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PRELIMINARY PROJECTIONS

OF

VICTORIAN HOUSEHOLD FORMATION

by

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The views expressed in this paper do not necessarily reflect the opinions of the participating agencies, nor of the Commonwealth government

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PREFACE

The accompanying analysis of household formation projections is the result of joint work between Dennis Sams and Pamela Williams of the IMPACT Project and Vin Martin, Department of the Premier and Cabinet.

The analysis has been prepared to assist State agencies who require long-term projections of Victorian household formation as input to their forward planning.

To generate the household formation projections, the authors have to assume future profiles for economic and demographic trends.

The views expressed on these trends or the other results in the paper do not necessarily reflect the opinions of the participating agencies in the IMPACT Project, the Commonwealth Government, the Department of the Premier and Cabinet or the Victorian Government.

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Pamela Williams, Dennis Sams and Vin Martin

1. INTRODUCTION

The aim of this paper is to present and analyse a set of household projections for Victoria for the period 1981 to 2001 produced with the Population Projection Facility developed by the IMPACT Project Team. Development of this Facility, including data sources, is documented in several papers produced by the IMPACT Team. A Guide to this documentation is contained in Appendix A.

The Projection Facility requires several major inputs including:

- (1) an economic scenario specifying such variables as wage rates, Government benefits and size and duration of unemployment; and

- (11) a demographic scenario specifying the values of certain variables such as death rates and migration levels.

The economic scenario is basically that developed by the IMPACT Project for an earlier study of Australia's household formation, outlined in "Household Formation: Implications for Australia's Future", IMPACT Preliminary Working Paper No. BP-28, February 1982.

This economic scenario is also described in a further paper which reports the results of a set of projections of the Australian population and labour force and titled; "Some Projections of Australian Population and Labour Force, 1980 to 2001", IMPACT Preliminary Working Paper No. BP-30, May 1982. The analysis below is based on the assumption that this economic scenario was suitable for the Victorian economy, a matter discussed in more detail in Section 3 of the paper.

The demographic scenario incorporates the assumptions underlying the principal population projections developed by the Forecasts Project Team, Department of the Premier and Cabinet and set out in the Team's discussion paper entitled, Preliminary Population Projections. Victoria, 1981 to 2001, October 1982. Additional data and assumptions were required to generate population projections by marital status. The elements of the demographic scenario are discussed in Section 4.

The projections of population and numbers of households generated using the Facility and the above scenarios are analysed in Sections 5 and 6. These projections are conditional projections to the year 2001 dependent on the imposed demographic scenario and an economic scenario of medium growth in the Victorian and Australian economies. Some discussion of the sensitivity of the projections to variation in these scenarios is given in Section 7.

in which the authors validate the Facility by reproducing a projection of the Australian population published by the Australian Bureau of Statistics, and

Sams, Dennis and Pamela Williams (1982a) "Some Projections of Australian Population and Labour Force, 1980 to 2001", IMPACT Preliminary Working Paper, BP-30, Melbourne,

in which the authors report the first simulations of the population and labour force produced with the complete Facility (that is involving both the demographic and econometric models of population and labour force behaviour). The labour force projections are analysed in greater detail in:

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

while a set of household projections for Australia are presented in:

Williams, Pamela and Dennis Sams (1982) "Household Formation : Implications for Australia's Future", IMPACT Preliminary Working Paper, BP-28, Melbourne.

The documentation of the Facility is more extensive than that listed above and a full list of papers is given in:

Sams, Dennis (1982) "A Reading List of the IMPACT Papers Relating to the IMPACT Population Projection Facility", IMPACT Research Memorandum, BACHUROO Module, Melbourne.

It is recommended that the interested reader begins with Sams and Williams (1982 a) and Williams and Sams (1982).

Copies of all publications may be obtained from:

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APPENDIX A. A BIBLIOGRAPHIC GUIDE TO THE IMPACT POPULATION PROJECTION FACILITY

The IMPACT Population Projection Facility has been documented in a series of IMPACT Working Papers. General descriptions of the Facility are given in:

Sams, Dennis (1979), "The Demographic Core of the IMPACT Project: An Overview", IMPACT Preliminary Working Paper, BP-18, Melbourne, and

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, BP-22, Melbourne.

The econometric models of fertility, marriage, divorce and female labour force participation and of household formation are reported, respectively, in:

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, BP-29, Melbourne, and

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, BP-26, Melbourne.

The results of some simulations with the Facility are reported in:

Sams, Dennis C., Lynne S. Williams, Pamela J. Williams and Jim 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, BP-27, Melbourne,

2. IMPACT POPULATION, LABOUR FORCE AND HOUSEHOLD PROJECTION FACILITY

2.1 Introduction

The observed growth in the number of households over time can be partitioned into the effects arising from (a) the growth of the population and changes in its distribution between demographic groups, and (b) the growth in household headship ratios for each demographic group. Under the assumption that these two components of the growth in households are separable, we can adopt a comparatively simple two-stage projection method in which population and household headship ratios are projected and multiplied together to determine the number of households.

The household projections reported in this paper were generated in this manner, using the IMPACT Project's Population Projection Facility to project the Victorian population, and its econometric model of household formation to project household headship ratios. In the remainder of this section, a brief description of each of these projection devices is given.

2.2 Population Projection Facility

The Population Projection Facility is designed to provide, within a tightly integrated framework, projections of the Australian population subject to the influence of a set of economic, social and demographic variables. Annual projections of the population disaggregated by 101 single years of age, four marital states, and two sexes are available.

