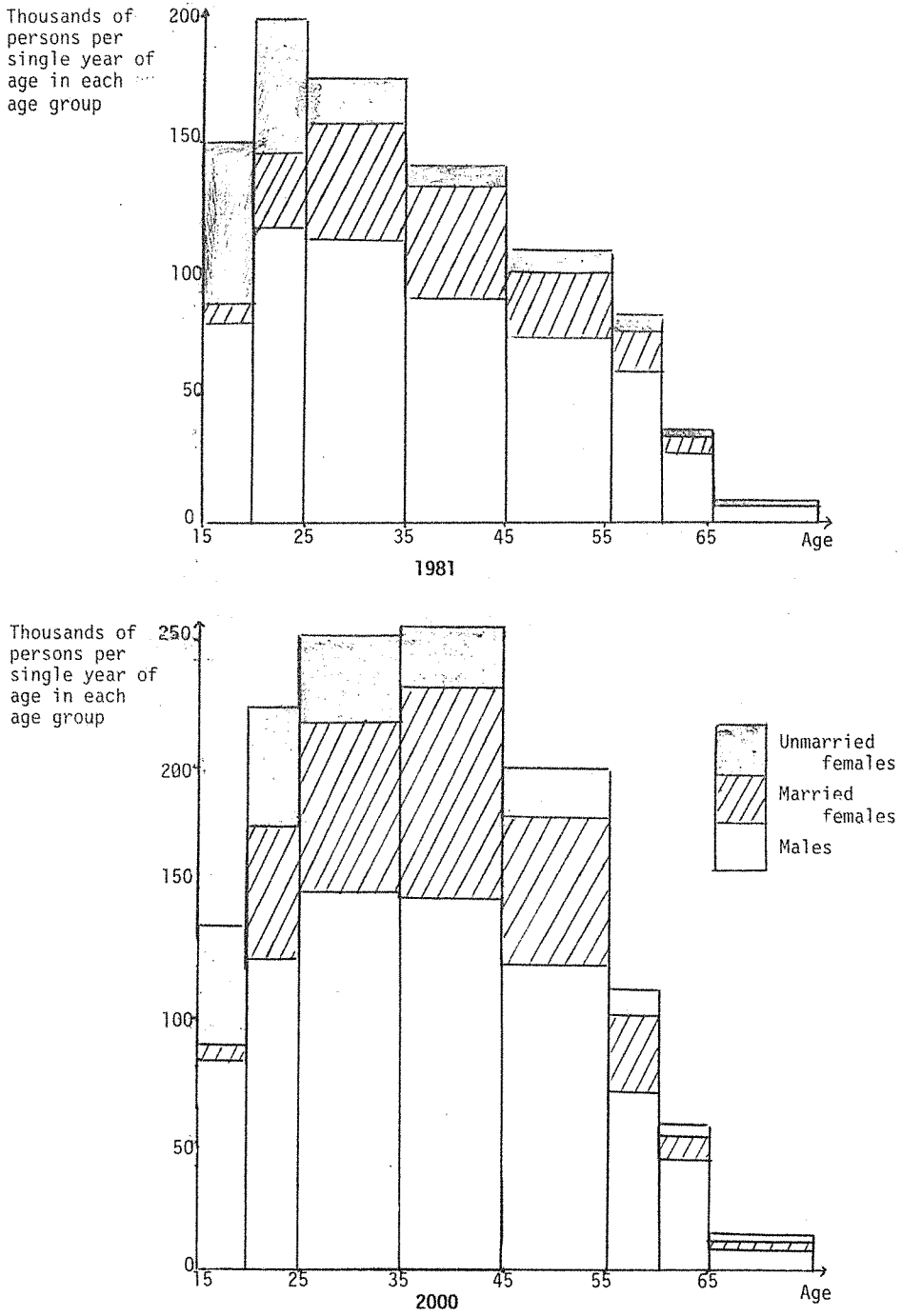
1. Total marriage (divorce) rates are calculated as the sum of the single year of age - specific rates of marriage (divorce).

