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Gender Differences in Housing Demand

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GENDER DIFFERENCES IN HOUSING DEMAND

By Andrejs Skaburskis, Associate Professor
School of Urban & Regional Planning
Queen's University, Kingston, Ontario

CMHC Project Officer: Ted Mitchell

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GENDER DIFFERENCES IN HOUSING DEMAND

ABSTRACT

This study assesses the effects of reducing the income disparity between men and women on aggregate housing demand in Toronto and Vancouver. It shows that an increase in women's income prospects reduces family formation and fertility rates in ways that can have a major impact on housing demand. The demand for single-family detached houses and for rental accommodation will decline with increases in women's income should immigration or migration not compensate for the shift. The demand for condominiums will increase by a large amount. Without migration and immigration urban populations will not be able to maintain themselves should the trend toward income and career equality continue. The rate of decline in population and household size increases as income disparities are reduced.

EXECUTIVE SUMMARY

This study looks at the possible differences in the demand for housing by men and women and shows how housing demand will change as the income prospects of women approaches that of men. The first part examines the effect of income differences on household formation rates and the number of housing units that are needed to satisfy the demand generated by a given population. The second part looks at tenure choice, housing expenditure, the propensity to live in the central city of a metropolitan area and the demand for suburban houses. A model is developed in the third part to integrate the household formation and the tenure choice findings and develop projections. The scope of the analysis is set by the nature of the data available in the 1991 Census Public Use Microdata Files and the focus is on the Vancouver and Toronto Metropolitan areas.

Changes in a person's outlook on employment and career prospects may affect their household, marriage, and child-rearing decisions. A delay in family formation reduces the average household size and affects the demand for different types of dwelling units. This study shows that 22 percent of women compared to 10 percent of men between 20 and 64 years of age did not work outside the home in 1991. Among those who worked, women earned about 30 percent less than men after accounting for differences in the age and education of the labour force. A gap of about $10,000 remains between the income prospects of men and women after accounting for education level and for the reduced labour force participation of mothers with young children at home. The elimination of this gap will have profound effects on housing demand and on the nature of our cities. The effects of increasing gender equality should be recognized in long-run housing forcasting models.

Figure A shows the changes in population and housing tenure for each $1000 increase in womens' income. It presents the changes in the way one million adults between the ages of 20 and 64 would form households and select homeownership options. The table describes a city region the

size of Vancouver and presents the number of households, their average size, the number of rental and owner-occupied units. The last column lists the condominium purchases that are been included in the owner-occupied counts.

FIGURE A
Changes in Household Type and Housing Consumption Due to Each $1000 Reduction in the Income Gap Between Men and Women for a Constant Population of One Million Adults

Income Increases	Number of Households	Average Household Size	Rental Units	Owner Occupied	Owner Occupied Condominium
0	512,794	2.95	209,907	302,887	39,285
$1,000	513,670	2.91	209,226	304,444	40,065
$2,000	514,629	2.86	208,654	305,975	40,878
$3,000	515,670	2.82	208,188	307,482	41,726
$4,000	516,790	2.78	207,825	308,965	42,610
$5,000	517,990	2.74	207,563	310,427	43,531
$6,000	519,266	2.70	207,397	311,869	44,491
$7,000	520,618	2.66	207,325	313,292	45,491
$8,000	522,044	2.62	207,344	314,699	46,533
$9,000	523,542	2.58	207,451	316,091	47,617
$10,000	525,111	2.54	207,641	317,470	48,746

Increases in women's income will reduce family formation and fertility rates: each $1000 increase is associated with an average reduction in expected fertility of married women of .03 children. A $10,000 increase will reduce fertility rates to below 1.7 children per women: a fertility rate yielding an average of 2.11 children per woman is needed for a population to reproduce itself. If no other changes were to occur, then the 1.51 million people associated with the one million adult population would decline to 1.34 million while household counts would increase from 513,000 to 525,000 as a result of lower family formation rates. The increasing wealth stimulates the demand for single-family housing and the demand for rental accommodation declines slightly. The demand for owner-occupied condominiums increases substantially from about 40,000 to 50,000 units.

The study of expenditure patterns and propensity to buy central city or suburban housing found only small difference between unmarried and childless men and women. While most non-family households were renters, increases in their income increased their propensity to become homeowners and both groups showed a preference for suburban houses. Women favour the condominium option and increases in the income of the higher income women will stimulate the demand for inner city condominiums. Similar increases for men will slightly increase the demand for suburban housing.

Single parents, male or female, spend about the same on housing. Unmarried men and unmarried women have similar housing purchases. The main difference is at the lowest income levels: low-income women spend more on housing than low-income men but their expenditure to income ratios drop faster as their income increases. This finding is consistent with the view that women have higher minimal quality thresholds than men. The very lowest priced housing may not be suitable for women for safety and other reasons. The remarkable similarity of the tenure choices by non-family men and women indicates the absence of gender discrimination in the mortgage or real estate markets.

Differences were found in the way married men and women used their income to buy houses. The wife's income makes a greater contribution to the home purchase decision than the husband's income. This is consistent with the view that the wife's income is counted on more heavily to meet the mortgage obligations than the husband's. Formulas used to describe mortgage burdens could be adjusted to allow a larger proportion of the wife's earnings than the husband's in determining mortgage eligibility provided all other factors are the same.

The main conclusion of interest to city planners shows the effect of changes in women's income prospects on city growth. As women gain equality with men, the natural growth of the city is reduced to well below sustaining levels. Cities may have to decline in size and suffer the consequences, or, they will have to attract inmigrants (causing decline elsewhere) or immigrants. The

future life of our major cities depends on immigration. Canada's major cities will become even more multicultural or they will eventually die as women's employment and career prospects approach that of men. The removal of gender differences will make cities more diverse.

RÉSUMÉ

Dans la présente étude, nous examinons comment la demande de logements chez les hommes et les femmes peut diverger et se transformer à mesure que leur écart salarial diminue. Le premier volet analyse, d'une part, l'incidence de la disparité des revenus sur le taux de formation des ménages et, d'autre part, le nombre de logements nécessaires pour répondre à la demande engendrée par une population donnée. Le deuxième volet examine le mode d'occupation, les dépenses de logement, la propension à habiter le noyau central des régions métropolitaines et la demande de maisons de banlieue. Le troisième volet élabore un modèle pour intégrer les constatations sur les taux de formation des ménages et les modes d'occupation et établir des prévisions. La portée de l'étude est fondée sur la nature des données tirées des fichiers publics de microdonnées du recensement de 1991 et se penche sur les régions métropolitaines de Vancouver et de Toronto.

Le bouleversement des perspectives d'emploi et de carrière des particuliers peut influer sur leurs décisions quant au concubinage, au mariage et à l'éducation des enfants. Un ralentissement dans la formation de familles peut réduire la taille moyenne des familles et se répercuter sur la demande de logements de divers types. Notre étude a révélé que, dans le groupe d'hommes et de femmes âgés de 20 à 64 ans, le pourcentage des femmes ne faisant pas partie de la population active en 1991 s'élevait à 22 p. 100, comparativement à 10 p. 100 chez les hommes. Parmi les personnes qui faisaient partie de la population active, les femmes gagnaient 30 p. 100 de moins que les hommes, même si l'on tient compte des différences d'âge et de scolarité des travailleurs. Même après avoir pris en compte le niveau de scolarité et le fait que les mères ayant de jeunes enfants à la maison contribuent moins à la main-d'oeuvre active, l'écart entre le revenu des

hommes et celui des femmes oscille autour de 10 000 $. L'élimination de cet écart changera profondément la demande de logements et la nature de nos villes. Les modèles de prévision à long terme en matière de logement doivent reconnaître les effets de la tendance vers l'égalité des sexes.

La figure A illustre les fluctuations dans la population et le mode d'occupation par tranche de 1 000 $ d'augmentation de revenu chez les femmes. Elle indique en outre les fluctuations dans la formation des ménages et les choix de logement d'un million d'adultes âgés de 20 à 64 ans. Le tableau ci-après brosse le portrait d'une ville de la même taille que celle de Vancouver et indique le nombre de ménages, leur taille moyenne ainsi que le nombre de logements locatifs et de logements pour propriétaires-occupants.

FIGURE A

Fluctuations dans le type de ménage et les choix de logement par augmentation de 1 000 $ de revenu chez les femmes par rapport aux hommes pour une population constante d'un million d'adultes

Augmentation de revenu	Nombre de ménages	Taille moyenne des ménages	Logements locatifs	Logements pour propriétaires-occupants	Copropriétés occupées par leur propriétaire
0,00	512 794	2,95	209 907	302 887	39 285
1 000 $	513 670	2,91	209 226	304 444	40 065
2 000 $	514 629	2,86	208 654	305 975	40 878
3 000 $	515 670	2,82	208,188	307 482	41 726
4 000 $	516 790	2,78	207 825	308 965	42 610
5 000 $	517 990	2,74	207 563	310 427	43 531
6 000 $	519 266	2,70	207 397	311 869	44 491
7 000 $	520 618	2,66	207 325	313 292	45 491
8 000 $	522 044	2,62	207 344	314 699	46 533
9 000 $	523 542	2,58	207 451	316 091	47 617
10 000 $	525 111	2,54	207 641	317 470	48 746

L'augmentation du revenu des femmes fera régresser le taux de formation des familles et les taux de fécondité : en effet, chaque augmentation de revenu de 1 000 $ réduit le taux de fécondité de 0,03 enfant chez les femmes mariées. Une augmentation de revenu de 10 000 $ chez les femmes par rapport aux hommes ferait chuter le taux de fécondité à moins de 1,7 enfant par femme : or, pour qu'une population se reproduise, le taux de fécondité moyen doit atteindre 2,11 enfants par femme. Si cette situation persiste, le nombre d'individus, dans une population d'un million d'adultes, passera de 1,51 à 1,34 million et le nombre de ménages, de 513 000 à 525 000, en raison de la baisse du taux de formation de familles. L'aisance financière croissante favorise la demande de maisons unifamiliales, mais elle ralentit légèrement la demande de logements locatifs.

La demande de copropriétés habitées par leur propriétaire augmentera considérablement, passant de 40 000 à 50 000 logements.

L'analyse des dépenses en matière de logement et de la propension à acheter des maisons urbaines ou de banlieue indique que les tendances chez les femmes ou les hommes mariés et sans enfants varient légèrement. Bien que la plupart des ménages non familiaux soient locataires, plus leur revenu est élevé plus ils cherchent à devenir propriétaires, et les deux sexes convoitent davantage les maisons de banlieue. Les femmes préfèrent les copropriétés; ainsi, une augmentation de revenu chez les travailleuses à revenu élevé favorisera la demande de copropriétés situées dans le centre des zones urbaines. Parallèlement, une augmentation de revenu chez les travailleurs à revenu élevé gonflera la demande de maisons de banlieue.

Les parents seuls, hommes ou femmes, consacrent à peu près les mêmes revenus au chapitre du logement. Les célibataires des deux sexes achètent des maisons semblables. La principale différence se trouve dans les niveaux de faible revenu : les dépenses de logement des femmes à faible revenu sont plus élevées que celles des hommes à faible revenu, mais le rapport entre leurs dépenses et leurs revenus chute plus rapidement que celui des hommes à mesure que leurs revenus augmentent. Cette constatation renchérit l'opinion selon laquelle les seuils de qualité minimale chez les femmes sont plus élevés que chez les hommes. Les logements les moins dispendieux ne conviennent pas toujours aux femmes pour divers motifs, entre autres, la sécurité. La similarité remarquable des modes d'occupation choisis par les ménages non familiaux dirigés par des hommes ou des femmes révèle un marché immobilier ou hypothécaire non sexiste.

Chez les couples mariés, on a constaté une différence dans la manière dont les hommes envisagent leurs revenus par rapport aux femmes pour ce qui est de l'achat d'une maison. En général, c'est surtout le revenu de la femme qui devient le facteur décisionnel au cours de l'achat.

Cette constatation vient appuyer l'opinion selon laquelle on utilise surtout le revenu de la femme pour garantir l'exécution des obligations hypothécaires. La formule permettant de calculer le risque hypothécaire peut être modifiée pour y inclure une plus grande partie du revenu de la femme que celle de l'homme, pourvu que les autres facteurs demeurent inchangés.

Les résultats auxquels s'intéressent particulièrement les urbanistes sont ceux qui montrent comment l'évolution du revenu de la femme peut exercer une influence sur l'expansion des zones urbaines. Plus les femmes deviennent égales à l'homme, plus l'expansion des zones urbaines est freinée. La diminution éventuelle de la taille des zones urbaines peut être lourde de conséquences pour ces dernières, qui devront attirer des migrants (causant ainsi le dépeuplement d'autres régions) et des immigrants. L'immigration deviendra l'enjeu de la survie des grandes villes. Ainsi, les grandes villes canadiennes auront une seule alternative : devenir progressivement multiculturelles ou disparaître à mesure que les perspectives de carrière chez les femmes égaleront celles des hommes. L'abolition des frontières imposées aux sexes favorisera la diversification des villes.

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Ottawa ON K1A 0P7
Telephone: (613) 748-2000

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METHOD

Introduction

The number of dwelling units that are needed to satisfy demand at a given price is a function of population and household size. Headship rates reflect household formation rates and the propensity of people to leave home, to form families, to live in groups of unrelated people, or to divorce and separate into single-parent or non-family households. The rates at which populations break out into the various household types are a function of individual preferences and tastes passed on through social norms and institutions. With age, people move through a number of life-cycle stages that start with their leaving home, forming couples, having children, living as empty-nesters, as retired people and alone again. Changes, however, to the degree to which people can afford to form independent households and buy, as it were, privacy will affect the age at which household formation occurs. Changing income, job and career prospects may change a person's outlook on family formation, their age of marriage, their decision to have children, and change the household type distribution within a population along with the fertility rates and the ability of the population to reproduce itself. Changes in income prospects may increase personal and social mobility, security and self-reliance, independence and the ease of making decisions for oneself. It may change the distribution of power within households to affect housing as well as household, the role of men and women within couples in housing decisions, and, thereby, affect aggregate housing demand.

The first part of this report provides the background and presents the method. It describes some of the trends in household formation that have occurred in Vancouver and Toronto and shows how the rates differ by age group for men and women, for Toronto and for Vancouver residents. A

model is presented to show how differences in the relevant rates are a function of differences in income prospects. The model is specified, variables described and a series of regressions are estimated to show how changes in future income prospects are likely to affect men and women. The differences are illustrated by graphs relating the proportion of people within each household type to their age and income. The permanent and transitory income variables that will be used in the housing consumption analysis are also developed in this chapter.

The second chapter discusses the changes in household type that are associated with differences in income prospects. It presents the analysis of the decision to leave the parents' home to form family or non-family households, to live alone or in a group, to form a married or common-law couple, to have children, to separate and divorce. The gender differences in the effects of changing income prospects are examined to develop information for use in long-run housing forecasts.

The third chapter examines housing consumption and the gender differences in how income affects the propensity to own a home, to buy a condominium, to spend money on rent, to buy more expensive houses, to devote greater portions of income to housing and to seek central locations or suburban housing options. The differences in non-family and single-parent consumption patterns are examined. The differential effects of changes to the female and male partner's income is assessed for couples with and without children.