This level of disaggregation is maintained for all population stocks and demographic flows, such as deaths, migration and marital status change, and the Facility ensures that strict accounting identities are maintained between all population stocks and flows. In particular, the Facility incorporates a two-sex marriage and divorce model which constrains the number of marriages (and divorces) for each sex to be equal. The Facility is also able to produce sub-national projections, as reported in this paper.

In these projections of population, we have chosen to set the level of fertility externally. The Facility has the capacity to incorporate fertility and marriage and divorce rates as determined by an econometric model of fertility, marriage and divorce and female labour force participation (See: Clive Brooks, Dennis Sams and Lynne S. Williams, "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, May 1982), but to ensure compatibility with Victorian projections produced by the Forecasts Project Team, econometric determination of fertility rates was not undertaken in this exercise.

2.3 Econometric Determination of Marriage, Divorce and Female Labour Force Participation Rates

The econometric model mentioned above has been used to provide projections of marriage and divorce rates by sex and age. It has also been used to provide projections of female labour force participation rates by marital status and age group. The econometric relationships estimated from national data from the 1961, 1966, 1971 and 1976 Censuses were assumed to apply to the determination of the Victorian rates. However, differentials between Victorian and Australian age-specific labour force participation rates and marriage and divorce rates at the beginning of the projection period have also been allowed to influence the projected rates. Male labour force participation rates were not projected using an econometric model, but were projected as part of the economic scenario.

8. POSSIBLE REVISIONS TO THE CURRENT ANALYSIS

At the time of making these projections, Victorian household headship ratios as measured by the 1981 Census of Population and Housing were not yet available. Re-estimation of the projections with this information would be desirable. The major findings in the analysis are unlikely to change, but there may be changes to the scale of household formation by selected age groups by marital status.

A more important development with release of the 1981 Census data for both Victoria and Australia is the opportunity to examine the validity of the existing IMPACT models and re-estimate sections of them as required. Existing resource constraints imply that this task, which is more ambitious than simply altering the base year data, will not be possible for some time.

In contrast, it is possible to incorporate quite easily any future revisions to Victorian population projections which might be produced by the Forecasts Project Team or other organisations such as the Australian Bureau of Statistics.

While not discussed in this paper, it is important to note that the sensitivity of household formation to alternative economic scenarios is most pronounced for unmarried males and unmarried females, and least pronounced for traditional groups, married men and widowed females. Correspondingly, the sensitivity to economic scenarios is greatest for household formation in younger age groups.

7.4 Implications for the Current Recession

As stated earlier in the paper, the projections analysed in this paper do not take into direct account the depth of the current recession. However, the low economic scenario represents a timepath with unemployment at about 6.0% for the whole projection period and therefore depicts an Australian economy which does not recover from the current recession. Alternatively the medium economic scenario indicates some recovery of the economy.

The clear implication from the IMPACT models is that economic recovery would bring with it higher rates of new household formation than if the recession were to continue. Since new household formation is a major determinant of housing demand, it follows from the current analysis that sustained economic recovery will lead in the long term not only to increased household demand but also to higher levels of new housing demand.

The use of the expression long-term in the context above needs to be emphasised. A sudden improvement in the state of the economy would not be accompanied by a similarly sudden increase in new household formation and new housing demand. On the other hand, if such higher levels of economic activity were sustained for say, five years, then increased household formation projected by the model could be expected to eventuate.

2.4 Household Headship Model

The household headship model (Pamela Williams and Dennis Sams, "Household Headship in Australia: Further Developments to the IMPACT Project's Econometric Model of Household Headship", IMPACT Preliminary Working Paper No. BP-26, August 1981) projects household headship ratios for sixty-four demographic groups comprising all combinations of eight sex/marital status groups and eight age groups as shown in Table 1.

In this model, changes in household headship ratios are related to the average expected level of income, which is determined by two components:

- (i) past and current levels of income from different sources in the form of:
 - wages, salaries and supplements;
 - unemployment benefits;
 - Government welfare payments, such as sickness and invalid pensions, the old age pension, supporting parent's benefit and the like, which are intended to replace labour income;
 - other Government transfers such as child endowment, and health benefits, which are not intended to replace labour income;
 - unearned private income from dividends, interest and the like.
- (ii) the distribution of income from the above sources for each demographic group in a given year, which in turn is related to labour force attachment as measured by:
 - the labour force participation rate;
 - the unemployment rate;
 - the duration of unemployment;
 - the fraction of the year a typical person is in the labour force.

The model has been able to explain the development of household headship ratios over the 1960's and 1970's and captures not only the increase in ratios over that period

TABLE 1 LIST OF DEMOGRAPHIC GROUPS FOR WHICH HOUSEHOLD FORMATION IS DETERMINED IN THE IMPACT PROJECT'S HOUSEHOLD HEADSHIP MODEL

There are sixty-four demographic groups modelled, being all combinations of eight sex/marital status groups and eight age groups as follows:

Sex/Marital Status Groups

- (1) never married males (NMM)
- (2) never married females (NMF)
- (3) married (including permanently separated) males (MM)
- (4) married (including permanently separated) females (MF)
- (5) divorced males (DM)
- (6) divorced females (DF)
- (7) widowed males (WM)
- (8) widowed females (WF)

Age Groups (In Years)

- (1) 15 - 19
- (2) 20 - 24
- (3) 25 - 34
- (4) 35 - 44
- (5) 45 - 54
- (6) 55 - 59
- (7) 60 - 64
- (8) 65 and over

Source: See Appendix A.