3. THE EFFECT OF A 10,000 PERSON REDUCTION IN NET MIGRATION GAIN

As foreshadowed in Section 1, we now present the results of a simulation to analyse the demographic implications of a sustained cut of 10,000 persons in the annual intake of migrants in the Labour Shortage and Business category. Given the variation in the sex, age and marital status composition of each eligibility category (as discussed in Section 2), the migration cut will not only reduce the level of net migration but will also reduce the relative numbers of persons in the prime working ages and the number of children. Apart from some compositional effects, any differences in the total projected population and labour force can be expected to be small; 10,000 persons represented only 8 per cent of our standard net migration gain of 125,000 whilst net migration itself was only 0.83 per cent of population in 1981 (although it did represent about one-half of population growth in that year). Also, assumptions relating to fertility, mortality, marriage and divorce rates remain unchanged, so differences in the behaviour of these components of demographic change could only occur via changes in population structure; for example, if the migration cut were to reduce the proportion of women in child-bearing ages, the crude birth rate could be expected to be lower.

Table 8 indicates that these effects are in fact small and that the low migration projection has approximately the same crude birth and death rates as the standard projection (summarised in Table 3). The same applies for marriages, divorces and widowings. Of course, the crude migration rate is lower under the low migration scenario (by 0.07 percentage points in 1981/82), implying a slower population growth of 1.43 per cent per year, compared with 1.49 per cent per year in the standard

FIGURE 7. AGE, SEX AND MARITAL STATUS COMPONENTS OF ACTUAL AND PROJECTED LABOUR FORCE, 1981 AND 2000



discontinuity in divorce behaviour in which the total divorce rate for males and females increased dramatically above the trend of the early 1970's and the age at divorce increased in a reversal of trend. Our projection implies that, after the high divorce rates in 1976/77 and their decline in the late 1970's, total divorce rates will continue their long term trend of increase and exceed the rates of 1976/77, whilst the age at divorce will continue its long term trend of decline.

There is one further marital status change which requires projection -- widowings by sex and age. Widowings are generated within the Facility by calculating at each age the number of women (men) whose husbands (wives) die within each year. To do this, the Facility keeps track of the number of married couples by age of husband and age of wife and applies the age specific death rates of married men (women) to the appropriate number of husbands (wives) at each age (Sams, 1979; p.14ff). In the projections reported here, declining death rates of married males and females at all ages lead to a slight decline in widowing rates, as could be expected.

This completes our discussion of the required assumptions and/or projections regarding the components of population change -- fertility, mortality, migration, marriage, divorce and widowing. The consequences of these assumptions/projections for Australia's projected population and labour force are discussed in the remainder of this section.

The projected population

Under the demographic scenario described above, the Australian population is projected to grow at an annual average rate of 1.49 per cent

from close to 15 million at June 1981 to just over 20 million at June 2001. However, the population growth rate varies over the projection period, responding in particular to our assumptions regarding fertility rates and to the ageing of the population. Up to June 1985, when age specific fertility rates are rising, population growth is fastest. From June 1985 to June 1988, population growth slows in response to declining fertility rates. However, despite constant fertility rates after June 1988, the ageing of the population tends to reduce the number of women of child-bearing age, such that the population grows even more slowly.

Table 3 reports the contributions to population growth from births, deaths and migration. The crude birth rate rises to 1984/85 and then declines for the remainder of the projection period, as would be expected from the imposed fertility scenario. Despite a mortality scenario of declining death rates over the whole projection period, the crude death rate declines only to 1985/86 and rises thereafter. This rise is a result of the slower decline in death rates after that year and the relative ageing of the population, which implies that a larger proportion of the population is concentrated in ages with relatively higher death rates. The net effect of the fertility and mortality scenarios is to increase the growth due to natural increase up to 1984/85 and thereafter to reduce that growth. Since the migration scenario assumes a fixed level of migration, the crude migration rate declines over the projection period as the population grows. This decline in the crude migration rate is opposed by the increase in the crude rate of natural increase to 1984/85, such that the population growth rate peaks at 1.72 per cent per year in 1984/85. Thereafter, the crude rate of natural increase declines faster than the crude migration rate, such that the population growth rate declines to 1.20 per cent per year by 2000/01. In fact, by 1996/97 the crude migration

because of increasing participation rates and a population growth which is only slightly below average. As Figure 7 illustrates, the age and marital status composition of the labour force changes substantially between 1981 and 2000. In 1981, the age distribution peaks at young ages but by 2000 the peak has moved to the 35-44 year age group. The growth in the contribution of married and other women in the prime aged groups is also evident.