The last chapter develops conclusions by illustrating a scenario of the changes that may be induced by a reduction in the different amount of income gained by women and men. It presents a crude model of the 20-64 year-old population for the hybrid Vancouver/Toronto city that integrates the household formation and housing consumption findings and illustrates the interaction effects. The

model accounts for close to 80 percent of the population in each city as the 20-64 year-old group has dependent children. Magnitudes of change in housing requirements by freehold, condominium and central tenure are presented. Changes in household distribution show how the owner and renter population may change. It illustrates changes in the number of couples with children, couples without children, single-parent fathers, single-parent mothers, non-family one-person men, one-family one-person women, non-related groups of men and non-related groups of women. The effect of removing the income disparity is illustrated for the static case assuming constant population sizes and for a city growing at a compounded rate of 2.5 pecent a year.

Changes in Family Formation Since 1971

The most remarkable demographic change to have occurred in North America and Europe over the last 30 years has been the increase in the proportion of the population that forms non-family households.[1] These trends have been documented by Smith et al. (1984) and have, to an extent, been explained by Skaburskis (1994). To illustrate the magnitude and the nature of the trends, key statistics for three age groups are presented in Table 1A for British Columbia and Ontario.[2]

Table 1A shows the proportion of 20-24, 30-34 and 40-44 year-olds that are independent of their parents, who form non-family households, who are living either as a separated or divorced person and who did not work outside the home in the last year due to their being unemployed or not being in the labour force. In 1971, 74 percent of the women in their early 20s had left their parents'

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[1] A family is defined by the Canadian Census as a married or common-law couple or a single parent living with a dependent child.

[2] The CMA data is not available in the 1971 Public Use Microdata Files causing me to use provincial statistics for the long-run trend.

TABLE 1A

COMPARISON OF 1971, 1981, 1991 INDEPENDANT, NON-FAMILY, SEPARATED AND NOT WORKING WOMEN AND MEN IN BRITISH COLUMBIA AND ONTARIO

	WOMEN			MEN		
	1971	**1981**	**1991**	**1971**	**1981**	**1991**
INDEPENDANT						
20-24	73.73	68.09	54.76	51.07	51.15	41.29
30-34	96.08	97.75	96.14	94.67	95.60	92.38
40-44	96.80	99.12	98.51	96.18	98.48	97.93
NON-FAMILY						
20-24	18.96	20.02	21.04	23.16	22.98	24.68
30-34	7.22	10.61	13.63	13.06	15.81	21.16
40-44	7.13	6.48	10.11	11.14	9.97	13.12
SEPARATED						
20-24	3.87	3.28	1.87	1.53	1.33	0.68
30-34	6.89	9.88	8.68	4.44	6.68	5.57
40-44	6.56	9.99	12.56	5.29	6.94	8.44
NOT WORKING						
20-24	42.34	32.60	28.20	20.75	20.81	25.44
30-34	60.20	41.15	28.87	9.20	9.95	12.88
40-44	56.39	37.58	22.78	9.69	9.64	10.51

Source: Public Use Micro Data Files on Individuals

TABLE 1B

PROPORTION OF INDEPENDANT MEN AND WOMEN WHO ARE LIVING IN NON-FAMILY HOUSEHOLDS BY AGE GROUP IN BRITISH COLUMBIA AND ONTARIO

	WOMEN			MEN		
AGE GROUP	**1971**	**1981**	**1991**	**1971**	**1981**	**1991**
15-19	40.61	49.71	63.87	80.12	64.97	83.91
20-24	21.24	29.41	38.42	35.72	44.92	57.70
25-29	9.79	17.79	21.46	18.68	26.36	35.85
30-34	6.07	10.86	14.18	11.71	16.53	22.91
35-39	4.14	7.40	10.74	10.09	12.48	17.62
40-44	5.91	6.53	10.27	10.22	10.12	13.40
45-49	6.91	7.56	11.82	9.40	9.36	12.25
50-54	10.40	11.70	13.96	10.59	10.83	12.28
55-59	16.84	17.17	17.70	11.56	12.42	12.78
60-64	25.03	26.37	24.31	13.41	11.82	14.61
65-69	33.24	38.53	34.10	18.25	15.76	16.18
70-74	46.44	51.05	46.37	23.89	19.95	17.35
75+	65.54	57.80	67.05	34.15	28.04	27.19

Source: Public Use Micro Data Files on Individuals

home compared to 51 percent of the men. Both rates have dropped since 1971 but the gender differences remain pronounced. By middle age, most people have left their parents' homes and the ratio has changed little over time. Despite the increasing tendency for younger people to stay longer in their parents' home, the proportion of people living in non-family households has increased for men and women as illustrated by the second set of statistics in Table 1A. The percentages in Table 1B highlight this trend by showing the proportion of people who have left their parents' homes to form non-family households. The proportion of non-family households has increased since 1921 but the size of the increase is smaller for older age groups. For men over 65, the trend is reversed as proportionally more men than women live in family households.

Non-family households are formed by young people leaving home to attain independence and privacy before settling to form families. Older people may stay as non-families out of a commitment to an independent couple-free life style but the numbers suggest that this proportion is relatively small.[3] Some people revert to non-family status through separation or divorce and the proportion of men and women staying in this status is affected by their age of remarriage. The third set of statistics show the divorce and separation rate dropping for people in their 20s; the marriage rate has also dropped for this group. The separation or divorced status has increased considerably for older people, particularly for older women as a result of their staying single longer. While the rates of marital dissolution have to be more or less the same for the whole population,[4] the proportion of people

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[3] In 1991, 8.4 percent of the 40-44 year-old men were maintaining a separated or divorced status while 13.1 percent were living as non-families. This suggests that about 5 percent were in the never-married category.

[4] Observed rates may differ or account for gender differences in migration rates of separated and divorced people.

staying as "separated or divorced" can vary by sex and age category. The statistics show that separated women over 30 do not remarry as quickly as men in the same age group.

The last set of numbers illustrates the most important and the most dramatic change that gives rise to the present inquiry. The proportion of women who did not work during the year just before the census was taken has declined dramatically and the biggest drop is for the older, 40-44 year-old women. At the same time the proportion of men who were unemployed or were not in the labour force for other reasons increased for all age categories. The change in labour force participation by women and the accompanying changes in income prospects and career orientation is bound to have demographic implications. These will be examined after a brief description of the 1991 gender specific household profiles for Vancouver and Toronto.

Gender Differences in the 1991 Household Types Profiles

The proportion of men and women in Vancouver and Toronto living in different household types is illustrated in Figures 1A through 1L. The graphs present the estimated logit regressions that place spline functions of age on the right-hand side and do not include control variables for the other factors that influence household formation decisions. The spline functions in age allow for changes in curvature with inflections at the points designated by one or two interior "knots". These graphs are purely descriptive; the estimated probit models are presented in the next chapter. The functions were estimated separately for men and women for Vancouver and for Toronto: each of the lines depicted is the result of an independent regression. This allows for fair comparison of city and gender differences and similarities. The heavier lines present Toronto estimates for men and women while the broken lines plot the women's regressions for each city.

Figure 1A shows the proportion of 20-80 year-olds who are not living with their parents or adult children. The proportion increases quickly as people age from 20 to 30 and then levels off and declines slightly in old age. The graphs show that women tend to leave home earlier than men and proportionally more return to live with their children after the age of 65. Small differences are observed for Vancouver and Toronto. People in Vancouver leave home a little earlier than in Toronto and fewer return to live with their children, or more independent young or retired people move to Vancouver and have fewer opportunities to live with their parents or adult children. Similarly, gender differences prevail in the two cities.

Figures 1B and 1C describe the non-family ratios and show the proportion of people living in single-person households and the proportion living in groups with unrelated other people. The proportion of women living alone increases considerably after 60 years of age but is similar to the proportion for men up until that age. Figure 1C shows that people under 30 are most likely to live in groups and that men are much more inclined to do so than women.

Figure 1D describes the proportion of people living as a married or common-law couple. Women leave home earlier but they also enter family relationships at an earlier age. After 35 years of age, proportionally more men live in a married or common-law relationship than women. This is due to older men living with younger women and due to differences in migration patterns. After 65, the differences become very large due to the higher mortality rate for men.

Figure 1E includes single parents and develops similar profiles as for the couples with the exception being in the age of the crossover point. Up until the mid-50s, women are more likely to live in family households formed by a spouse or a dependent child. The comparison shows that a large proportion of mothers with dependent children do not form couple relationships while proportionally