TABLE 13 HOUSEHOLD FORMATION UNDER PRINCIPAL POPULATION PROJECTION AND VARIOUS ECONOMIC SCENARIOS

Economic Scenario	Household Headship Ratio 2001	Household Formation Growth (a) 2001	Household Formation Growth (b) 2001	Number of Households (b) 2001	Percentage Point Deviation of High/Low from Principal Projection 2001
	(%)	(%)	(%)	('000)	(%)
High	0.4660	2.0	1810.4	6.0	
Medium	0.4398	1.7	1708.5		
Low	0.4205	1.4	1633.6	-4.4	

(a) The percentage point differences for the total headship ratio for high and low economic scenarios were taken from IMPACT's Australian analysis and applied to the medium projection for Victoria in 2001.

(b) The number of households was determined by multiplying the total household headship ratio by the total population.

TABLE 12 HOUSEHOLD FORMATION UNDER MEDIUM ECONOMIC SCENARIO
AND VARIOUS POPULATION SCENARIOS

Population Scenario	Adult Population Growth 1981 to 2001	Household Formation Growth 1981 to 2001(a)	Number of Households in 2001(a)	Percentage Point Deviation of High/Low from Medium Projection in 2001
				(%)
High	1.6	1.9	1795.3	5.1
Principal	1.4	1.7	1708.5	
Low	1.0	1.3	1588.2	-7.0

(a) Calculated by applying household headship ratios by sex and eight age groups from the medium economic scenario to the projected population in the relevant groups as determined by the three population scenarios.

but also the relative sensitivity of different demographic groups to the economic determinants of household headship.

In the model, household headship ratios tend to be higher with higher levels of income and/or increases in participation rates, whilst higher levels of unemployment or longer duration of unemployment tend to lower household headship ratios.

In general, the sensitivity of household headship to changes in average expected income has been lowest for older age groups and the more traditional household heads, such as married males and widowed females, and greatest for young unmarried males. Young unmarried females do not respond as much as young males to changes in their expected income but they are more responsive than the traditional groups. Except for older people for whom social welfare payments and unearned incomes are more important sources of income, changes in earned income have the greatest effect of all income sources on headship ratios for all groups. Similarly, in the current situation of high youth unemployment, the headship ratios of young unmarried persons, especially males, are sensitive to the rate of unemployment benefits, although this sensitivity is eclipsed by the responsiveness of these ratios to earned income.

The sensitivity of household headship to labour force participation is greatest for young unmarried males, and, as expected, increases in the unemployment rate and the duration of unemployment have their major impact on household headship among young people. Household headship ratios are, however, less affected by these latter variables than by changes in labour force participation and in earned income.

2.5 Summary of the IMPACT Method for Projecting Households

A schematic illustration of the Facility used to generate the household projections reported in this paper is given in Figure 1. We begin with a chosen demographic scenario of future fertility and mortality ratios, and international and internal migration levels, and a chosen scenario for the future of the economy. The demographic scenario and the economic scenario are used by the population projection model to generate projections of the population in each demographic group in each year. The economic scenario is used by the labour force participation model to project labour force participation rates for each demographic group, which feed into the household headship model. The economic scenario also feeds directly into the household headship model, where it influences the average expected income level of each demographic group. The econometric model of household headship determines the headship ratios for each demographic group on the basis of the estimated response of its headship ratio to its average expected income. The population estimates are then combined with these headship ratios to provide estimates of the number of households in each group and for the population as a whole.

The next two sections describe the assumptions required for each part of the Facility.

have assumed that Victorian household headship ratios respond to alternative specifications of the economic scenarios with the same sensitivity as Australian rates.

Without changing the economic scenario and household headship ratios, the impact of alternative population scenarios is shown in Table 12. The high population scenario with 1.6% average annual growth in population between 1981 and 2001 results in 1.9% average annual growth in the number of households. On the other hand, the low population scenario with 1.0% average annual population growth results in only 1.3% growth in the number of households. In 2001, the number of households under the high population scenario is 5.1% higher than the medium projection and under the low population projection is 7.0% lower.

The affect of varying the economic scenario but maintaining the principal population projections is shown in Table 13. The high economic scenario results in average annual growth in number of households of 2.0 per cent over the projection period and the low scenario, 1.4 per cent, compared to the medium projection of 1.7 per cent. In 2001, the high economic scenario effects a 6.0% higher number of households than the medium projection, and the low economic scenario, a lower level by 4.4 per cent.