In general, these projections suggest that the labour force will grow slowly to 1985, under the influence of the recession, and will grow more quickly thereafter, with the principal contributions being from married women and prime-aged males. At the same time, the age structure of the labour force will change because of differences over time in the labour force attachment of individual age groups (in particular the young and the old) and changes in population structure.

TABLE 7 : Projected Age Specific Labour Force Numbers (in thousands), 1981 to 2000

	15-19	20-24	25-34	35-44	45-54	55-59	60-64	65+	Total
Males									
1981	402.8	585.4	1131.0	899.2	709.0	301.4	141.8	64.1	4245.0
1982	404.3	589.6	1142.0	947.8	703.2	297.7	146.8	57.5	4289.0
1985	422.7	625.7	1251.0	1063.0	703.6	296.0	153.7	54.4	4569.0
1990	443.0	631.5	1373.0	1249.0	822.1	278.9	211.1	76.5	5086.0
2000	424.0	620.0	1507.0	1489.0	1215.0	357.5	234.1	97.3	5945.0
Married Females									
1981	13.9	153.7	461.2	455.7	300.4	77.2	23.5	7.8	1493.0
1982	12.2	151.8	473.1	471.2	295.8	71.1	19.9	9.0	1504.0
1985	7.7	130.7	446.1	493.1	280.4	70.1	21.0	9.3	1458.0
1990	13.2	168.0	516.2	629.5	360.9	96.7	27.2	14.4	1826.0
2000	28.1	257.4	685.0	826.6	602.6	152.3	37.4	21.6	2611.0
Unmarried Females									
1981	340.9	291.9	171.1	70.9	62.3	33.1	14.0	13.7	998.0
1982	334.5	298.8	176.6	80.4	72.2	25.4	12.2	12.2	1012.0
1985	340.2	306.1	241.9	112.6	81.8	34.3	16.7	16.6	1150.0
1990	346.1	292.8	303.7	161.8	104.4	38.2	16.2	18.7	1282.0
2000	324.5	245.9	327.4	246.5	189.2	46.4	16.2	21.5	1418.0

TABLE 3 : Component Analysis of Growth (in percentages) in Projected Population, 1981/82 to 2000/01

	1981/82	1985/86	1990/91	1995/96	2000/01
Crude birth rate	1.58	1.61	1.52	1.46	1.38
Crude death rate	0.74	0.71	0.75	0.78	0.81
Crude rate of natural increase	0.84	0.90	0.77	0.68	0.57
Crude migration rate	0.83	0.78	0.72	0.67	0.63
Total population growth rate	1.67	1.68	1.49	1.35	1.20

rate is projected to exceed the crude rate of natural increase - a situation which has rarely occurred in Australia's recent past. Given our relatively modest assumptions of constant levels of migration and slowly declining mortality and fertility, this projection suggests that Australia's population growth may become increasingly more dependent upon migration.