FIGURE 1A

PROPORTION FORMING INDEPENDANT HOUSEHOLDS BY AGE

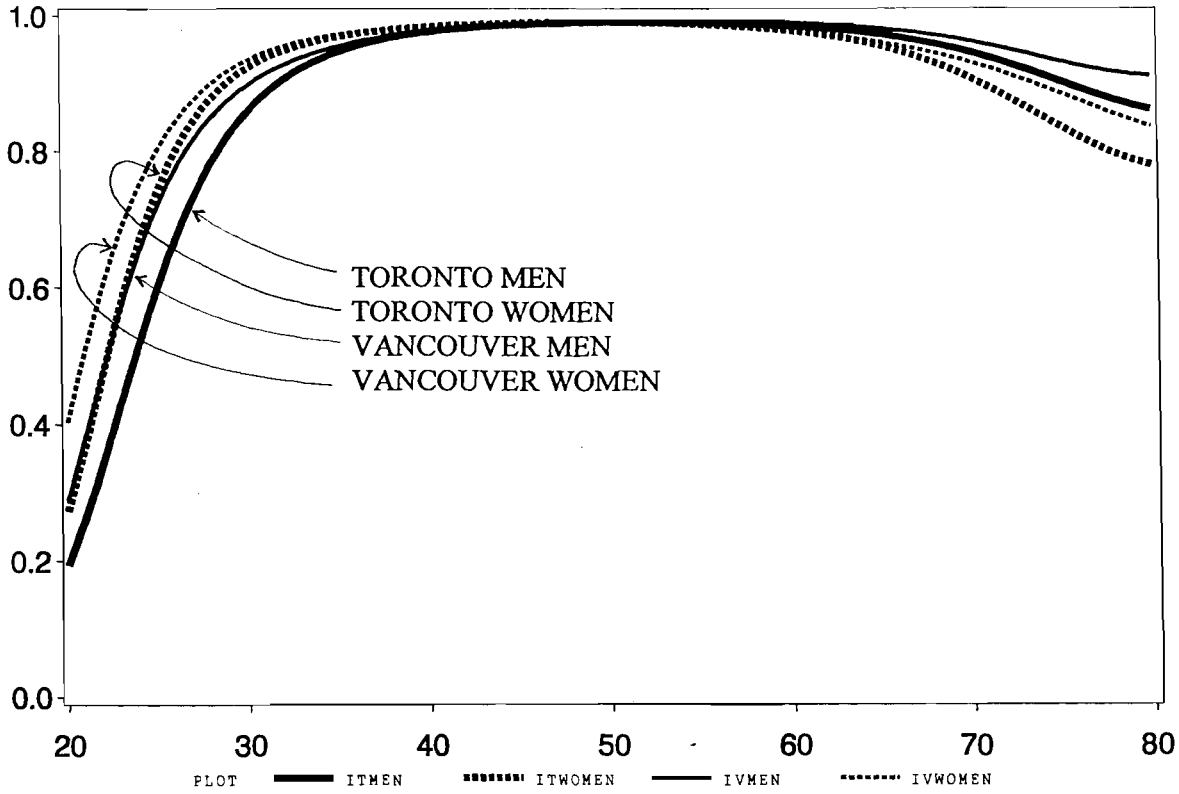


FIGURE 1B

PROPORTION LIVING ALONE BY AGE

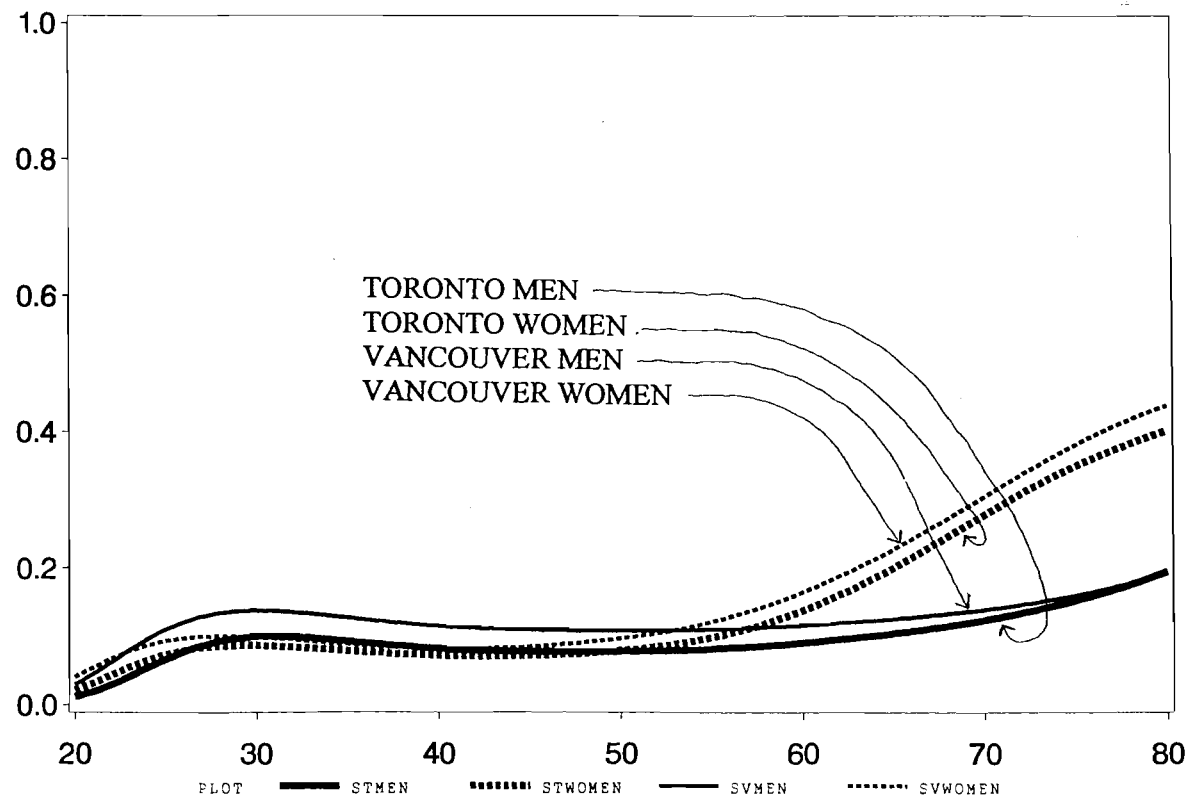


FIGURE 1C

PROPORTION IN A GROUP OF UNRELATED PEOPLE BY AGE

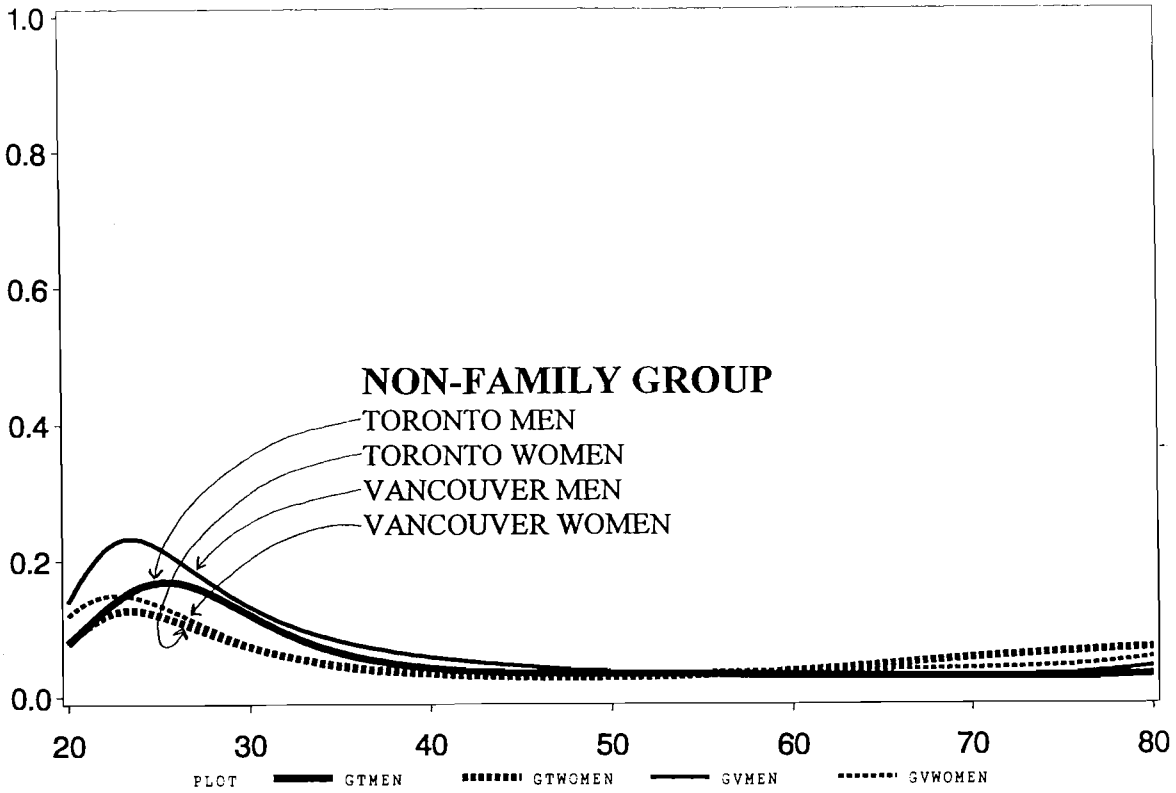


FIGURE 1D

PROPORTION MARRIED OR LIVING AS COMMON-LAW COUPLES BY AGE

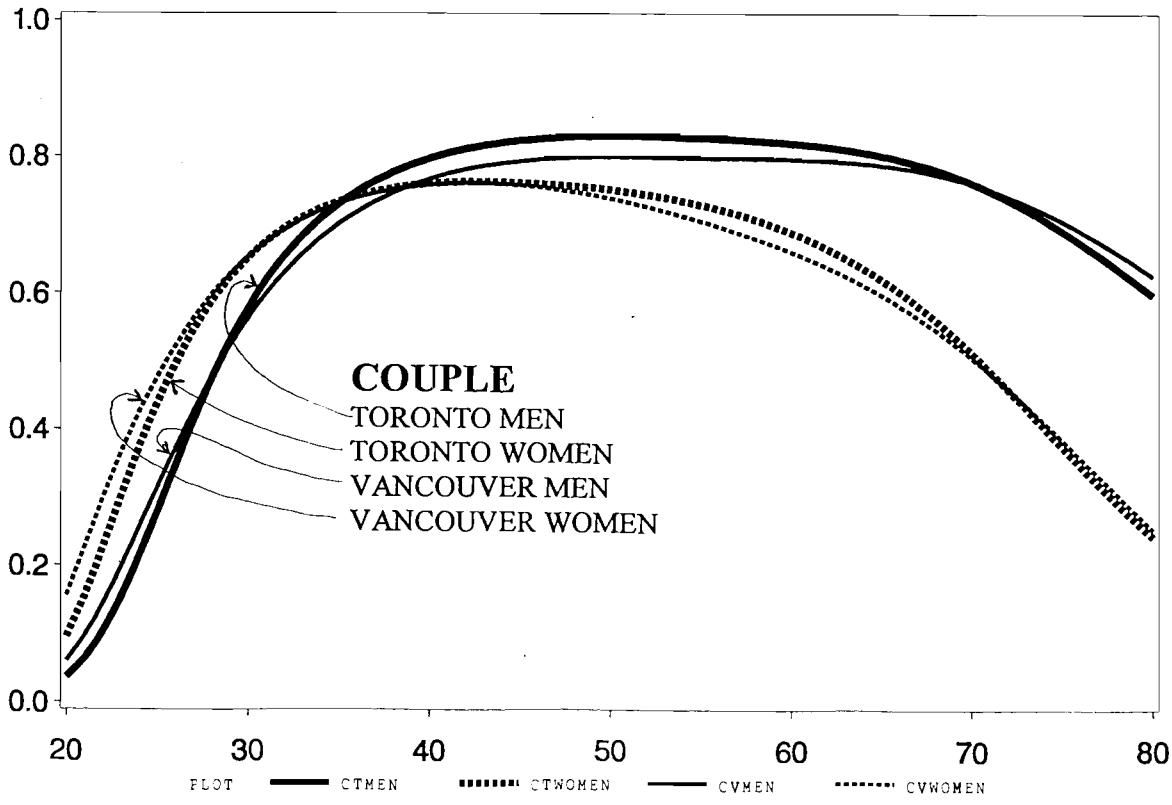


FIGURE 1E

PROPORTION AS HEADS OF FAMILY HOUSEHOLDS BY AGE

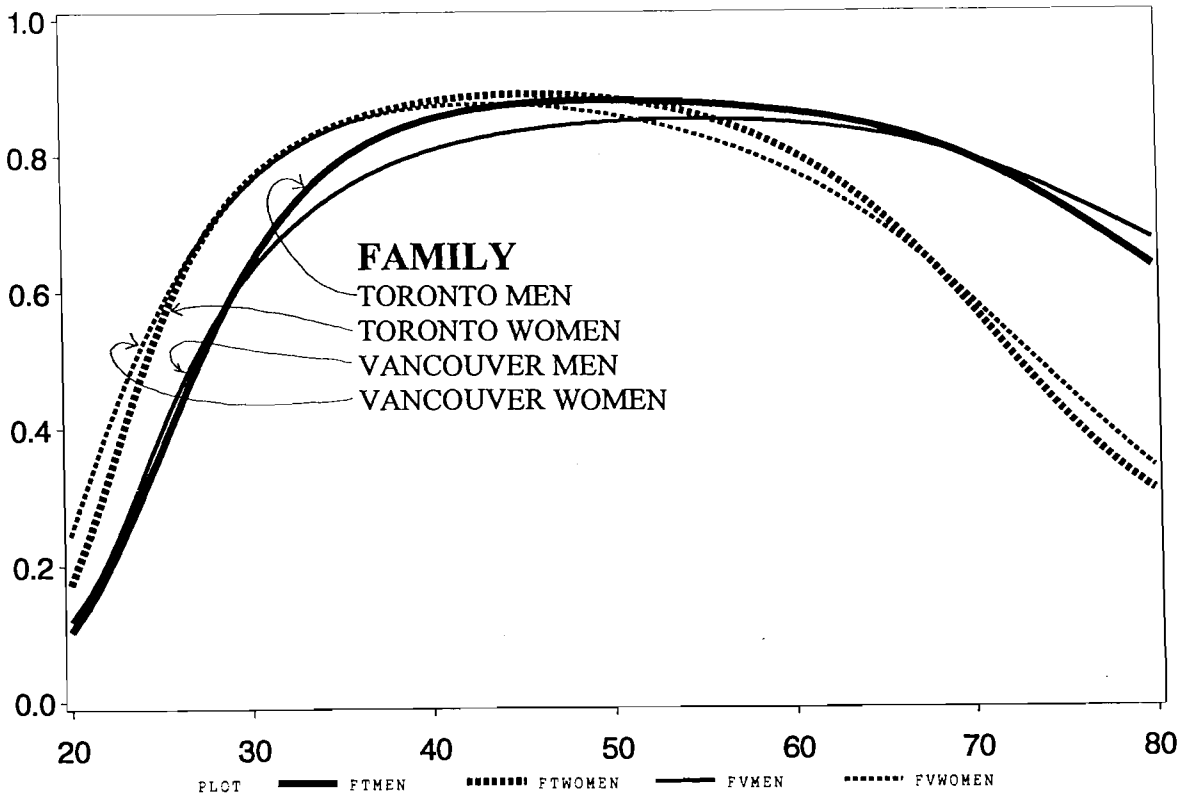


FIGURE 1F

PROPORTION INDEPENDENT PEOPLE FORMING NON-FAMILY HOUSEHOLDS BY AGE

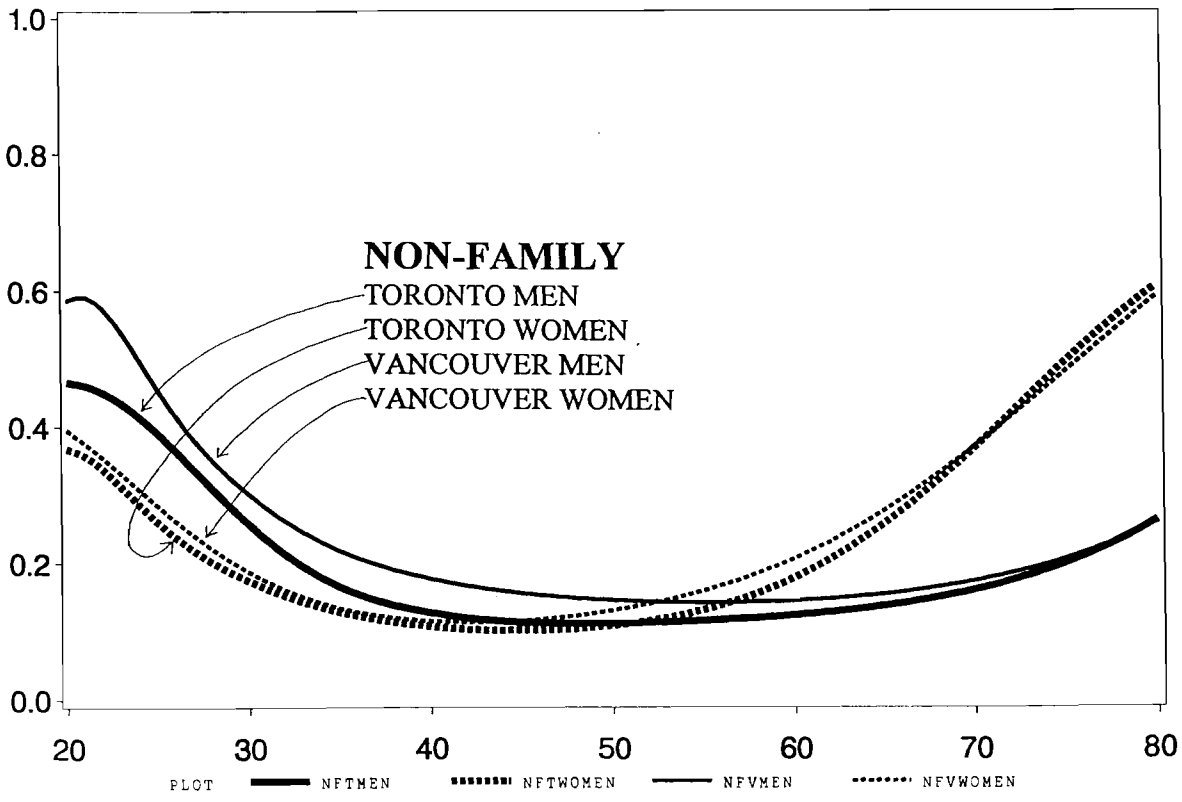


FIGURE 1G

PROPORTION NON-FAMILY PEOPLE LIVING ALONE BY AGE

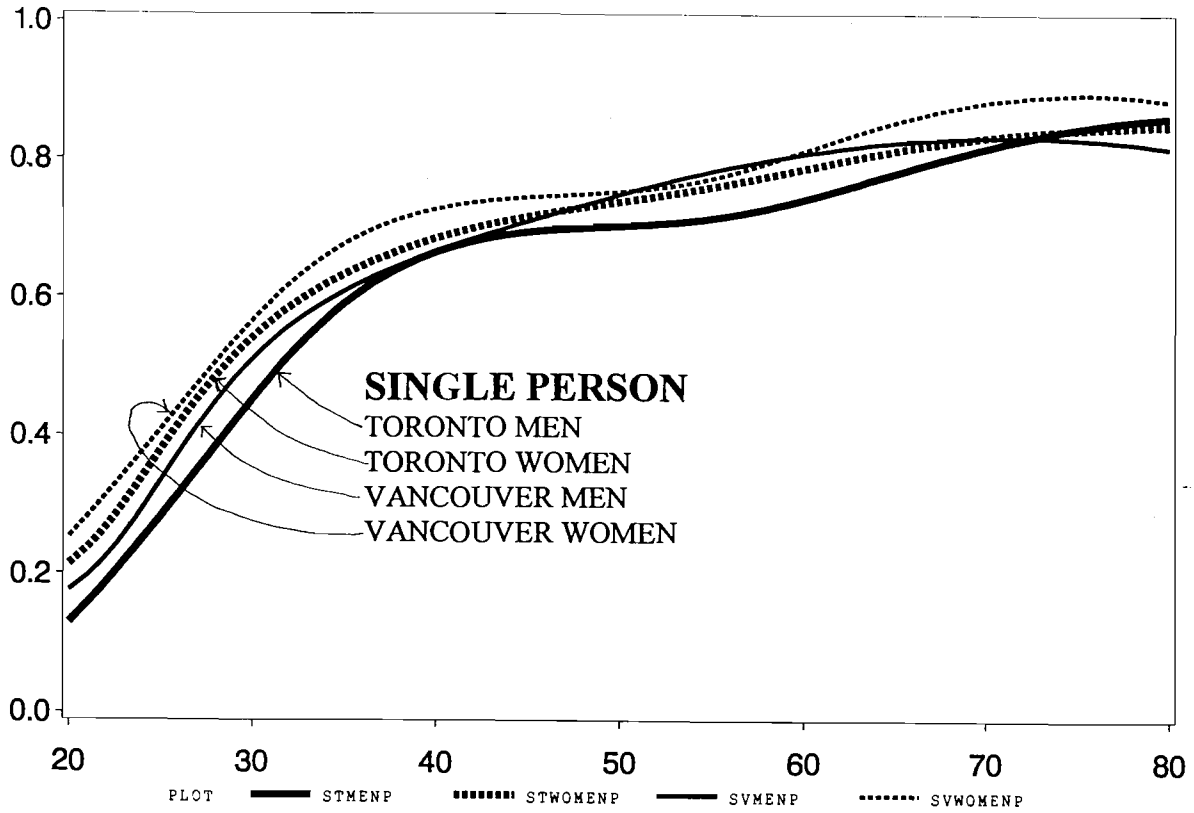
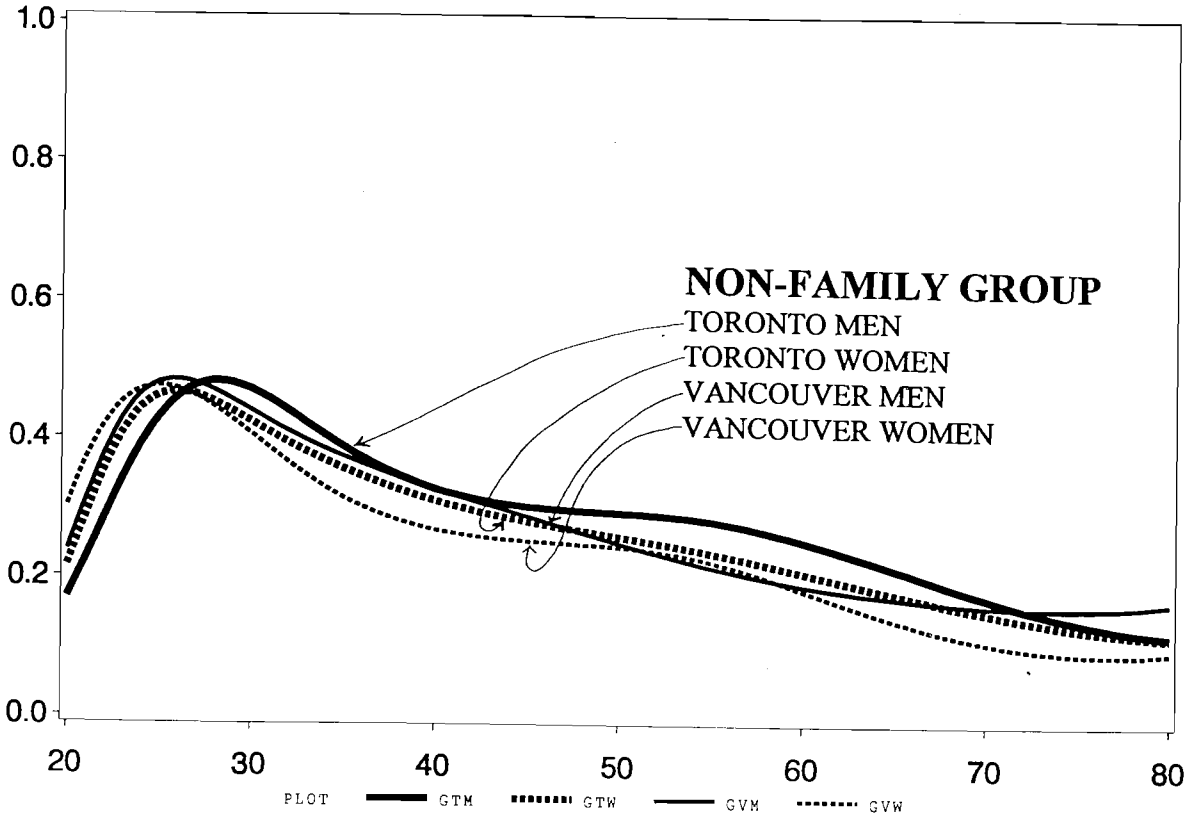