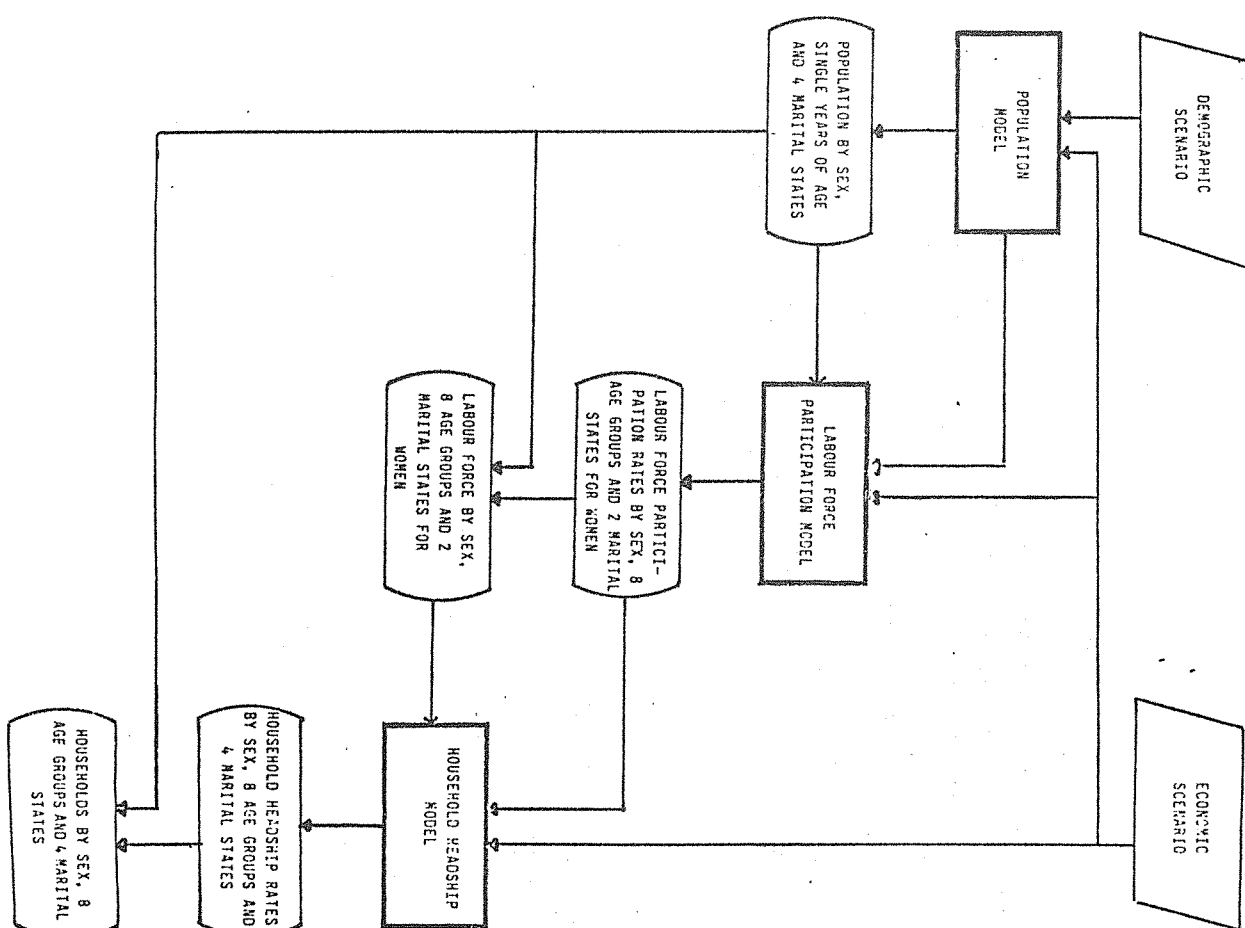
In general these results indicate that while the major trend in projected household formation growth is determined primarily by population growth, the plausible range of the projected number of households can be influenced significantly by both demographic and economic factors.

TABLE 11 SUMMARY OF ECONOMIC SCENARIOS(a)

Variables which differ between scenarios	1981-82	1990-91			2000-01		
		Low	Medium	High	Low	Medium	High
Real gross State product per head	2790	2790	3051	3401	2790	3371	4145
Real female hourly wage rate	1.43	1.50	1.67	1.87	1.50	1.85	2.27
Unemployment rate	5.44	6.00	4.00	2.00	6.00	4.00	2.00
Real old age pension	51.61	51.61	56.44	62.90	51.61	62.35	76.68
Real widow's pension	46.42	46.42	50.76	56.58	46.42	56.08	68.96

(a) Footnotes as for Table 1.

FIGURE 1 SCHEMATIC REPRESENTATION OF THE IMPACT PROJECT'S HOUSEHOLD FORMATION PROJECTION FACILITY



3. ECONOMIC SCENARIO

The economic scenario of medium growth, which was developed by the IMPACT Project Team for its projections of Australian household formation, has been adopted for the current Victorian Projections. That economic scenario is set out in Table 2.

The status of this scenario should be clearly understood. The scenario is in no way meant to be interpreted as an economic forecast of the likely course of the Victorian economy. The scenario is plausible in that none of its components are technically impossible or inconsistent with each other. (It is, of course, true that a more realistic short term scenario could be obtained by using a higher unemployment rate in 1981-82. We are mainly concerned, however, with long term developments in these projections). Other scenarios (for example, with higher unemployment, or, alternatively, faster income growth) may be equally plausible.

One of the major advantages of the IMPACT Facility is that it allows the assessment of the impact of alternative economic scenarios on the course of household formation.

Whilst the specification of the economic scenario used in this projection implies a moderate long-term rate of growth in the Victorian economy, it can produce results relevant to an analysis of household formation under other scenarios (for example, a continuation of the current recession). Such analysis is given in Section 7.