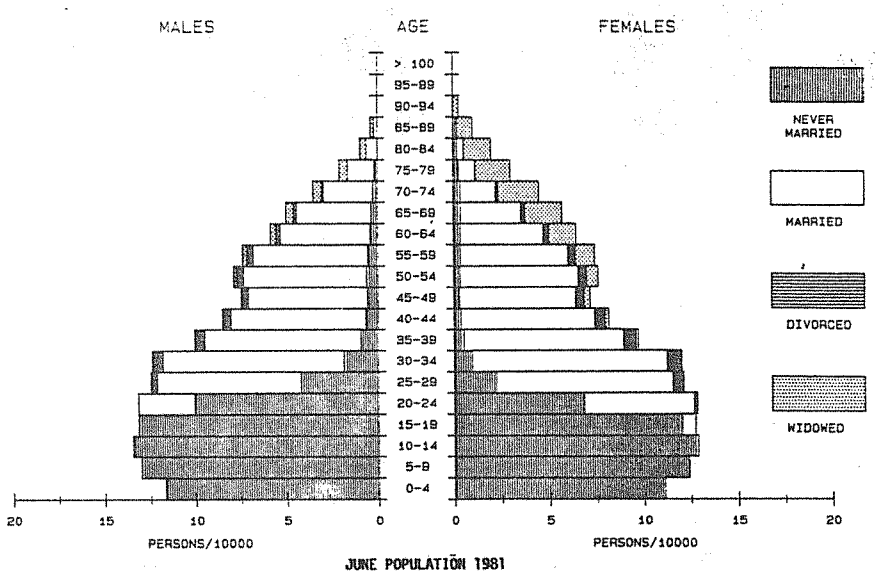
The sex, age and marital status structure of the population for June 1981 and June 2001 are illustrated in Figure 4. The ageing of the population over the projection period is evident, although it should be noted that the relatively large cohort born in the baby boom of the 1950's remains in the working age population over the whole projection period and it is not until next century that this cohort will enter the retirement age groups. Consequently, as shown in Table 4, the proportion of the population of working age rises from 65.29 per cent in 1981 to 67.11 per cent in 2001. Despite this, the 65 and over age group is still projected to grow at an average annual rate of 2.32 per cent and the proportion of the population in this age group increases from 9.75 per cent to 11.49 per cent between 1981 and 2001. Conversely, the number of children grows at an average annual rate of only half (0.71 per cent) that of the population as a whole, and the proportion of children in the population falls from 25.0 per cent in 1981 to 21.4 per cent in 2001. Thus, by the end of the century, the population will be composed of relatively fewer children, with concentrations of population centred on ages 30 and 40 years and with relatively more persons over 65 years.

The age and marital status pyramids in Figure 4 illustrate the growth in the divorced population, in particular for ages 35 to 55 years, and the growth in the population of widowed women aged over 65 years.

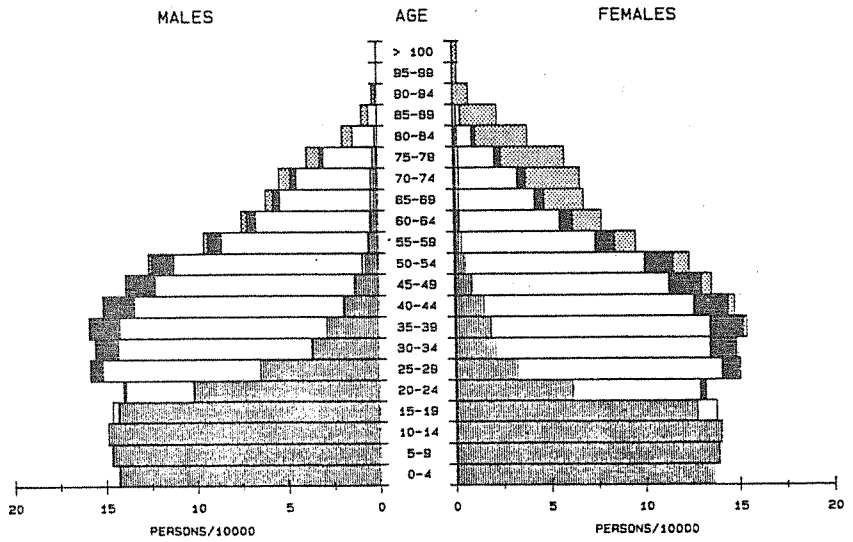
rates decline initially and then increase for the remainder of the projection period, while the unmarried female participation rate declines over the whole projection period. The male labour force grows at an average annual rate of only 1.79 per cent, adding 1.70 million men to the labour force between 1981/82 and 2000/01; the married female labour force grows at a rate of 2.99 per cent, adding 1.12 million women to the labour force; and the unmarried female labour force grows at a rate of 1.87 per cent, adding 0.42 million women to the labour force. Thus, even though the labour force of married females is growing most rapidly, the major contribution to labour force growth is from the numerically larger group of males.