FIGURE 1H

PROPORTION NON-FAMILY PEOPLE LIVING IN A GROUP BY AGE



more divorced or separated men do. This difference has obvious headship rate implications for forecasting models. The similarity in the age profiles of Toronto and Vancouver family proportions is remarkable.

The figures 1A through 1E showed the proportion of the total population within a household category. Figure 1F considers only the people who have left home and more clearly illustrates the differences among the people forming non-family households. The height of the graphs provides a sense of the magnitude of the differences across cities and gender. Figures 1G and 1H develop a tighter focus by presenting only the non-family groups and show the proportion of single-family households by age. The residual, the area above the estimated regression lines, includes people who form group households of unrelated people as well as people with other relatives. The graph illustrates the increase in headship rates with age among non-family households. While the gender differences remain, non-family women tend to stay alone more often than men but the difference is small. Figure 1H shows age dependence of the rate at which non-family people form groups. Once the effect of differences in the rate of leaving home and forming families is eliminated, the gender differences among non-family households forming groups is extinguished.

The last four graphs superimpose the earlier breakdown for each city and for each sex. The first two figures (1I and 1J) show the gender differences within the Toronto and Vancouver area. As before, the dashed lines present the women's profile and the heavier lines the Toronto residents. The last two figures show the city differences within each gender category and the dashed lines here are for the Vancouver graphs. The degree of dispersion of the gender lines in the city graphs is much greater than the separation of the city graphs in the figures illustrating household types separating for men and women. Gender differences in household formation rates by age appear to be greater than

FIGURE 1I

DISTRIBUTION OF HOUSEHOLD TYPES IN TORONTO BY SEX

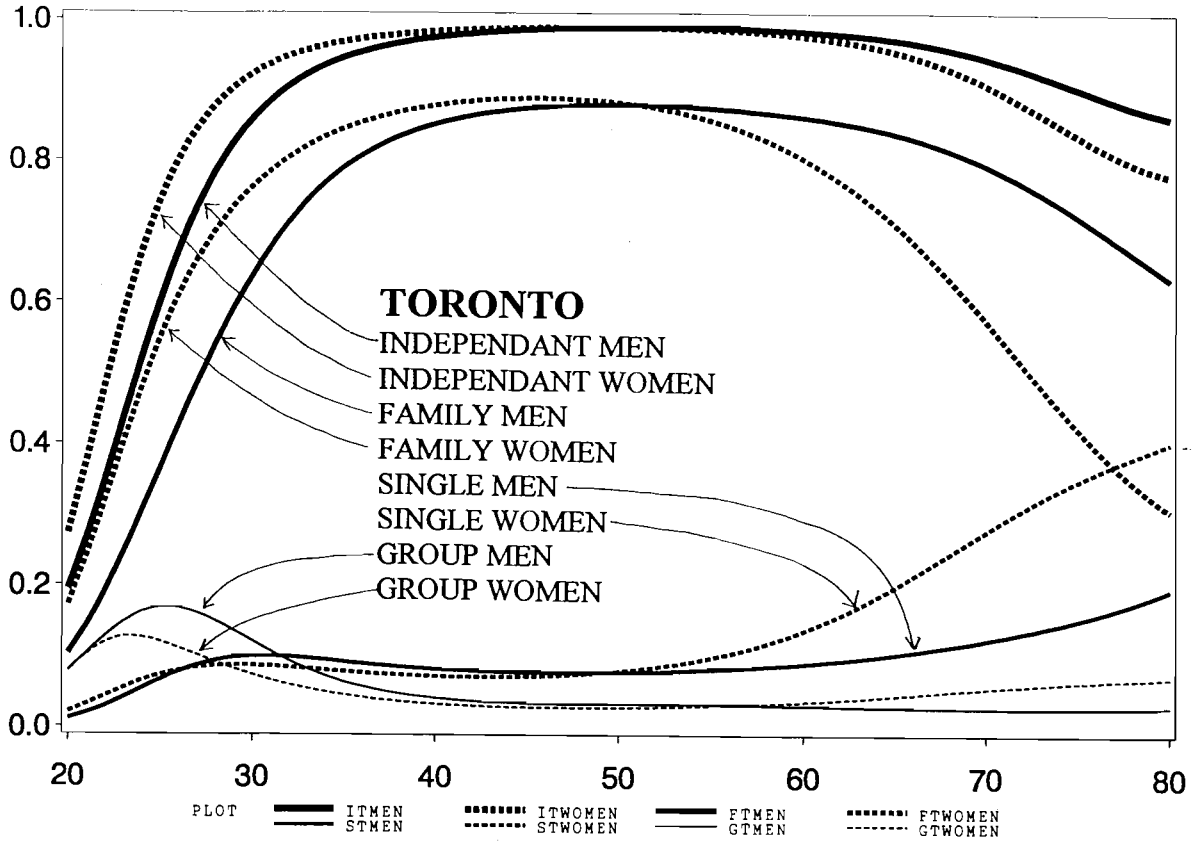


FIGURE 1J

DISTRIBUTION OF HOUSEHOLD TYPES IN VANCOUVER

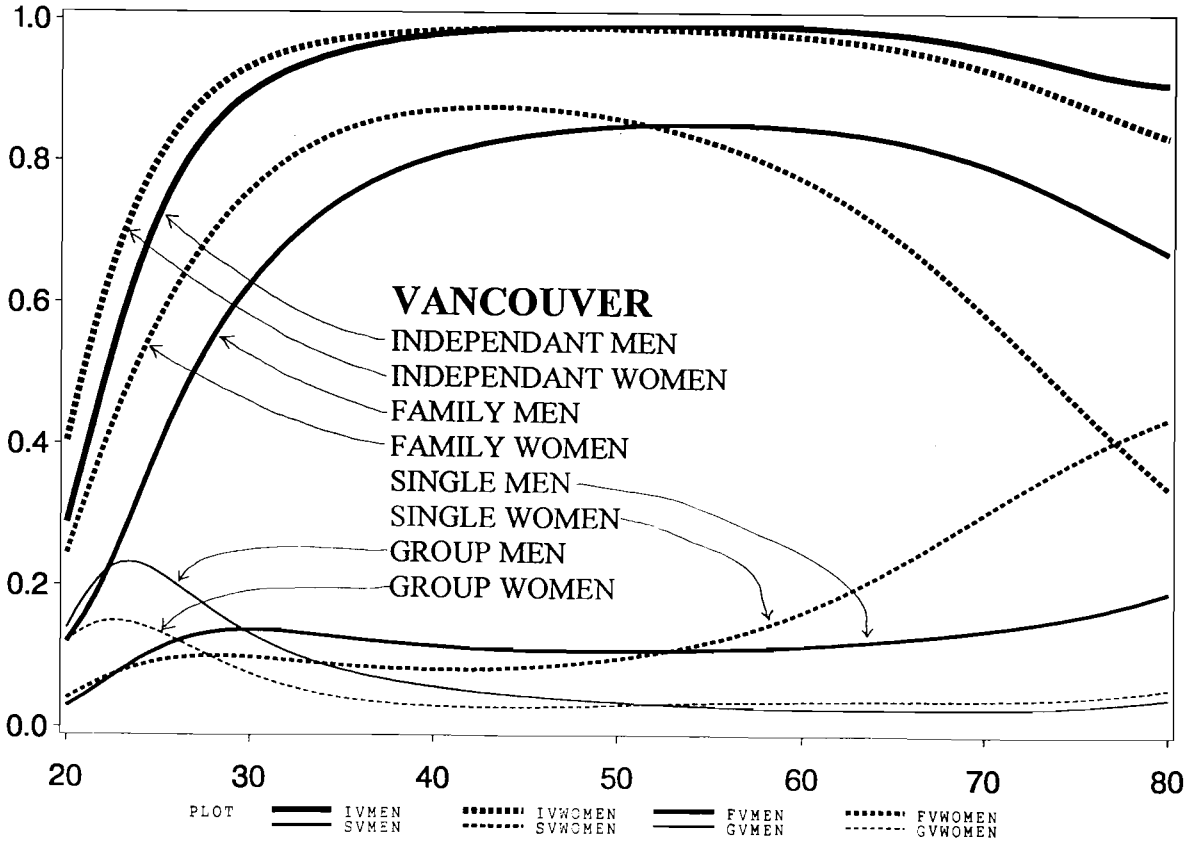


FIGURE 1K

CITY SPECIFIC DISTRIBUTION OF FEMALE HOUSEHOLDS

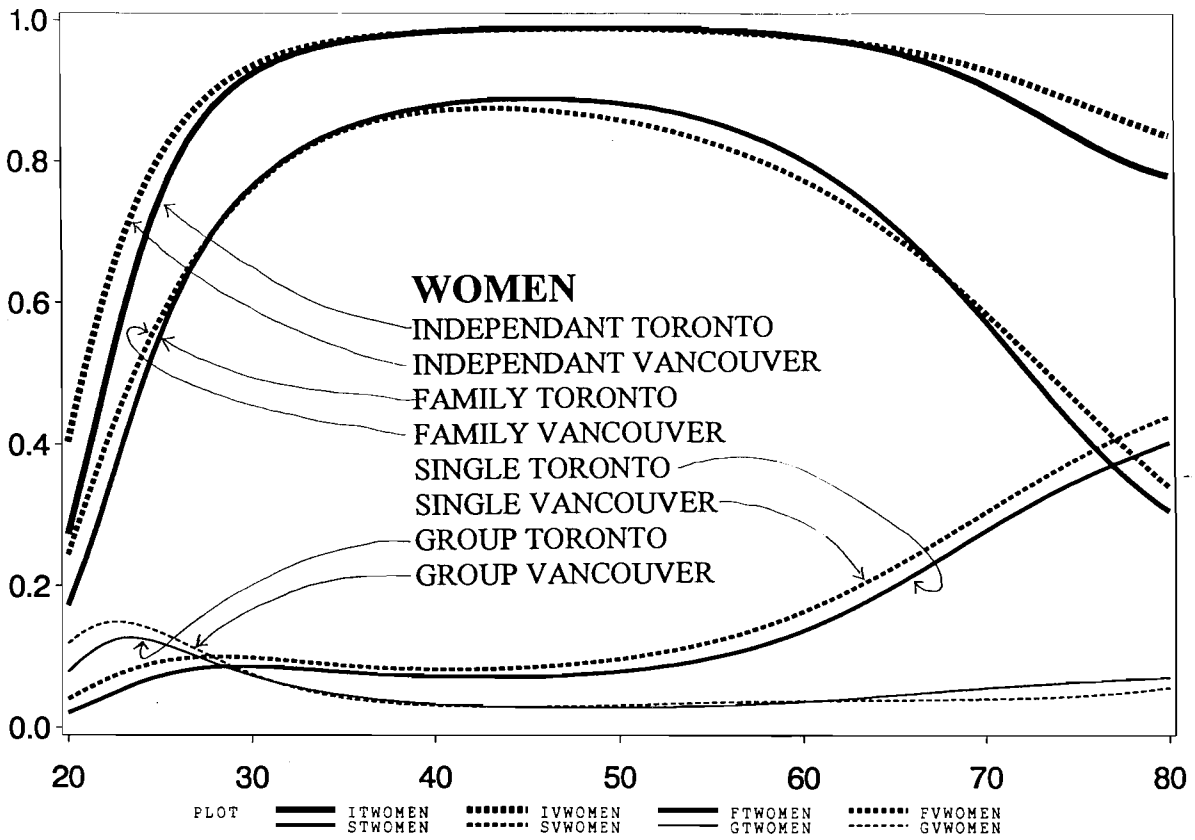
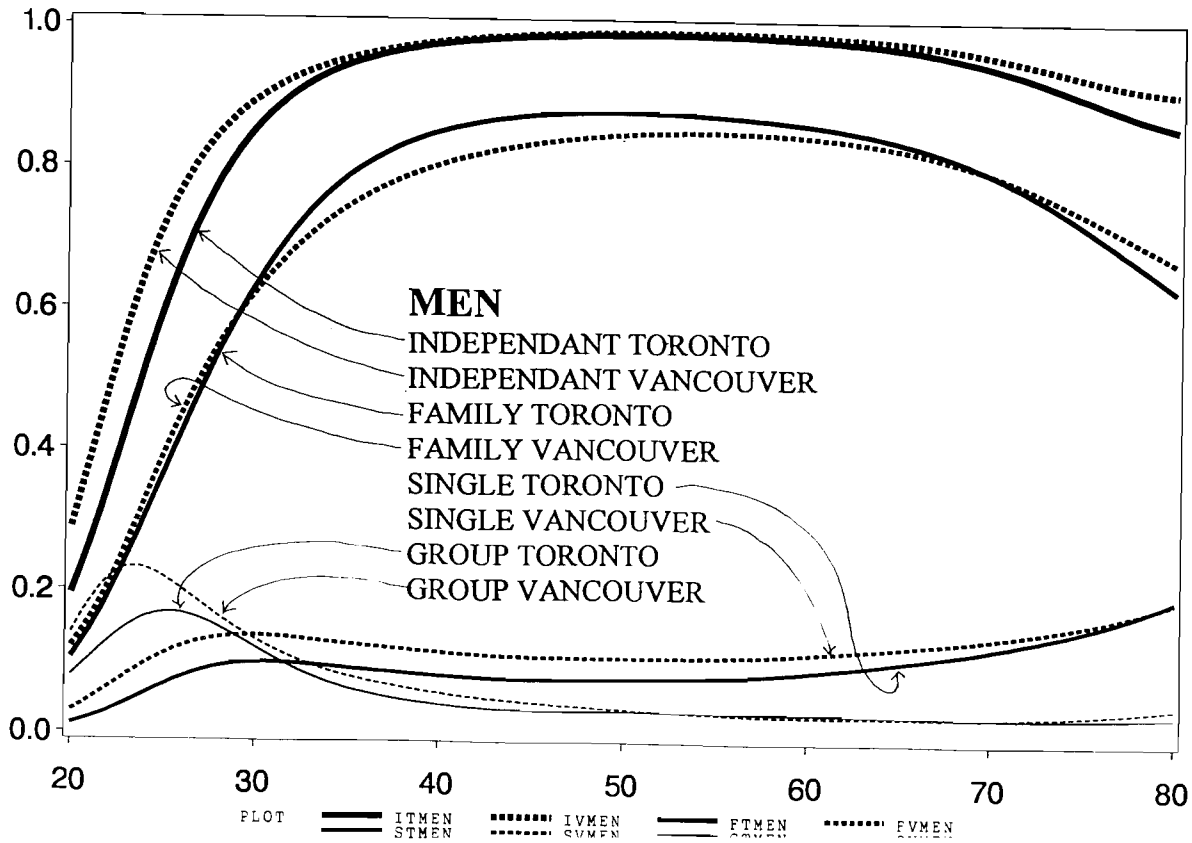