TABLE 10 ASSUMPTIONS UNDERLYING PRELIMINARY POPULATION PROJECTIONS, VICTORIA

ITEM	LOW	PRINCIPAL	HIGH
Fertility	Total fertility rate rises from 1920 in 1981-82 to 1960 in 1984-85; 1960 thereafter	Total fertility rate rises from 1920 in 1981-82 to 210 in 1987-88; 210 thereafter	As for Principal Projections
Mortality	Constant at 1981-82 levels throughout the Projection Period	1.5% decline per annum	As for Principal Projections
Net Interstate Migration	1981-82: 20,000 persons 1982-83: 16,000 persons 1983-84 to 2000-01: 0.40% of Victoria's population	1981-82: 20,000 persons 1982-83: 16,000 persons 1983-84 to 1988-89: 0.33% of Victoria's population; 0.17% of Victoria's population thereafter	1981-82: 12,512 persons 1982-83: 11,984 persons 1983-84 to 2000-01: 0.17% of Victoria's population
Net Overseas Migration (into Victoria)	1981-82 to 1983-84: 28,837 persons; 0.5% of Victoria's population thereafter	1981-82 to 1983-84: 28,837 persons; 0.6% of Victoria's population thereafter	1981-82 to 1983-84: 28,837 persons; 0.8% of Victoria's population thereafter

Source: Forecasts Project Team, Preliminary Population Projections, Victoria, 1981 to 2001, Melbourne, October 1982.

7. HIGH AND LOW PROJECTIONS OF HOUSEHOLD FORMATION

7.1 Introduction

The illustrative projections of household formation discussed in the previous section were the direct result of using the assumptions described in Sections 3 and 4. These assumptions represented only one plausible set from a range of alternatives.

To simplify the analysis of alternative assumptions it is useful to specify 'high' and 'low' scenarios for both the population and the economy. The analysis then leads to a discussion of 'high' and 'low' growth rates and levels of new household formation.

7.2 'High' and 'Low' Scenarios

For the specification of 'high' and 'low' scenarios for population growth, the 'high' and 'low' projections from the Forecasts Project Team's discussion paper, Preliminary Population Projections, Victoria, 1981-2001, have been used.

Table 10 summarises the assumptions for the 'high', 'principal' and 'low' scenarios.

For the economic scenarios, IMPACT has also developed two alternative economic scenarios, 'high' and 'low' for its analysis in "Household Formation: Implications for Australia's Future", Preliminary Working Paper No. SP-28, February 1982. A summary of the 'high', 'low' and 'medium' scenarios is set out in Table 11. In the current paper this scenario is applied to the economy of Victoria (although it was originally developed for Australia).

7.3 Range of Household Formation Projections

The sensitivity of household headship ratios to alternative specification of economic scenarios has been analysed by IMPACT in its study of Australian household formation referred to above. For ease of analysis in this paper, we

TABLE 2 SUMMARY OF THE ECONOMIC SCENARIO FOR THE VICTORIAN ECONOMY FOR THE ECONOMETRIC MODEL

Variables (a), (b)	1981/82	1990/91	2000/01
<u>Economic Structure</u>			
- Real gross state product per head	2790	3051	3371
- Real female hourly wage rate	1.43	1.67	1.85
- Female/male relative hourly wage rate	0.94	1.00	1.00
- Unemployment rate	5.44	4.00	4.00
- Real old age pension	51.61	56.44	62.35
- Real widows' pension	46.42	50.76	56.08
- <u>Societal Structure</u> Index of female educational attainment	32.35	35.53	37.65
- Education participation rate of 15 - 24 year old unmarried women	31.73	37.13	39.21
- Oral contraceptive usage rate	24.00	24.00	24.00

- (a) For a listing of sources and a detailed description of these variables see Brooks, Clive (1981). "The Database of the Econometric Model of Fertility, Marriage, Divorce and Labour Force Participation for Australian Females." IMPACT Research Memorandum. BACHUR00 Module, Melbourne.
- (b) All monetary variables are converted to real terms and expressed in constant 1966/67 Australian dollars.

4. DEMOGRAPHIC ASSUMPTIONS

Population projections by age, sex and marital status have been produced using the IMPACT Facility. In this particular projection, the Facility uses the cohort-component method to project population based on projections of age-specific fertility rates, sex and age specific marriage and divorce rates, and death rates and the size and sex, age and marital status distribution of interstate and overseas migration. These projections of the components of demographic growth were partly determined from assumptions regarding future movements in fertility, mortality and interstate and overseas migration made by the Forecasts Project Team, Department of the Premier and Cabinet, in the production of its principal projection of the Victorian population (as outlined in the discussion paper, Preliminary Population Projections, Victoria, 1981-2001, October 1982). Table 3 contains a summary of the Forecasts Project Team's assumptions.

The age-specific death rates for each sex and the age-specific fertility rates for women adopted for the projections were the same as those for the projections by the Forecasts Project Team, while international movements had the same age profile as for the Forecasts Project Team's assumptions but were disaggregated by marital status at each age in accordance with the marital status proportions of international arrivals and departures into and out of Australia in 1980/81. For interstate migration movements, the age profiles provided by the Forecasts Project Team were disaggregated by marital status at each age in accordance with the marital status proportions of the Australian population in 1980. The econometric model was used with the chosen economic scenario to determine the projections of marriage and divorce rates. Whilst this model was estimated from Australian data, it was assumed that the marriage and divorce behaviour of Australians and Victorians would respond similarly to changes in economic growth. The projections of Victorian marriage and divorce rates produced suggest that:

TABLE 9 MEDIUM PROJECTION OF HOUSEHOLD FORMATION BY AGE, VICTORIA: FEMALE HOUSEHOLD HEADS, 1981 TO 2001 (a)
(*000)