As detailed in Table 7, the male labour force grows over the whole period, as does that of unmarried females, but the labour force of married females declines to 1985, with this withdrawal from the labour force being most pronounced for young married women aged 15-34 years. After 1985, however, the labour force of married females recovers quickly, especially for those aged 15-34 years, and grows rapidly for the remainder of the projection period. A large proportion of the growth in the labour force for men and women is in the age group 35-54 years, because of increasing numbers in this age group as a result of the ageing of the population bulge arising from the baby boom of the 1950's. For young unmarried males and females, the labour force declines over the projection period as a combined result of declining participation rates (with the exception of a small rise for these males during the recession) and slow population growth. For older males, the labour force aged 55-59 years grows slowly as a result of two counteracting effects -- declining participation rates and above average population growth. The growth in the labour force of 60-64 year old males is faster than the male average

FIGURE 4. AGE, SEX AND MARITAL STATUS DISTRIBUTION OF THE POPULATION AT JUNE 1981 AND JUNE 2001



JUNE POPULATION 1981



JUNE POPULATION 2001

FIGURE 5. PROJECTED LABOUR FORCE PARTICIPATION RATES, 1981 TO 2000

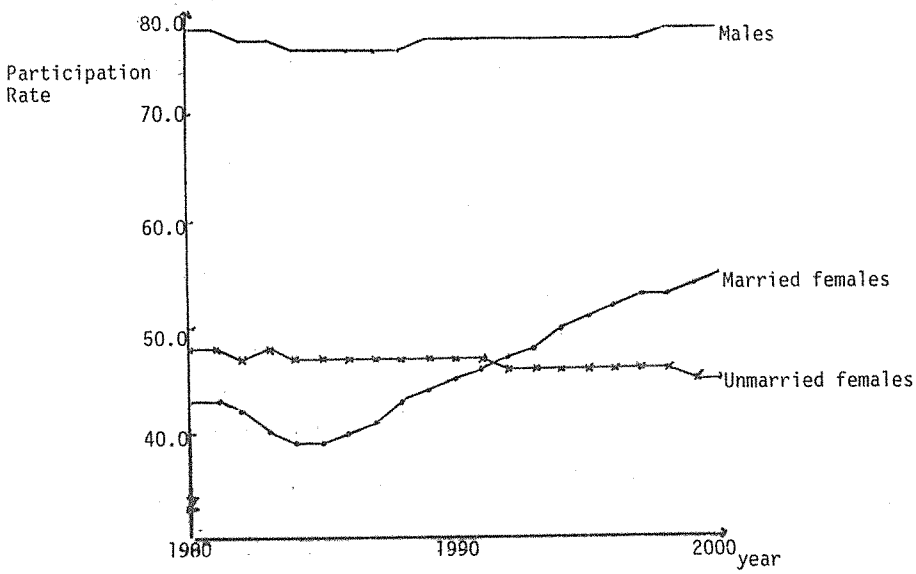


FIGURE 6. PROJECTED LABOUR FORCE NUMBERS (IN THOUSANDS), 1981 TO 2000

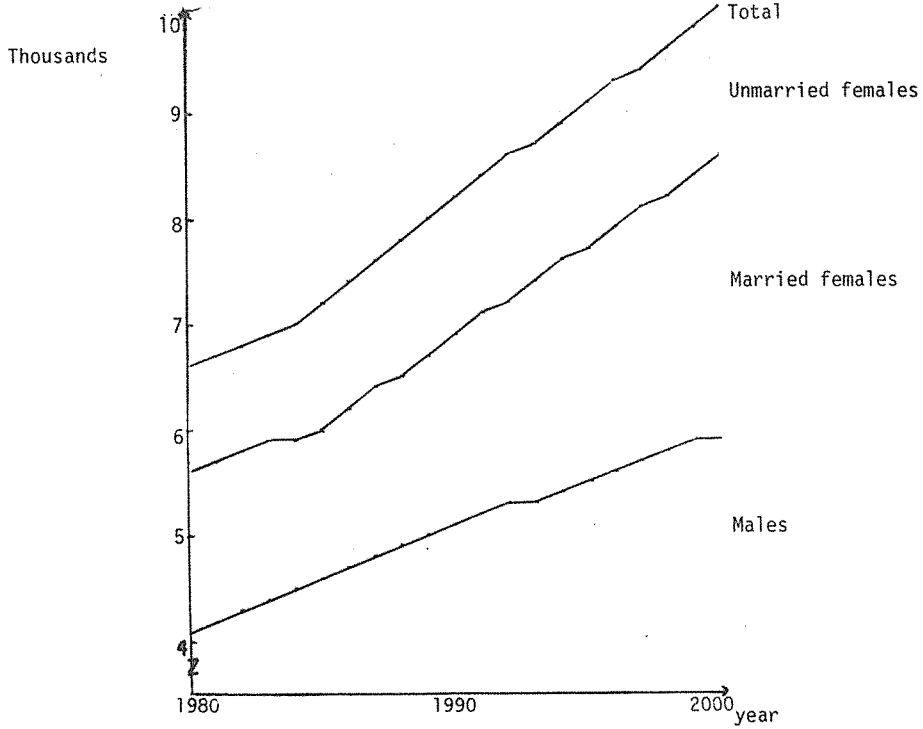


TABLE 4 : Projections of Australian Population (in thousands) by Sex and Three Broad Age Groups, June 1981 to June 2001

	1981	1986	1991	1996	2001
Less than 15 years					
- males	1906.4	1953.6	2017.3	2137.7	2201.7
- females	1819.7	1856.7	1912.6	2026.3	2086.8
- persons	3726.1	3810.3	3929.9	4164.0	4288.5
15 to 64 years					
- males	4929.8	5442.4	5910.1	6329.8	6826.0
- females	4815.4	5298.0	5743.2	6146.1	6629.0
- persons	9745.2	10740.4	11653.3	12475.9	13455.0
65 years and over					
- males	613.5	705.6	818.6	905.2	945.3
- females	842.0	984.3	1144.3	1276.5	1359.0
- persons	1455.5	1689.9	1962.9	2181.7	2304.3
Total population					
- males	7449.6	8101.6	8746.0	9372.7	9972.9
- females	7477.2	8139.0	8800.2	9448.9	10074.9