FIGURE 1L

CITY SPECIFIC DISTRIBUTION OF MALE HOUSEHOLDS



the spatial differences. The analysis of gender differences is at least as important as the analysis of geographical differences in developing information for long-term housing forecasts.

Modeling Household Formation Decisions

Household formation and dissolution affect the number and type of dwelling units that are needed within a market. A child's decision to leave the parents' home increases the demand for housing units and leaves the parents with a unit that may eventually be seen as too large. The number of dwelling units required by children leaving home depends on the type of households they form. The person may get married or live with a number of other unrelated people and thereby reduce the need for single-person accommodation. Whether or not the marriage reduces the demand for housing services, due to the scale economies gained within a dwelling, depends on the immediacy of their plans to have children and buy larger houses or rent larger apartments than they would if they stayed childless. These decisions also affect the relative demand for suburban and inner-city housing.

The decisions as to leaving home, getting married or living in a group may be seen as though it is made through a sequence of discrete choices, each of which is described by indirect utility functions as in McFadden (1975). A person contemplating the move out of their parents' home may, for example, consider the value V_{io} of staying at home and V_{i1} of moving out. The functions will ideally include variables that describe a set of attributes Z_{i0} and Z_{i1} depicting the relevant characteristics of the options and a parameter vector describing the expected contribution of the attributes towards the person's well-being. In studying a cross-section of people, another vector V_i is entered to describe the household characteristics that affect the valuation of the attributes of the options that are not included in the equation.

The Domencich and McFadden (1975) specification of the indirect utility functions that form the basis of choice between discrete options serves as a starting point. The decision model rests on two functions showing the utility U_{i0} a person gains when selecting one option and U_{i1} the utility under the other option. The functions include vectors Z_{i0} and Z_{i1} showing the attributes of each option multiplied by the associated parameters β describing the contribution of each attribute to the person's well-being. The functions also contain a vector W_i describing their relevant characteristics and parameters γ_0 and γ_1 showing how these characteristics relate to their valuation of the options. This vector "differs from household to household and picks up differences in tastes and circumstances such as family composition" (Denton and Muellbauer 1984, p. 366).[5] Since not all the factors that determine utility can be known and accounted for in the model, stochastic terms ϵ_{i0} and ϵ_{i1} are included to yield the following indirect utility functions:

$$U_{i0} = \alpha_0 + Z_{i0}\,\beta + W_i\,\gamma_0 + \epsilon_{i0} \qquad (1)$$

and

$$U_{i1} = \alpha_1 + Z_{i1}\,\beta + W_i\,\gamma_0 + \epsilon_{i1} \qquad (2)$$

The person chooses option 1 over option 0 when he or she perceives the value of the option as being greater, i.e., when $U_{i1} > U_{i0}$. Subtracting equation 1 from equation 2 and rearranging the terms yields an expression showing probability a person option 1.

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[5] This vector is included in regressions to account for systematic differences in the choice of options that are due to differences in population characteristics. This is important when the results are used to predict the choices that will be made by another group of people.

$$P\ (U_{i1} > U_{i0}) = P\ [\varepsilon_{i0} - \varepsilon_{i1} < \alpha_1 - \alpha_2 + (Z_{i1} - Z_{i0})'\beta + W_i\ (\gamma_1 - \gamma_0)] \qquad (3)$$

The probability can be described as a function of the terms on the right-side of equation (3). It depends on the difference in the perceived attributes associated with the two options ($Z_{i1} - Z_{i0}$) multiplied by the parameters β describing the value of the attributes. Amemiya (1981, p. 1491) explains that the vectors of attributes bear the subscript i because they depend on the individuals' perception of the options, not on some objective measure. The individual characteristics vector enters both utility functions but only the difference in their parameters, $\gamma = (\gamma_1 - \gamma_0)$, is relevant to the probability that they make a particular decision. The statistical procedure for estimating the parameters depends on the distribution of the difference in the error terms. Since it makes little practical difference whether the distribution is normal or logistic when the choices are binary, the logit specification is chosen for convenience and the estimated model describes the probability a person i selects option 1 as:

$$P\ (\text{person i selects option 1}) = \exp(\alpha + Z_i\,\beta + W_i\,\gamma) / [1 + \exp(\alpha + Z_i\,\beta + W_i\,\gamma)]$$

and

$$\frac{\partial P}{\partial W} = P(1 - P)\,\gamma \qquad (4)$$

However, data on the vector Z_i describing the differences in the perceived attributes of the household formation options are not available in census files. The omission of the variables describing the differences in the perceived attributes biases the estimates of the personal parameters in the sense that they do not reflect the unique differences in the valuation of the options by the different groups of people. The bias is due to the estimated parameters also absorbing the effects of differences in how

the attributes are perceived and valued. The bias is avoided by interpreting the parameters as indicators of how the alternatives are both viewed and valued by different groups of people as defined by their characteristics V_i.

This discrete choice model can be applied to any binary option such as marriage or not, group living or not, divorce or not and the estimated coefficients for the variables describing the person's characteristics may tell about their valuation of the household alternative as well as their perception of the nature of the option. The estimated parameters can be used to predict the household formation choices of a population with the characteristics described by the vector V. Changes in the population characteristics can be related to changes in the proportion of people making the household decisions by using the estimated parameters provided additional changes do not occur in the way people value the options or perceive their attributes. Such changes are likely to occur as a result of changes in the way people relate to each other and the way they share financial responsibility. These changes create a difficulty for research workers trying to use the results of cross-sectional analysis to help develop long-term forecasts. The analysis can, at best, provide a general indications of trends and of the first order effects of changing conditions. The mutability of relationships makes long-run household type and headship rate forecasts a matter of judgement.

The role of judgement can be illustrated by considering the income variable. The estimated model can, for example, show that people with greater income prospects have a greater tendency to stay as one-person households (Harrison 1981). We may believe that income is increasing over time and that there will, therefore, be more people within a given population who share the taste of the current higher income people and will be able to choose life on their own, i.e., the structure of the

relationship between income prospects and the propensity to live alone is assumed not to change.[6] This requires further assumptions about the process by which tastes evolve and faith in the completeness of the model used to estimate the parameters. In addition, the use of the parameters in a forecasting model must rest on the assumption that the perception of the attributes of the household characteristics do not change. This is the most difficult part of the application problem as the nature of households do change and evolve over time. The way people interrelate within a couple relationship, for example, may change over time to counter current trends toward non-family households. Even if we can predict the kind of changes that are likely to happen, it will not help automate the application of the regression model's parameters because models are not fully specified to include all the relevant attributes that are expected to change.

The manner in which household formation decisions are made affects the methods that would ideally be used to estimate parameters and the interpretation that can be given to estimates. The most convenient decision sequence is hierarchical in which a person considers staying or leaving home. Once this is decided in favour of a move out, the person considers whether or not to form a family or to stay unattached. If the person does not form a couple, he or she may decide to live alone or in a group with other unattached people. The couple may, after a while, reassess their relationship and decide to stay together or decide to leave to form a new household as a separated or divorced person.

This sequence of decisions allows separate estimates of logit regressions for each stage. The first regression uses all people to determine whether or not they have left home. The second considers

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[6] Beresford and Rivlin (1966, p. 254) quoted in Kausar, T. and T.K. Burch (1985, p. 163) show that income increases in Massachussetts between 1885 and 1940 did little to change household formation behaviour, while they did increase the tendency to live alone since 1940. Taste changes, they claim, make people "use their rising incomes to purchase privacy".

the family, non-family split for the people who have left home. The third examines the people who are or were living in a family to examine the factors distinguishing the people who separate from those who stay together. Another regression follows the non-family branch to examine the decision as to living alone or living in a group on condition that the person has left home and has decided not to form a family. This sequence is used in this study but it is not ideal and requires that the findings be qualified as a result of simultaneity bias.

The parameters describing the choice between two options will hold provided that there are no changes in the availability or the characteristics of other alternatives that are or can be considered. Changes in the possibility of living in a group or changes in marriage prospects will certainty affect some young people's decision to leave their parents' home. In some cases, the decisions as to the type of household to form are made concurrently with the decision to leave home and the ideal estimation procedure would use a series of simultaneous probit equations that recognize the truncated nature of the dependent variables. This problem is made complicated by the limitations placed on the dependent variable by options that are not logically or practically possible. For example, one cannot stay in the parents' home and at the same time live in a household formed by group of unrelated people for logical reasons. People cannot marry and live in a non-family group formed by unrelated people. The truncated simultaneous equation model is not used here due to software limitations.

The work presented in this report is descriptive in nature. The analysis identifies the main differences among people living in different household arrangements. The focus is on income and on how differences in the income and the income prospects affect the probability that men and women leave home, get married, live in a group, or separate and divorce.

TABLE 2
DEFINITIONS OF VARIABLES USED IN THE STUDY OF HOUSEHOLD FORMATION AND HOUSING CONSUMPTION

PERSONAL	
TORONTO	1 if person lives in Toronto; 0 if lives in Vancouver
PRMAIND	1 if primary household maintainer; 2 otherwise
AGE	age of person
AGE2	age ** 2 / 100
AGE3	age ** 3 / 100
AGE30	age ** 3 / 1000 if age GT 30; 0 otherwise
AGE35	age ** 3 / 1000 if age GT 35; 0 otherwise
AGE55	age ** 3 / 1000 if age GT 55; 0 otherwise
HOUSEHOLD	
INDEP	1 if person not living with parents; 0 otherwise
SINGLE	1 if one person household; 0 otherwise
GROUP	1 if more than one person non-family household
NONFAM	1 if non-family household; 0 otherwise
COUPLE	1 if married or common-law couple; 0 otherwise
SEPRATED	1 if currently separated or divorced; 0 otherwise
SPARENT	1 if single-parent household; 0 otherwise
NUHMAINP	Number of household maintainers
HHSRE	Number of people in household (household - file)
UNITSP	Number of people in dwelling (individual - file)
F	Added to nmemonic for women, 0 otherwise
IMMIGRATION	
PIMM5	1 if person immigrated since January 1990; 0 otherwise
PIMM4	1 if person immigrated 1986-1989; 0 otherwise
IMMIG	1 if person was ever an immigrant; 0 otherwise
IMMIG25	1 if person immigrated after 25 years of age; 0 otherwise
NONEF	1 if person's home language not English or French; 0 otherwise
ORIGIN	
BLACK	1 if person is of African or Caribbean origin; 0 otherwise
CHINESE	1 if person is Chinese; 0 otherwise
VISMIN	1 if person is other visible minority; 0 otherwise
MED	1 if person is from Portugal, Spain, Italy, Greece; 0 otherwise
EUROPEAN	1 if European origin; 0 otherwise
ASIAN	1 if Asian origin; 0 otherwise
RELIGION	
CATHOLIC	1 if Catholic; 0 otherwise
FUND	1 if Baptist, J. Witness, Mennonite, Pentecostal; 0 otherwise
JEWISH	1 if Jewish; 0 otherwise
NONE	1 if no religion declared; 0 otherwise
MOSLEM/SIKH	1 if Moslem or Sikh; 0 otherwise
HOUSING	
TENURP	1 if homeowner; 0 otherwise
RCONDP	1 if condominium; 0 if other ownership
VALUEP	Value of owenr-occupied dwelling
GROSSRTP	Gross monthly rent
OMPD	Owners major monthly payments
EXPINCO	Housing expenditure/income for owners
EXPINCR	Housing expenditure/income for renters
CENTER	1 if in central city; 0 otherwise
SFD	1 if suburban single-family detached; 0 otherwise

The Personal Characteristics Variables

The logit regression models that examine the gender differences in household formation include only the household characteristics. The aim in specifying the variables is to help isolate the effects due purely to gender differences and not to other factors that may be both associated with gender and household type. The variables account for differences in culture and religion and are listed in Table 2. Immigration status affects household type and variables identifying people who do not speak English or French in their home, people who immigrated to Canada, people who immigrated as adults, people who immigrated in the last half of 1980, and people who immigrated last year. Cultural traits may be controlled for by using variables identifying the origin and ethnic background of the person as listed in Table 2. Religion may play a role and the census allows the identification of Catholics, Fundamentalists, Jews, Moslems or Sikhs as well as people who declare to have no religious association. The control variables are not particularly important as the focus is on gender differences and it is likely that the samples include equal proportions of men and women from the different backgrounds.

The effect of religions or ethnic backgrounds is likely to be similar for men and women. The omission of variables will not bias the estimated parameter for the income variables. However, differences in career motivation and aspiration that are independent of background may affect men and women differently and may be associated with the income variables. The lack of data on these factors will require the qualification of the parameters estimated for the income variables.

Age differences are important in the analysis because men and women may form independent or family households at different ages and because differences in age also reflect generational differences in attitudes. Age and age square is entered in the general logit regressions using data

on all 20-64 year-olds to account for factors whose effect may increase with age at a decreasing rate. Variables identifying the age and age square of women and holding the value of 0 for men are also included to identify gender differences in the effect of age and life cycle expectations. Spline functions are used to allow for reversals in behaviour and inflections in the rates of household formation. Experimentation led to the use of knots at ages 30 and 55 to allow for inflections and changes in curvature at these points. The knots identify the age by which most people settle down to form families and the age older people adjust to empty nesting after their children have left home.