Age Group	1981	1986	1991	1996	2001	Av. Annual Growth Rate (per cent)
15 - 19	7.0 (0.6)	6.3 (0.5)	5.9 (0.4)	5.5 (0.3)	6.4 (0.4)	-0.4
20 - 24	13.3 (1.1)	11.5 (0.9)	12.1 (0.8)	11.2 (0.7)	11.8 (0.7)	-0.6
25 - 34	29.8 (2.4)	38.8 (2.9)	46.2 (3.2)	50.3 (3.2)	51.7 (3.0)	2.8
35 - 44	26.8 (2.2)	38.9 (2.9)	48.6 (3.4)	58.5 (3.7)	67.9 (4.0)	4.8
45 - 54	28.9 (2.4)	31.4 (2.4)	38.4 (2.7)	49.9 (3.2)	59.2 (3.5)	3.7
55 - 59	20.6 (1.7)	21.3 (1.6)	20.2 (1.4)	23.1 (1.5)	27.8 (1.6)	1.5
60 - 64	21.6 (1.8)	24.4 (1.8)	24.4 (1.7)	22.7 (1.4)	25.4 (1.5)	0.8
65 Plus	92.3 (7.5)	103.6 (7.8)	116.3 (8.1)	128.1 (8.2)	136.9 (8.0)	2.0
ADULT FEMALES	240.3 (19.5)	276.3 (20.8)	312.2 (21.7)	349.4 (22.2)	386.9 (22.6)	2.4

(a) Figures in brackets refer to percentage of total households.

TABLE 8 MEDIUM PROJECTION OF HOUSEHOLD FORMATION BY AGE, VICTORIA: MALE HOUSEHOLD HEADS, 1981 TO 2001 (a)
(1'000)

Age Group	1981	1986	1991	1996	2001	Average Annual Growth Rate(percentage)
15 - 19	6.1 (0.5)	9.6 (0.7)	9.7 (0.7)	9.2 (0.6)	10.8 (0.6)	2.9
20 - 24	55.6 (4.5)	63.6 (4.8)	71.1 (4.9)	71.6 (4.6)	71.7 (4.2)	1.3
25 - 34	242.1 (19.7)	228.1 (17.2)	233.2 (16.2)	255.0 (16.2)	267.4 (15.7)	0.5
35 - 44	214.9 (17.5)	254.6 (19.2)	278.8 (19.3)	284.0 (18.1)	302.4 (17.7)	1.7
45 - 54	183.4 (14.9)	185.1 (13.9)	209.4 (14.5)	251.3 (16.0)	280.9 (16.4)	2.2
55 - 59	87.5 (7.1)	88.6 (6.7)	82.7 (5.7)	92.0 (5.9)	107.6 (6.3)	1.0
60 - 64	66.5 (5.4)	78.1 (5.9)	80.1 (5.6)	75.6 (4.8)	84.5 (4.9)	1.2
65 Plus	133.0 (10.8)	144.2 (10.9)	164.2 (11.4)	183.5 (11.7)	196.2 (11.5)	2.0
ADULT MALES	989.1 (80.5)	1052.0 (79.2)	1129.1 (78.3)	1222.2 (77.8)	1321.5 (77.3)	1.5

(a) Figures in brackets refer to percentage of total households.

- (i) crude first marriage rates for males and females are projected to rise slowly to the early 1990's and then fall, although not to levels below those at the beginning of the projection period;
- (ii) crude remarriage rates for divorced and widowed males and females are projected to fall slowly throughout the projection period;
- (iii) crude divorce rates for males and females are projected to fall slightly and then increase to the early 1990's before declining slowly for the rest of the projection period, although not to levels below those at the beginning of the projection period;
- (iv) there will be an increased incidence of second marriage as increasing divorce rates increase the population at risk of remarriage.

TABLE 3 SUMMARY OF ASSUMPTIONS FOR VICTORIAN STATE
PRINCIPAL POPULATION PROJECTION

Fertility

Total fertility rate rises from 1920 in 1981-82 to 2110
in 1987-88; and set at 2110 thereafter.

Mortality

A 1.5% decline per annum throughout the projection
period.

Net Interstate Migration (Net Outflow)

1981-82 : 20,000 persons
1982-83 : 16,000 persons
1983-84 to 1988-89 : 0.33% of Victoria's population
1989-90 to 2000-01 : 0.17% of Victoria's population

Net Overseas Migration (Net Inflow)

1981-82 to 1983-84 : 28,837 persons
1984-85 to 2000-01 : 0.6% of Victoria's population

Source: Forecasts Project Team, Preliminary Population
Projections Victoria, 1981-2001, Melbourne,
October 1982.

6.4 Age

The projected numbers of household heads by age and sex
are set out in Tables 8 and 9.

Changes in both the demographic composition of households
and in household headship rates effect the projected levels
of household formation.

Ageing of the population is the major influence upon the
2.0 percent average annual growth rate between 1981 and
2001 of male household heads aged 65 years and over.

Projected changes in the State's age distribution account
for the 2.6% average annual growth between 1981 and 1991
for male household heads aged 35 to 44 years followed by
3.0% growth among the same cohort then aged 45 to 54 years
in the decade 1991 to 2001. In fact, there is actually a
decline in the age-specific headship ratios for this group;
demographic factors more than compensate for this decline.

The shifts in marital status also influence household
formation by age. For example, male household heads in the
range 25 to 44 years are projected to have declining
headship rates during the projection period, due to a rising
proportion in the divorced state, a category with lower
headship rates than other marital status categories.