- persons	14926.8	16240.7	17546.2	18821.6	20047.8
Dependency ratio[1]	53.17	51.21	50.57	50.86	49.00
Proportion of population of working age	65.29	66.13	66.41	66.29	67.11

1. Dependency ratio is calculated as persons aged less than 15 years plus persons aged 65 years and over divided by persons of working age (that is, 15 to 64 years) expressed as a percentage.

(c) Since the early 1970's, men aged 55-59 years began to take up early retirement in increasing numbers. This general trend of declining participation in the labour force is assumed to continue over the projection period, with some slowing during the recession.

(d) Participation rates for older men (aged 60-64 and 65+ years) are currently quite low, largely because of the high proportion of men who have left the workforce to take up war service disability pensions (Merrilees, 1982). Thus, despite the assumption of a general trend towards early retirement, the labour force participation rate of the 60-64 age group is projected to increase as the cohort who served during World War II moves into the older age group and the proportion of men eligible for such pensions declines. The participation rate of the 65+ age group is also projected to increase as the cohort of veterans with uncharacteristically low labour force attachment moves into the very old ages.

When these projected labour force participation rates are applied to the projected populations discussed previously, the resultant labour force projections indicate that, between 1981/82 and 2000/01, the labour force is projected to grow from 6.74 million to 9.97 million, implying an average annual growth rate of 2.09 per cent, which is 0.60 percentage points faster than the population growth rate. Consequently, the labour force participation rate for the adult population as a whole is projected to increase from 61.1 per cent in 1981 to 64.2 per cent by the end of the projection period, with an initial decline between 1981 and 1985 to 59.0 per cent. Figures 5 and 6 illustrate the growth in aggregate participation rates and in the labour force for males and married and unmarried females. The male and married female labour force participation

TABLE 6 : Projected Age Specific Labour Force Participation Rates (in percentages), 1981 to 2000