The variables used on the left side of the logit regressions are listed at the top of Table 2 and identify people who have left their parents' home, formed single-person households, lived with unrelated others, lived in a non-family household, formed married or common-law couples, are maintaining a separated or divorced status, are single parents, or unwed mothers. The presence of children in a household is endogenous to the household formation decisions: a person may decide to form a family in order to have children. Nevertheless, variables describing a woman's expected fertility and the presence of young children are essential in assessing the likely effects of differences in income prospects. A variable KIDS lists the number of children ever born to a woman. PSCHLD1 identifies women who have a preschool child under the age of six in their home and takes the value of zero for men. Another variable PSCHLD2 identifies the presence of 6-14 year-olds in the home of a woman and yet another is used to identify the presence of a dependent child in the home of a common-law or married couple. The preschool and school-age variables take in the value of 0 for men. The variables are used in the construction of the income expectations variables that are described next.

Income Expectations

Income expectations, rather than actual income, are the important determinants of household formation decisions. The income prospects of a person determine the extent to which they want to work for money rather than enjoy leisure time or work in the home without wages. The income a person earns is endogenous to household formation decisions: recently divorced people may be forced to work for wages whereas they may have been able to stay as homemakers while living with a spouse. A person may decide to live with their parents so that they do not have to go out to work and can use their time to pursue educational or other goals. Should they have left home, their obligation to pay rent and help maintain a household would have made them look for work and earn more money. Similarly, many women with newborn children earn considerably less than they were earning before the births when working full-time. The actual income earned by a mother is affected by the decision to become a mother and endogeneity bias would be created should actual income be entered on the right-hand side of the regression equation. Non-family people may live in groups of unrelated peole to have lower housing expenses.

The actual income people earn will, however, be entered in the regressions as a starting point of the analysis to help illustrate the nature of the constructed variables and assess the robustness of the models. Instrumental income variables are used to show how differences in prospective income, or income expectations, influence household formation decisions. The constructed variables show the income a person with particular characteristics could expect to earn regardless of their household formation decision. These variables are constructed in three different but related ways to reflect differences in the way the prospects of having children may affect income expectations.

All of the approaches to constructing the income variables developed here start by regressing

the actual wage or total income against a set of variables identifying the person's education, potential work experience as proxied by age, and the weeks worked in 1990 and the hours worked in the week preceding the census in June 1991. The coefficients are used to predict the income that each individual can expect by virtue of their education, age, and work effort as measured by weeks and hours worked. The income a person can expect is a function of the probability they have a job and their expected earnings given they have a job. The main differences in the alternative instrumental variables is in the way the prospects of children are considered and the populations across which the parameters describing income expectations are estimated. In no case do the different constructions yield contradictory conclusions but they do yield different statistical confidence intervals for their estimated parameters.

The income expectations of a person may depend on their level of education as well as on their field of specialization. The factors determining a person's "human capital" affect their wage income which is also determined by the number of weeks worked each year and the average number of hours worked each week. Part-time employees may have lower wage rates than full-time workers and are accounted for by a categorical variable.

The additional variables used in the construction of the income prospects variable are defined in Table 3. The first three variables describe actual income. Since changes in income prospects are mostly due to changes in the amount a person can earn when working, earned income forms the basis for two of the instrumental variables. The second variable is the logarithm of the earned income to allow for regression specifications of multiplicative relationships between variables that recognize the elasticities as the constant parameters. The specification accounts for the proportional effect of variables such as weeks and hours worked. The person's total income is used in forming a third

TABLE 3

DEFINITION OF VARIABLES USED IN CONSTRUCTING THE INCOME EXPECTATION VARIABLES

INCOME

EARN	Person's income from wages or self-employment
LEARN	Natural log of EARN
TOTINC	Total income of the individuals
EY	Constructed earned income variable
EYWMN	EY if female = 1; 0 otherwise
EYN	Constructed earned income assuming no children
PINC	Constructed permanent income variable
TINC	Constructed temporary income variable
W OR WOMN	Interaction term identifying income of women
OTHERY	Income of other household member

CHILDREN

KIDS	Number of children ever born; 0 for men also
PSCHLD1	1 if child under 6 years prenst; 0 otherwise or men
PSCHLD2	1 if child 6-14 present; 0 otherwise
CHILD	1 if a couple has a dependant child; 0 otherwise

WORK

WORK	1 if person had a job in 1990; 0 otherwise
NOTWK	1 if person did not work in 1990; 0 otherwise
HRSWK	hours worked the week before census, mean if missing
WKSWK	weeks worked in 1990, missing if not worked
PART	1 if part-time work; 0 otherwise

EDUCATION

SCHOOL	1 if person is still in school; 0 otherwise
ED1	1 if highest school is secondary school; 0 otherwise
ED2	1 if trade school certificate; 0 otherwise
ED3	1 if other non-university education; 0 otherwise
ED4	1 if some university; 0 otherwise
ED5	1 if bachelor's degree; 0 otherwise
MASTERS	1 if person has Master's degree; 0 otherwise
PHD	1 if person has Ph.D.; 0 otherwise

FIELD OF STUDY

DOCTOR	1 if medicine, dentistry ...; 0 otherwise
EDUC	1 if teaching; 0 otherwise
ARTS	1 if arts or humanities; 0 otherwise
SOCSCS	1 if social sciences; 0 otherwise
MNGMT	1 if management; 0 otherwise
SECTRY	1 if secretarial; 0 otherwise
AGRI	1 if agricultural; 0 otherwise
ENG	1 if engineering; 0 otherwise
TECH	1 if engineering/technical; 0 otherwise
NURSE	1 if nursing; 0 otherwise
HEALTH	1 if other health; 0 otherwise
SCIENCE	1 if physical sciences or mathematics; 0 otherwise

instrumental variable based on the personal income of the age group examined in particular sets of regressions. This variable includes wage and investment income as well as payments for child support and the receipt of government transfer payments and does not include weeks and hours worked.

Table 4 presents the means of the relevant variables in the Vancouver and Toronto sub-sample and the probability of rejecting the null hypothesis suggesting there is no difference in the means. The very large size of the sub-sample yields very powerful statistical tests that can easily split differences that have no practical meaning. It is remarkable that no statistical differences between the cities are discerned for the proportion of women, the proportion who form couples, the number of household maintainers, the proportion of very recent immigrants and the proportion living in condominiums. Among the more notable differences are due to Toronto households being slightly larger. Toronto has proportionally more immigrants. Income, wages and housing prices in Toronto were slightly higher in 1990 than they were in Vancouver but the differences are small.

Table 5A presents the means by sex of the variables used in the two regressions that estimate the parameters used in predicting the individual's expected earnings. The comparison of means shows men and women to have slightly different levels of education with proportionally more men (16.2 as opposed to 14.3 percent) having received a bachelor's degree. The fields of study differ for men and women as expected. Ethnic and immigrant status of men and women are similar. 18.1 percent of women have a preschool child in their home and, on average, all women between 20 and 64 years of age have had 1.5 children. The third column presents the estimated odds ratios for the regression determining whether or not the person had a wage income during 1990. Since 83.9 percent of the population had a wage income, the odds ratio for the population is .839/(1-.839) = 5.211.[7] The logit

[7] The odds ratio of 5.211 is translated back to a probability 5.211/(1+5.211) = .839.

TABLE 4

COMPARISON OF VANCOUVER AND TORONTO ACROSS DEMOGRAPHIC, ETHNIC, IMIMIGRATION, EDUCATION, WORK ACTIVITY AND HOUSING EXPENDITURES

	VARIABLE MEAN		
	Vancouver	**Toronto**	**T-TEST ***
DEMOGRAPHIC			
AGEP	38.92	38.81	.1681
FEMALE	.503	.510	.0304
INDEP	1.096	1.125	.0000
NONFAM	1.779	1.813	.0000
COUPLE	1.361	1.360	.9286
SEPRTED	1.885	1.909	.0001
SPARENT	1.956	1.951	.0003
GROUP	1.933	1.923	.0001
UMTSP	3.212	3.424	.0001
NUHMAINT	1.527	1.535	.0713
PRMAINP	1.509	1.540	.0001
ORIGIN			
BLACK	.008	.059	.0001
CHINESE	.063	.109	.0001
VISMN	.118	.134	.0001
MED	.033	.136	.0001
IMMIG	.367	.486	.0001
IMMIG25	.165	.211	.0001
NONEF	.178	.234	.0001
PIMM4 (85-89)	.038	.054	.0001
PIMM5 (1990)	.026	.028	.0660
EDUCATION			
ED1	.140	.146	.0098
ED2	.030	.031	.4619
ED3	.290	.245	.0001
ED4	.150	.120	.0001
ED5	.151	.159	.0001
MASTERS	.028	.035	.0001
PHD	.005	.005	.1993
INCOME			
TOTINCP	26.328	28.436	.0001
WAGESP	21.282	23.852	.0001
HHINC	59.885	67.364	.0001
OTHERY	36.686	41.985	.0001
HOUSING			
TENURE (IND. file)	.638	.649	.0008
RCONDP (HH. file)	.581	.587	.1752
CONDO (IND. file	.119	.105	.0001
CONDO (HH.file	.174	.133	.0000
GROSRTP	693.48	708.29	.0001
OMPP	702.41	772.77	.0001
VALUE**	234.93	267.90	.0000
CENTER**	.326	.194	.0000
SPD**	.391	.417	.0000
EXPINCR	.257	.233	.0001
EXINCO	.150	.146	.0001
n-cases (individual - file)	74,303	30,074	
n-cases (household - file)	41,007	18,218	

* The p-value for the null hypothesis suggesting that the means are equal.

** Household file, other statistics uses the individual file data.

TABLE 5A

WORK STATUS AND LOG OF EARNINGS AS A FUNCTION OF EDUCATION, ETHNICITY, IMMIGRATION, THE PRESENCE OF CHILDREN AND SEX AND AMOUNT OF TIME SPENT WORKING FOR WAGES

VARIABLE	MEANS		PARAMETER ESTIMATES	
	WOMEN	MEN	Odds Ratio Work	Parameter Learn
Intercept	-	-	ns	-2.294
TOR	0.715	0.709	1.145	0.081
AGEP	38.844	38.834	1.156	0.076
AGESQ/100	-	-	-	-0.077
ED1	0.162	0.127	0.802	0.117
ED2	0.021	0.040	1.536	0.110
ED3	0.264	0.252	1.723	0.137
ED4	0.129	0.128	1.765	0.209
ED5	0.143	0.162	2.006	0.363
MASTERS	0.026	0.040	2.119	0.501
PHD	0.002	0.008	2.543	0.595
DOCTOR	0.003	0.008	2.786	0.378
EDUC	0.061	0.019	ns	0.070
ARTS	0.074	0.050	1.346	-0.075
SOCSCS	0.048	0.052	ns	0.064
MNGMT	0.073	0.095	1.260	0.137
SECTRY	0.054	0.004	1.506	0.055
AGRIC	0.018	0.017	1.364	ns
ENG	0.004	0.045	ns	0.139
TECH	0.018	0.160	ns	0.108
NURSE	0.048	0.002	1.422	0.180
HEALTH	0.026	0.017	1.623	0.184
SCIENCE	0.013	0.028	1.495	0.089
SCHOOL	0.069	0.069	ns	-0.277
BLACK	0.049	0.040	0.338	-0.120
CHINESE	0.077	0.075	0.746	-0.117
VISMN	0.130	0.129	0.807	-0.168
IMMIG	0.453	0.449	0.815	-0.052
PIMM4	0.051	0.049	0.678	-0.137
PIMM5	0.029	0.027	0.106	-0.336
IMMIG25	0.195	0.200	1.258	-0.101
FEMALE	1.000	0	0.645	-0.207
PSCLD1	0.181	0	0.378	0.091
KIDS	1.501	0	0.825	-0.069
WORK	1.218	1.103	-	-
TOTINCP	20.376	35.534	-	-
EARN	17.653	32.316	-	-
PART	0.163	0.065	-	-0.590
HRSWKP (log)	23.638	33.032	-	0.189
WKSWKP (log)	41.868 (43217)	44.131 (47757)	-	0.809
n-cases	53,061	51,316	104,377	86,055
Gamma/R-squared			.556	.467
Ratio/Mean for the Dependant Variable			.839	3.030

ns not statistically significant at .001 level.

regression shows that women, after accounting for the presence of pre-school children and the number of children, as well as after controlling for differences in the education and age of men and women, have an estimated partial odds of .645 in receiving wage income. Should a man with a particular set of characteristics have a 10 to 1 chance of having had a wage in 1990 (i.e., have a .9091 probability of receiving wages or self-employment income), then a woman with the same characteristics will have a 10 x .645 odds ratio, or a (6.45/7.45 = .866) probability of having received a wage income. If the woman had a preschool child at home then her odds ratios for working outside the home is further reduced by a factor of .378. This very large reduction in the odds ratio does not translate into a huge difference in the probability a woman actually worked in 1990 due to the very high proportion (therefore the high odds) of women without children who were working.

The means for the dependent variables show major differences across men and women: 21.8 percent of women did not work during the year before the census compared to 10.3 percent of the men. The average personal annual income of women is $20,370 compared to $35,534 for men. Income from work outside the home yields $17,653 for women, on average, compared to $32,316 for men. The proportion of people with part-time rather than full-time work, the average hours per week worked, and the number of weeks worked in 1990 differs substantially across men and women and offer partial explanations for the income differences.

The estimated partial odds ratio for the categorial variable identifying Toronto as opposed to Vancouver people is 1.145 showing that a large proportion of Toronto residents have wage or self-employment income. The second set of odds ratios presented in Table 5A shows a consistent increase in the chance the person worked in 1990 with the level of their education. Persons having attained a university degree, for example, have 2.006 times the chance of having worked outside the

home compared to the base population formed by people whose highest level of education is below that of the secondary school level, i.e., people who did not complete high school have half the odds of working compared to college graduates.

The last column of Table 5A presents the estimated parameters describing the effect of education, gender and children on the wages or self-employment earnings of the people who have earnings.[8] The parameters describe the elasticities of income change with respect to the characteristics and with respect to the weeks and hours worked. The log-linear specification is appropriate because wage income is proportional to the hours and weeks a person works. The estimated parameters show that Toronto residents earned 8.1 percent more than Vancouver residents after accounting for the effects of all the other factors described by the control variables. The education variables show a progressive proportional increase in earnings with education level. Experience in the workplace also increase earnings at a decreasing rate as exhibited by the parameters for the age and age squared variables. The regression shows that blacks with the same education, field of studies and age as whites earn 12.0 percent less. People of Chinese origin earn 11.7 percent less and other visible minorities earn 16.8 percent less than whites. People who immigrated to Canada during 1990 year earned 33.6 percent less than others with the same education. Women who worked in 1990 earned 20.7 percent less than men. The earnings of the women who had employment income were 6.9 percent less for each 100 percent increase in the number of children they have ever had. This statistic may reflect the difference in earnings due to career interruptions created by child rearing activities. Working women with a preschool child at home earn (9.1 - 6.9 = 2.2) percent less than

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[8] While Table 5A presented the regressions used to compare the earnings of men and women for the 20-65 year-olds, the regressions used in the household formation analysis were estimated separately for each sex and are included in the appendix.

similar women without preschool children.

A 10 percent increase in the number of weeks worked increased earnings by 8.09 percent. Increases in the hours worked had a smaller effect due, in part, to the variable not accurately reflecting the typical work week in 1990. The difference may also be due to the length of the work week being set by institutional constraints whose variation is not perfectly correlated with earnings.