For females, the pattern of growth among older household heads
and the middle age cohort referred to above is similar to
that for males. However, due to a growing number of unmarried
persons (at younger ages) and of divorced persons (whose
headship ratios increase throughout the projection period),
the growth rates of household heads of all age groups between
25 and 59 years are higher for females than for males.

Changes in the distribution of income also influence the
household headship rates across ages. For younger and older
age groups, labour force participation rates are projected
to fall. These groups then receive a smaller share of total
income. Due to the positive correlation between household
headship and income the headship rates are lower. As a
consequence, the share of income for prime-aged males and
females rises accompanied by higher headship rates.

TABLE 7 PROJECTED HOUSEHOLD FORMATION BY SEX AND MARITAL STATUS VICTORIA, 1981 TO 2001(a)

	(no. in thousands)					Average Annual Growth percent, 1981-2001
	1981	1986	1991	1996	2001	
<u>Males</u>						
Never Married	81.4	100.5	118.7	139.6	161.1	3.5
Married	857.5	887.8	934.4	995.9	1063.8	1.1
Divorced	24.9	36.4	47.0	5.9	64.0	4.8
Widowed	25.3	27.3	29.0	30.7	32.7	1.3
TOTAL	989.1	1052.1	1129.1	1222.2	1321.6	3.5
<u>Females</u>						
Never Married	47.9	55.5	65.3	75.9	88.3	3.1
Married	43.5	46.1	48.6	52.7	57.3	1.4
Divorced	34.1	49.6	64.9	79.5	92.5	5.1
Widowed	114.9	125.1	133.4	141.3	148.7	1.3
TOTAL	240.3	276.3	312.2	349.4	386.9	2.4
<u>Persons</u>						
Never Married	129.3	156.0	184.0	215.5	249.4	3.3
Married	901.0	933.9	983.0	1048.6	1121.1	1.1
Divorced	59.0	86.0	111.9	135.4	156.5	5.0
Widowed	140.2	152.4	162.4	172.0	181.4	1.3
TOTAL	1229.4	1328.4	1441.3	1571.6	1708.5	1.7

5. POPULATION PROJECTIONS BY AGE, SEX AND MARITAL STATUS

As discussed in Section 4, projections of the Victorian population, including its sex, marital status and age structure, from 1981 to 2001, have been derived using the IMPACT Facility and a set of assumptions concerning future levels of fertility, mortality, international and interstate migration, and an economic scenario which determines marriage and divorce rates.

The assumptions made are considered to be reasonable but are by no means the only possible set of assumptions. Alternative population projections could be produced, for example, with different levels of migration, and this should be borne in mind when analysing the projections of households.

A summary of the population projection results is given in Table 4. By the year 2001, Victoria's population is projected to be 5.1 million, having grown at an average annual rate of 1.3 per cent. As the tables indicate, the structure of the population is projected to change substantially. By 2001, declining death rates will have had the effect of ageing the population such that 11.6 per cent of all persons will be aged 65 or more, compared with 10.0 per cent in 1981.

The slow increase in fertility which is assumed to occur in this projection is not sufficient to reverse the declining proportion of children in the population, which falls from 24.8 per cent in 1981 to 23.3 per cent in 2001.

The effects of the demographic and economic assumptions, especially those relating to marriage and divorce, on the marital status distribution of the population are given in Table 5. As could be expected, the proportion of the adult population who are never married rises from 26.8 per

TABLE 4. BROAD AGE GROUPS DEPENDENCY RATIOS
VICTORIA, 1981 TO 2001

Age Group (Years)	No. of Persons		Average Annual Growth Rate per cent per annum	
	1981	1991	1981 to 1991	1991 to 2001
Males				
0-14	500073	520384	0.40	1.49
15-64	1297105	1486447	1.37	1.18
65+	162874	204531	2.30	1.83
TOTAL	1960052	2211364	1.21	1.32
Females				
0-14	478515	495890	0.36	1.49
15-64	1279744	1452535	1.27	1.14
65+	230244	292480	2.42	1.58
TOTAL	1988503	2240903	1.20	1.27
Persons				
0-14	978588	1016274	0.38	1.48
15-64	2576849	2938982	1.32	1.16
65+	393118	497011	2.37	1.69
TOTAL	3948555	4452266	1.21	1.30
			Percentage of Total Population	
	1981	1991	1981	1991
Young	37.98 (a)	34.58 (a)	24.8	22.8
Old	15.26 (b)	16.91 (b)	10.0	11.2
Total	53.23 (c)	51.49 (c)	34.7	34.0
Working Age			65.3	66.0
				65.1

NOTES: (a) Persons 0-14 as per cent of persons of working age (15-64 years).
(b) Persons 65+ as per cent of persons of working age.
(c) Persons aged 0-14 and 65+ as per cent of persons of working age.

Source: Forecasts Project Team, Preliminary Population Projections, Victoria, 1981 to 2001, October 1982.

The demographic composition of households is projected to change over the projection period. The increasing proportion of households headed by females (19.5% in 1981 growing to 22.6% in 2001) is directly related to the projected increased numbers of divorced and never married persons. The pattern of population growth by age leads to an increase in the proportion of households headed by males aged 35 to 54 years - from 32.4% in 1981 to 34.1% in 2001. The remaining groups of males aged 15 - 34 years and 55 years and over both decline as a proportion of the number of household heads.

More disaggregated projections by age and marital status are discussed below.