	15-19	20-24	25-34	35-44	45-54	55-59	60-64	65+	Total
Males									
1981	62.0	91.3	95.3	95.2	91.3	81.1	51.2	10.5	77.9
1982	62.5	89.3	94.9	95.1	90.0	79.1	47.7	9.2	76.6
1985	62.5	90.1	94.0	94.5	89.0	78.4	45.0	8.0	76.0
1990	61.0	89.6	94.7	94.9	90.0	77.3	59.6	9.6	76.8
2000	58.0	88.5	96.0	95.8	92.0	75.0	62.8	10.4	77.6
Married Females									
1981	46.7	54.7	47.5	57.1	47.9	27.0	10.7	2.5	42.7
1982	40.0	53.8	48.5	57.2	47.6	24.7	8.9	2.7	42.0
1985	35.2	47.0	45.4	54.1	45.0	24.8	8.5	2.6	39.3
1990	43.2	58.0	50.9	61.0	50.8	35.9	10.9	3.3	45.3
2000	56.1	76.2	61.7	72.9	60.7	43.2	14.2	4.3	55.1
Unmarried Females									
1981	57.5	83.6	77.3	65.3	56.3	39.1	14.5	2.6	48.1
1982	56.8	82.6	75.6	63.3	59.7	30.3	11.7	2.3	47.1
1985	54.5	77.9	76.3	64.5	60.9	38.1	14.4	2.8	47.2
1990	52.4	76.0	77.0	64.7	61.1	43.5	14.0	2.7	46.7
2000	50.7	75.6	82.9	65.7	62.0	36.8	13.2	2.6	45.3

Table 5 provides the marital status composition of the adult population for selected years. Most striking is the growth in the proportion divorced, which reflects the projected growth in divorce rates. However, this growth in proportion divorced is less than it would have been without the growth in projected remarriage rates over the same period. Up to the mid-1980's, first marriage and remarriage rates are projected to decline and this is reflected in the rising (falling) proportions never married (married). From the mid-1980's, however, the proportion never married falls, partly because of increasing first marriage rates and partly because of the decline in the proportion of the population at younger ages. Despite increasing divorce rates, the proportion married increases from around 1990 in response to increasing first marriage and remarriage rates. The proportion of men who are widowed fluctuates over the projection period, while the proportion of women who are widowed grows by almost one percentage point. However, this growth in the proportion of women widowed is principally due to the increase in the number of women at older ages, when the likelihood of being a widow is higher, rather than to any increase in the probability of being widowed at any given age.

The projected labour force

The growth in the labour force is determined not only by the growth in the population but also by changes in its composition and in the rates of labour force participation. The IMPACT Population Projection Facility is able to provide not only highly disaggregated projections of the population, but also projections of labour force participation rates and projections of the labour force consistent with these populations and

TABLE 5 : Projected Marital Status Proportions (in percentages) for Adult Males and Females, June 1981 to June 2001

	1981	1986	1991	1996	2001
Males					
Never married	30.76	31.70	31.17	29.54	28.57
Married	63.38	61.26	60.87	61.60	61.87
Divorced	3.29	4.40	5.32	6.23	6.98
Widowed	2.57	2.64	2.64	2.63	2.58
Females					
Never married	22.72	23.45	22.64	20.76	19.69
Married	62.20	60.03	59.53	60.09	60.23
Divorced	4.11	5.34	6.44	7.45	8.16
Widowed	10.97	11.18	11.39	11.70	11.92

rates. Labour force participation rates disaggregated by sex, eight age groups and two marital states (for women) can be generated by the Facility. Male participation rates are projected exogenously, whilst female participation rates disaggregated by three broad age groups and two marital states are projected by an econometric model and then disaggregated to eight age groups.[7] Table 6 presents these projected labour force participation rates in selected years. In summary, labour force participation rates are projected to remain approximately static or to decline up to 1985, due to the withdrawal of workers from the labour force during the current recession, and thereafter to increase to the end of the projection period. The major exceptions to this simple interpretation are listed below.

(a) Young unmarried men and women (aged 15-19 and 20-24 years) experienced declining participation rates over the 1960's and early 1970's, but their participation rates rose during the recession and are projected to remain above trend for the remainder of the recession. In the long term, however, an assumed return to higher participation in education is expected to result in declining participation rates over the remainder of the projection period.

(b) Married females experienced dramatically rising participation rates over the 1960's and 1970's, although this growth slowed substantially during the current recession. In our projection, married female participation rates are projected to decline to the late 1980's in response to the continuation of the recession and to the assumed rise in fertility, which forces married women to withdraw from the workforce. For the remainder of the projection period, participation rates again increase in response to declining fertility and a general recovery in the economy.