The further examination of the differences between the earnings of men and women was carried out by re-estimating the equations presented in Table 5A for the young, middle, and older-age groups. Tables 5B and 5C present the estimated coefficients for the variables identifying women, the presence of a pre-school child, and the number of children ever born to the woman. The estimates are produced by regressions that included the other variables listed earlier. Table 5B shows that older women have a lower chance of having worked outside the home. While the odds ratios for women being employed decrease with age, the detrimental effect of having had more children also decreases with age. Table 5B shows that a 20-29 year-old women has .964 times the odds ratio that men have of gaining employment income. A woman with a child has an odds ratio of .564 compared to that of a woman without child. This ratio declines by another .545 should the child be under seven years of age. If a 20-29 year-old man with a particular set of characteristics has 8 to 1 chance of being employed outside the home, then a woman of the same age and education has a 7.712 to 1 chance of being employed outside the home. The addition of a child reduces the odds to 4.350 and should the child be under 7 then the odds drop to 2.366, reflecting a probability equal to .703. The explanatory power of the estimated logit regressions is identified by the Gamma statistic and it is about the same for each age category.[9] Table 5C presents the relevant coefficients for the regressions

[9] The Gamma statistic is similar to the R-squared used in ordinary least squares regressions.

TABLE 5B

ESTIMATED ODDS RATIOS SHOWING CONTRIBITION OF SEX AND THE PRESENCE OF CHILDREN TO THE PROBABILITY THAT A WOMAN IS EMPLOYED OUTSIDE THE HOME

	RATIO	FEMALE	PSCLD1	KIDS	GAMMA	n-cases
BOTH SEXES						
20-64 year olds	5.194	.645	.378	.825	.556	104,377
20-29 year olds	6.534	.964	.544	.564	.568	28,124
30-44 year olds	7.040	.676	.471	.750	.533	43,207
45-64 year olds	3.267	.410	.516	.925	.548	33,406
WOMEN ONLY						
20-64 year olds	3.581	ne	.312	.872	.521	53,061
20-29 year olds	5.388	ne	.559	.577	.593	14,213
30-44 year olds	4.597	ne	.489	.745	.446	22,157
45-65 year olds	2.096	ne	.500	.926	.494	16,691

TABLE 5C

ESTIMATED PARAMETERS DESCRIBING THE EFFECT OF SEX AND CHILDEN ON THE NATURAL LOGARITHM OF WAGES AND SELF-EMPLOYMENT INCOME (Log $1000)

	MEAN	FEMALE	PSCLD1	KIDS	R^2	n-cases
BOTH SEXES						
20-64 year olds	$20,697	-.207	.091	-.069	.467	86,055
20-29 year olds	13,791	-.122	ns	-.061	.484	23,982
30-44 year olds	23,712	-.221	.084	-.062	.432	37,390
45-64 year olds	25,003	-.323	ns	-.037	.392	24,681
WOMEN ONLY						
20-64 year olds	16,135	ne	.064	-.051	.450	40,563
20-29 year olds	12,503	ne	ns	-.048	.493	11,746
30-44 year olds	18,029	ne	.073	-.060	.432	17,898
45-64 year olds	17,725	ne	ns	-.038	.381	10,917

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ne not entered

ns not statistically significant at .001 probability level.

using the log of earned income as the depended variable. It shows that women who are working while they have a child under the age of 7 are earning about the same amount as other women. The decline is lower for older people with the same educational background and immigration status.

The regressions used in the logit regressions examining household formation behaviour include variables describing the income expectations of men and women as predicted by using the estimated coefficients presented in Table 5A. However, the estimates can be used in two ways depending on how fertility expectations are considered. Having a preschool child at home changes the probability a woman will work outside the home as well as the average number of weeks worked each year and hours worked each week. The expectation of having children is a function of the age of the prospective mother as well as of her education level and income prospects. To develop the instrumental variable describing the income prospects of the woman who expects, at some time, to have children, the probability of having children is estimated and the predicted value (the probability of having children) is used as an input to equations 5a and 5b when developing the instrumental variables. Tables 6a and 6b describe the probability of having a pre-school and a school-aged child at home as a spline function of the woman's age. To account for differences in the amount of time spent on work outside the home by women with young children, the regressions presented in Tables 6C and 6D yield the relevant parameters that are used to construct the expected weeks and hours worked as a function of the presence of pre-school and school-aged children in the household.

The first two constructed variables describing earnings expectations are formed by multiplying the predicted probability that a person will have earnings by their expected earnings should they be working. Education level, field of study, age and age squared are used to develop the predictions. The expected earnings considers the average number of weeks and hours a person worked when

TABLE 6A
THE PROBABILITY THAT A WOMAN HAS A CHILD AT HOME

Dependant Variable: PSCLD1; Presence of child under 7 years of age

Variable	Parameter	P-level
Intercept	-3.9504	.0787
TOR	- .0974	.0006
AGE	1.0159	.0001
AGE2	-5.1154	.0001
AGE3	0.7343	.0001
AGE35	-1.5460	.0001
Concordant	80.6%	
Discordant	17.9%	
Gamma	.636	
% with preschool child	20.01%	
n-cases	47,877	

TABLE 6B

Dependant Variable: PSCLD2; Presence of child between 7 and 14

Variable	Parameter	P-level
Intercept	-14.0927	.0202
TOR	-.1204	.0001
AGE	2.6055	.0001
AGE2	-10.5945	.0001
AGE3	1.2499	.0001
AGE35	-1.5980	.0001
AGE45	-1.8700	.0854
Concordant	79.8%	
Discordant	18.7%	
Gamma	.620	
% with preschool child	17.18%	
n-cases	47,877	

TABLE 6C

RELATIONSHIP BETWEEN EMPLOYMENT ACTIVITY AND THE PRESENCE OF CHILDREN IN THE HOME

Dependant Variable: WKSWKP: Weeks worked in 1990

Variable	Parameter	P-level
Intercept	43.7564	.0001
TOR	1.9084	.0001
PSCLD1	-5.3818	.0001
PSCLD2	-1.0565	.0001
R-squared	.0301	
Dep-mean	43.9235	
n-cases	37,200	

TABLE 6D

Dependant Variable: HRSWKP; Hours worked in week before census by women

Variable	Parameter	P-level
Intercept	36.4616	.0001
TOR	1.2568	.0001
PSCLD1	-4.8651	.0001
PSCLD2	-2.5598	.0001
R-squared	.0273	
Dep-mean	36.1207	
n-cases	31,067	

employed full-time. For women these variables are adjusted to account for the effects of expected children as predicted by the regressions described in the last paragraph. Their hours and weeks worked are also adjusted for the expectation of having children by using the estimated equations described in Tables 6C and 6D. This is the constructed variable used in the model described in the last chapter of the report. It is reasonable that income expectations are formed in light of fertility expectations and that long-term forecasts be based on the assumption that women will continue to have children and that the birth of a child will affect, for a time, the mother's labour force participation.

The second instrumental variable ENW is constructed by ignoring the possible effects of having children on the likelihood the person works and on their expected earnings. This use of this variable helps assess the effect of the assumptions about fertility effects. The third instrument also includes non-wage earnings and is constructed by regressing total personal income against the age, sex and education variables and then using the predicted values to form an index of the person's earnings prospects. This specification's main value is in the convenience with which the variables can be constructed for various sub-populations and it is used only in the explanatory stages of analysis. The regression does not account for work effort or the presence of children as these are all assumed to be associated with the education and age that are included in the regression, and their effect on income is reflected in their estimated parameters.

The analysis of the effects of the income differences of men and women is limited to the 20 through 64 year-old groups who are most likely to have employment options outside the home. Since this is the only group that exhibits systematic differences in income, it is the only one that will be affected by the reduction in the income disparity between men and women. Since this group has the

dependent children living at home, it accounts for nearly 90 percent of the populations of Vancouver and Toronto.

Tables 6E and 6F present regressions predicting the presence of a dependent child in the house of a couple and the number of children that will be born to a woman who has at least one child. The regression parameters are used in the crude model presented in the last part of the report. The odds ratio that a woman living with a man has a child decreases with her income at a rate of .968 per $1,000 in her expected earnings (EYNK) should she have no children. A woman with a 70 percent chance of having a child at home would have a .7 percent lower chance for a $1000 increase in her earnings prospects.

Figures 2A through 2D illustrate the labour force participation and expected income variables using the mean values for the control variables for each sex and city. Figure 2A shows the expected labour force participation rates by age for men and women in Toronto and Vancouver. The men's rates are the solid lines and the Vancouver rates lie just below those for Toronto.[10] Both men and women start to leave the labour force shortly after 50 years of age. The expected participation rate for women uses the predicted variables showing the probability they will have a 0-6 year-old and a 7-14 year-old living at home. The predicted probabilities using the functions presented in Tables 6A and 6B are plotted at the bottom of Figure 1A and show peaks at 32 and 38 years of age. The presence of children causes an inflection in the labour participation rates of women that bottoms out in the early 30s. Figure 2B illustrates the expected participation rates for men, for women without children and for a woman having a first child at the age of 28 and then a second child at the age of

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[10] The parallel of the Vancouver and Toronto curves is due to their being estimated with the same regression equation that includes only one categorical variable allowing for intercept differences.

TABLE 6E

THE EFFECT OF INCOME PROSPECTS ON THE PROBABILITY A FAMILY WOMAN HAS A DEPENDANT CHILD PRESENT IN THE HOUSEHOLD

VARIABLES	PARAMETER	P-LEVEL	ODDS
INTERCPT	-9.865	0.000	0.000
TOR	0.268	0.000	1.307
FAGE	0.577	0.000	1.781
FAGESQ	-0.699	0.000	0.497
SCHOOL	-0.383	0.000	0.682
BLACK	0.887	0.000	2.427
CHINES	0.334	0.000	1.396
MED	0.316	0.000	1.372
VISMN	0.443	0.000	1.558
CATHOLIC	ns	0.070	1.059
FUND	ns	0.961	1.002
JEWISH	ns	0.003	1.231
NONE	-0.135	0.000	0.873
MOSLEM	ns	0.017	1.219
IMMIG	0.111	0.002	1.118
IMMIG25	-0.032	ns	0.969
NONEF	0.356	0.000	1.428
PIMM4	-0.338	0.000	0.716
PIMM5	-0.657	0.000	0.518
EYNK	-0.032	0.000	0.968
Concordant	74.2%		
Discordant	25.5%		
% with child	70.62%		
n cases	37,985		

TABLE 6F

THE EFFECT OF INCOME EXPECTATIONS OF THE NUMBER OF CHILDREN BORN TO A WOMAN WHO HAS CHILDREN

Variable	Parameter	P-level
INTERCEPT	-0.386	0.0001
TOR	0.047	0.0010
FAGE	0.106	0.0001
FAGESQ	-0.0722	0.0001
SCHOOL	-0.155	0.0002
BLACK	0.452	0.0001
CHINES	0.309	0.0001
MED	0.063	0.0075
VISMN	0.307	0.0001
CATHOLIC	0.081	0.0001
FUND	0.068	0.0048
JEWISH	0.028	0.3906
NONE	-0.064	0.0008
MOSLEM	0.237	0.0001
IMMIG	-0.233	0.0001
IMMIG25	-0.017	0.3606
NONEF	0.015	0.4440
PIMM4	0.002	0.9578
PIMM5	-0.102	0.0144
EYWMN	-0.030	0.0001
R-squared	.1844	
Dep-mean	2.344	
n-cases	33,975	