6.3 Marital Status

The growth of household heads among never married and divorced persons is shown in Table 7. Between 1981 and 2001, the number of households headed by never married persons is projected to grow at an average annual rate of 3.3% per annum, and households headed by divorced persons by 5.0% per annum. Much slower growth rates are projected for traditional groups: married males, 1.1%, and widowed females, 1.3%.

It should be noted, however, that despite lower growth rates, traditional groups still account for a large number of new households formed. Between 1981 and 2001 there is a projected increase of 479.1 thousand households of which 206.3 thousand or 43.1% are headed by married males and 33.8 thousand or 7.1% are headed by widowed females.

TABLE 6 SUMMARY OF MEDIUM HOUSEHOLD FORMATION PROJECTION
VICTORIA, 1981-2001(a)

Item	1981	1986	1991	1996	2001	1981 to 2001
Households						
No. ('000)	1229.4	1328.3	1441.2	1571.5	1708.5	
(Growth in Previous 5 Years %)	(1.6)	(1.6)	(1.7)	(1.7)	(1.7)	
Total Headship Ratio (No.)	41.4	41.4	42.0	43.1	44.0	0.3%
New Households in Previous Five Years ('000 per annum)	19.8	22.6	26.1	27.4		
Average Household Size	3.2	3.1	3.1	3.0	3.0	
Percentage of Households Headed by:						
- Females	19.5	20.8	21.7	22.2	22.6	
- Males Aged						
15-34 years	24.7	22.7	21.8	21.4	20.5	
35-54 years	32.4	33.1	33.9	34.1	34.1	
55 + years	23.3	23.4	22.7	22.3	22.7	

(a) Numbers of households are expressed in thousands, growth rates are calculated as annual averages, and expressed as percentages, and new household units are the annual increments to households per year.

TABLE 5 PROJECTION OF VICTORIAN POPULATION FOR ADULT MALES AND FEMALES OF EACH MARITAL STATUS(a)
'000 PERSONS

Sex/Marital Status Group	As at June					Average Annual Growth Rate (per cent)
	1981	1986	1991	1996	2001	
Never Married -						
Males	452.6 (15.2)	514.2 (16.0)	554.8 (16.2)	578.1 (15.9)	616.2 (15.9)	1.6
Females	343.3 (11.6)	393.4 (12.3)	419.3 (12.2)	426.8 (11.7)	448.7 (11.5)	1.3
Married -						
Males	925.9 (31.2)	960.2 (29.9)	1010.7 (29.4)	1075.5 (29.5)	1145.8 (29.5)	1.1
Females	942.0 (31.7)	975.7 (30.4)	1025.8 (29.9)	1090.2 (29.9)	1160.1 (29.9)	1.0
Divorced -						
Males	41.6 (1.4)	60.7 (1.9)	78.1 (2.3)	91.8 (2.5)	102.5 (2.6)	4.6
Females	54.5 (1.8)	76.5 (2.4)	99.3 (2.9)	119.1 (3.3)	135.3 (3.5)	4.7
Widowed -						
Males	39.9 (1.3)	43.8 (1.4)	46.9 (1.4)	49.8 (1.4)	52.5 (1.4)	1.4
Females	170.2 (5.7)	186.5 (5.8)	200.3 (5.8)	212.7 (5.8)	223.8 (5.8)	1.4
Adult Males	1460.0 (49.2)	1578.9 (49.2)	1690.5 (49.2)	1795.2 (49.3)	1917.1 (49.3)	1.4
Adult Females	1510.0 (50.8)	1632.0 (50.8)	1744.6 (50.8)	1848.8 (50.7)	1967.8 (50.7)	1.3

NOTES: (a) Marital status proportions for the total adult population are given in brackets.

cent in 1981 to 27.4 per cent in 2001, while the proportion widowed remains at approximately 7.1 per cent throughout the projection period. However, despite projected increases in remarriage, the projected increase in divorce rates leads to an increase in the proportion divorced from 3.2 per cent in 1981 to 6.1 per cent in 2001 and a decrease in the proportion married from 62.9 per cent in 1981 to 59.4 per cent in 2001.

The important aspects for household formation of the population projections are:

- (i) the underlying base of population growth,
- (ii) the ageing of the population, and
- (iii) the increasing proportion of divorced persons and never married persons, and the corresponding decline of married persons.

6. HOUSEHOLD FORMATION - MEDIUM PROJECTION

6.1 Introduction

The combination of the 'medium' economic scenario (See Section 3) and the 'principal' population projections (See Sections 4 and 5) result in a 'medium' projection of household formation. The term 'medium' is used to distinguish this projection from others to be discussed in Section 7.

6.2 Summary of Results

Under the 'medium' projection, the number of Victorian households increases from 1229.4 thousand in 1981 to 1708.5 thousand in 2001. At an average annual growth rate of 1.7 per cent between 1981 and 2001, the number of households is projected to grow faster than population (1.3 per cent per annum), the difference being explained by the increase in the total household headship ratio. Rising from 41.4 in 1981 to 44.0 in 2001, the household headship ratio increases at an average annual rate of 0.3 per cent. (See Table 6).

Corresponding to the rise in household headship, the size of the average household falls from 3.2 persons in 1981 to 3.0 persons in 2001.

As the number of households increases, demand for new housing and related goods and services can also be expected to increase. The number of new households (net of reductions due to deaths of the elderly etc.) is projected to run at an annual rate of 19.8 thousand for the period between 1981 and 1986 and this rate increases with acceleration in population growth over the remainder of the projection period.