FIGURE 2A

LABOUR FORCE PARTICIPATION AND THE PRESENCE OF CHILDREN

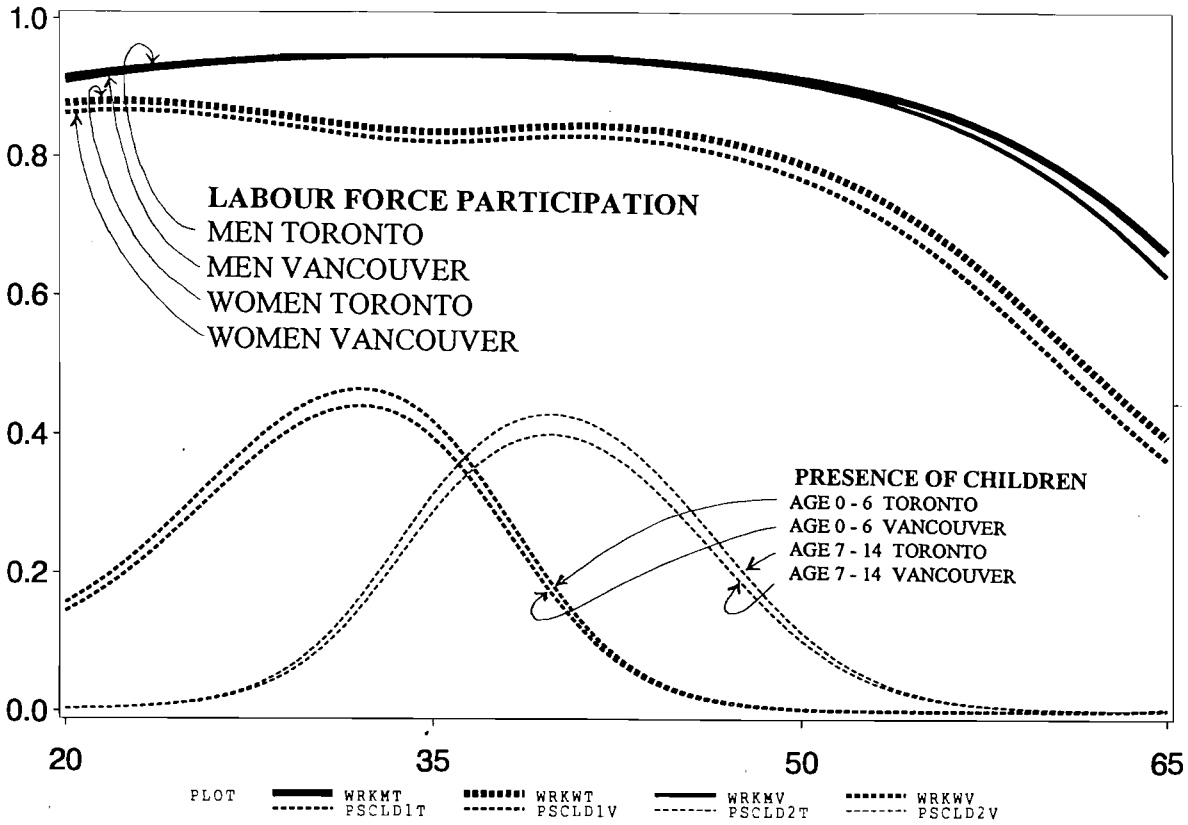


FIGURE 2B

LABOUR FORCE PARTICIPATION OF MEN AND WOMEN
WITH AND WITHOUT CHILDREN

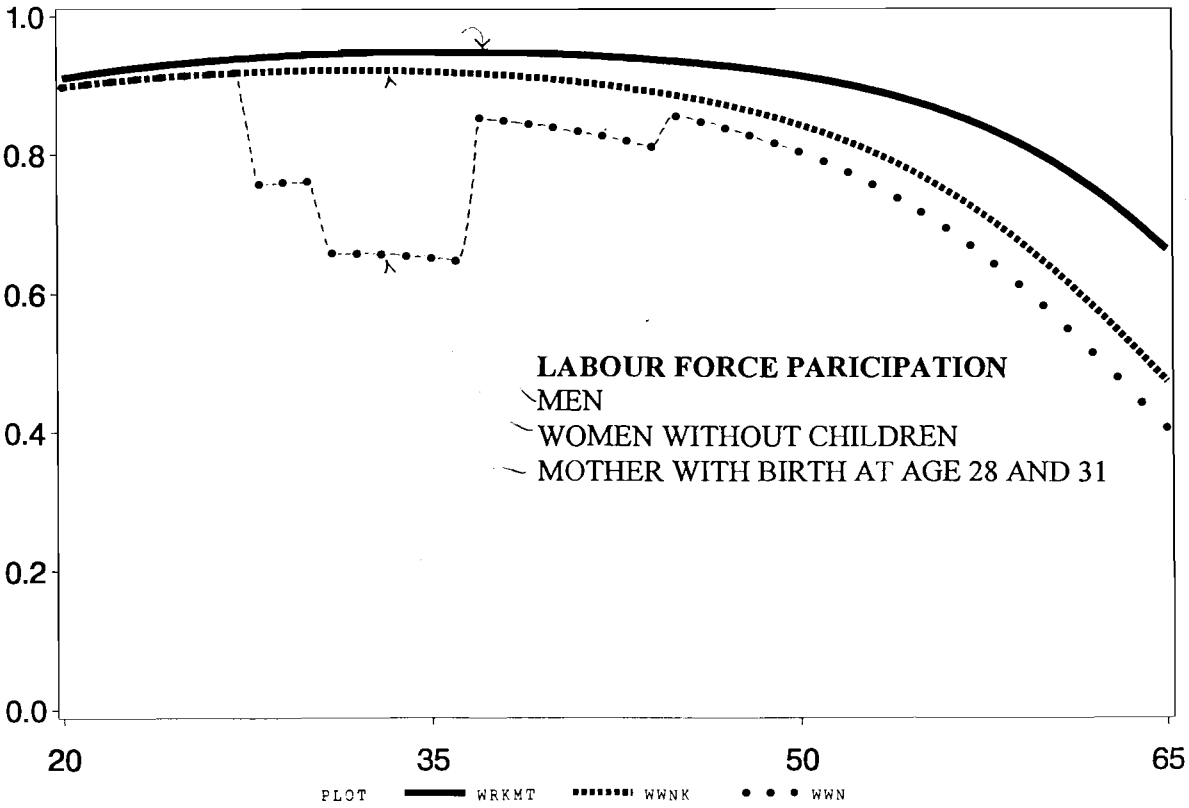


FIGURE 2C

EXPECTED INCOME AND EARNINGS OF MEN AND WOMEN
AFTER ACCOUNTING FOR THE PROBABILITY OF HAVING CHILDREN

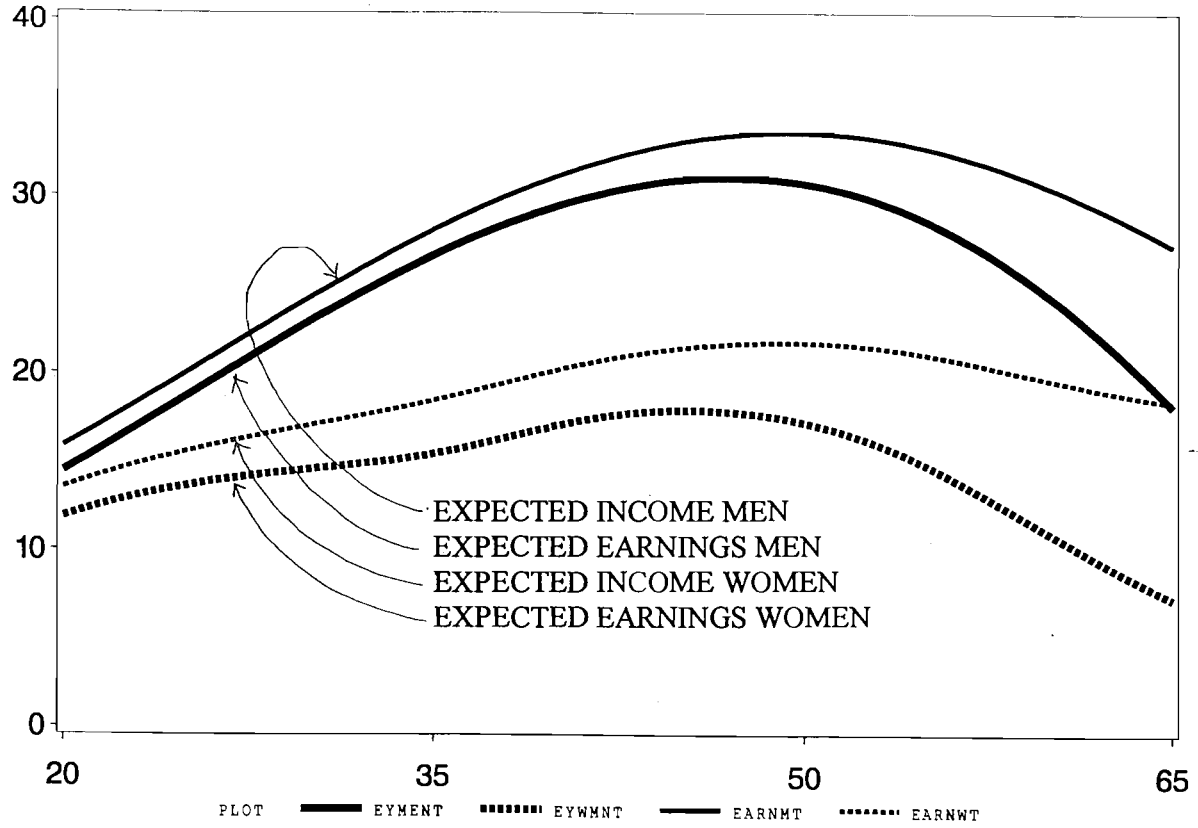
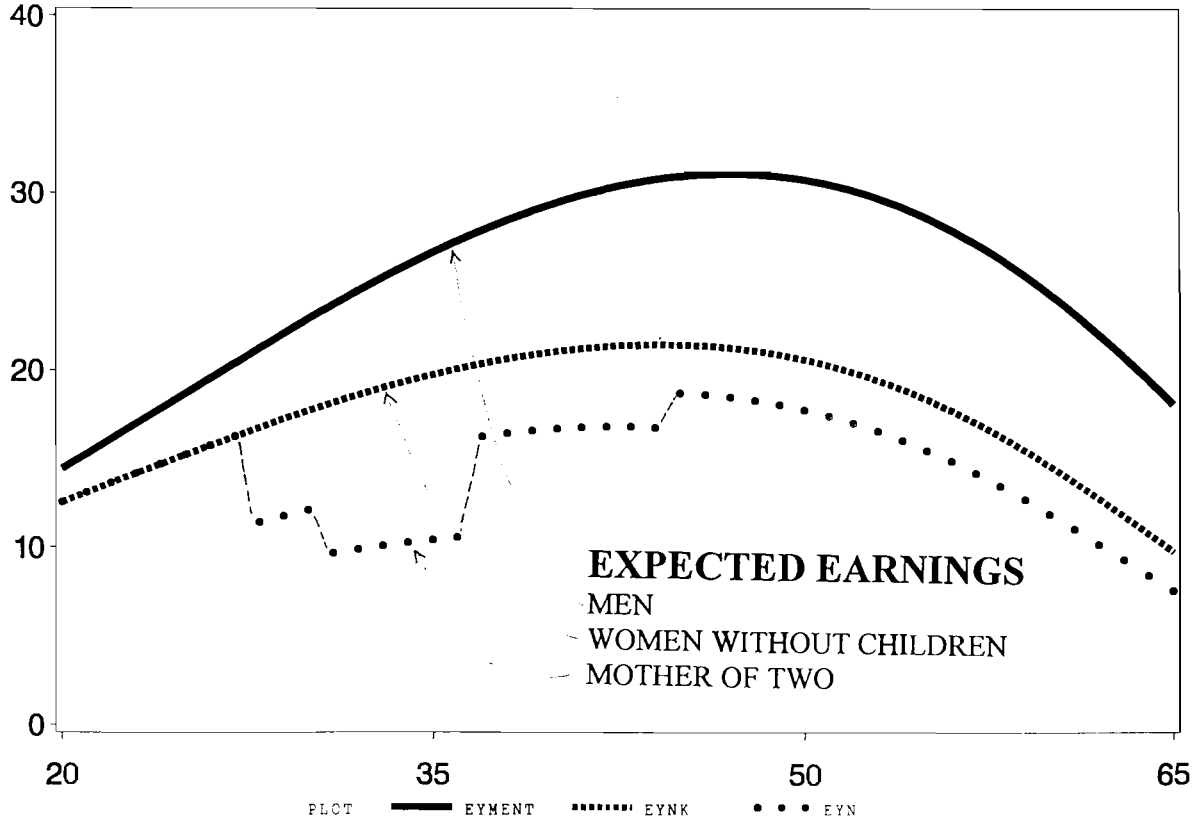


FIGURE 2D

THE EXPECTED EARNINGS OF MEN AND WOMEN WITH AND WITHOUT CHILDREN



31. The graphs use the estimated logit regressions that were developed for each sex and illustrate the magnitude of the participation rate differences due to the presence of children. The predicted participation rate drops 10 percent at the birth of the first child and then another 10 percent at the birth of the second child. As the first child gets older and goes to school, the probability the mother returns to work increases. After the second child starts school, most mothers return to some work but their participation rate remains lower as indicated by the lower line in the graph.

Figure 2C plots the separate regressions that predict the earnings of men and women. The solid lines show the men's earning profile. The higher line shows the expected earnings of the people who are working while the lower line presents EYN, the instrumental variable that adjusts for the probability a person is working and for the woman's expectations regarding children. Figure 2D presents the expected earnings after adjustments are made for labour force participation and for the presence of children. It shows the earnings for men, for women without children, and for a woman having a first child at 28 and a second one at 31.

Permanent and Transitory Income

In the analysis of housing consumption the actual income a person gains rather than their expected income is relevant. Due to high transaction costs, people tend to make long-term commitments and rely more heavily on the income they can expect to earn over their planning time horizon. With cross-sectional data, the distinction between permanent and transitory income is made by regressing actual income against the variables describing human capital and propensity to work. The predicted value is interpreted as the person's expected permanent income stream. The residual, the difference between the predicted and the actual income, is the transitory component. Since the

education and field of study variables are crude indicators of human capital, the distinction between the two types of income is an approximation.

The regressions place the total personal income variables on the left-hand side of the equation and age, age squared as well as household type and the education variables on the right-hand side. Age can serve as a proxy for work experience and income is expected to increase at a decreasing rate with age. Household type can indicate the need to maintain employment. The presence of children may affect a woman's earnings and career orientation and variables identifying the presence of children are included in constructing the permanent income variable. For married women that do not have children, the probability they will have a child as predicted by the Table 6A regression is entered when constructing the permanent income stream variable to be used in the analysis of housing consumption but it is excluded when estimating the parameter describing the income effects of having a young dependent child in the home. The estimation is carried out in two steps due to the truncation of the income variable at zero[11]: in 1990 13.4 percent of women had no income compared to 3.7 percent of men. The first stage estimates the probability of having earnings as a function of the explanatory variable, and the predicted value is then included in the OLS regression of total personal income. Linear rather than log linear functions yield the best estimates as the weeks and hours worked is not explicitly considered.

Tables 7A and 7B present the means for the variables and the two sets of regression estimates. The means for men and women are presented in Table 7A. The first two columns in Table 7B present the logit regressions used to predict whether or not the person had any income in 1990. It shows that

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[11] The analysis of housing consumption was sensitive to the construction of the income variables. People with negative earnings were excluded.

single parents have a higher chance of having personal income than others. If a woman was to have an 86 percent chance of having a personal income greater than zero, then a single-parent woman would have a 1.234 x .86 x (1-.86) = 14.9 percent greater chance of having earnings. The annual income of single-parent men and women is $7,833 and $5,377 higher than that of their non-family counterparts of the same age and education. Living as a couple increases men's annual income by $11,070 while it reduces a woman's income by $2,153 not counting for the added effect of children. Either men commit themselves to working more when forming a family, or harder working men are more likely to form families. The presence of a child at home reduces a mother's earnings by an average of $2,257 a year. If the child is of pre-school age, then her income drops by another $4,961 compared to a loss of $1,853 for the 7-14 year-old child.

On average, women's incomes are just over half that of men. To gain a sense of the magnitude of the income and earnings differences that would be left after controlling for the effects of education and children, separate regressions were run with the combined data for different age groups as illustrated in Table 7C. The estimates are presented for all individuals in the first rows and then for each major age category. The first column presents the mean income, the second the estimated coefficient for the variable identifying women. The effect of the presence of a pre-school child and a school-age child on a woman's income is described by the next two columns. Table 7C shows the average income to peak for the 40-49 year-olds. The size of the difference between men's and women's earnings, however, is the largest for the 50-64 year-old group. The table shows that a 20-29 year-old woman without children can expect to earn $4,208 less than a man with the same education. If she has a pre-school child, her earnings will drop by $6,706. Each additional child reduces income by $2,816. The differences may be due to differences in hours and weeks worked

TABLE 7A

THE MEANS OF VARIABLES USED TO CONSTRUCT THE INSTRUMENTAL VARIABLE DESCRIBING THE PERMANENT AND TRANSITORY INCOME OF MEN AND WOMEN

	MEN	WOMEN
TOTINCP	38.567	21.000
INTERCEPT	-	-
TOR	.700	.710
PY	.963	.866
AGE	40.900	40.326
AGESQ/100	18.038	17.599
SPARENT	.018	.088
COUPLE	.739	.710
PSCLD1	ne	.200*
PSCLD2	ne	.172
KIDS	ne	1.658
ED1	.121	.162
ED2	.043	.022
ED3	.254	.263
ED4	.115	.116
ED5	.164	.139
MASTERS	.044	.028
PHD	.009	.002
DOCTOR	.009	.003
EDUC	.021	.063
ARTS	.051	.073
SOCSCS	.053	.046
MNGMT	.098	.072
SECTRY	.005	.055
AGRIC	.017	.018
ENG	.048	.004
TECH	.169	.019
NURSE	.002	.051
HEALTH	.018	.026
SCIENCE	.029	.013
BLACK	.039	.047
CHINESE	.071	.073
VISMIN	.237	.248
IMMIG	.467	.465
PIMM4	.050	.051
PIMM5	.026	.029
n-cases	44,265	47,877

* When the predicted presence of children for couples is included the mean is .236.

TABLE 7B

REGRESSION COEFFICIENTS USED TO ESTIMATE PERMANENT INCOME

	NON-ZERO INCOME		TOTAL INCOME	
	MEN	**WOMEN**	**MEN**	**WOMEN**
TOTINCP				
INTERCEPT	-.734	1.697	16.642	-4.354
TOR	.361	.021*	2.950	3.083
PY	-	-	-73.273	-20.700
AGE	.221	.049	3.546	2.040
AGESQ/100	-.263	-.063	-3.728	-2.035
SPARENT	.702	1.234	7.833	5.377
COUPLE	.599	-.557	11.070	-2.153
PSCLD1	ne	-.692	ne	-4.961
PSCLD2	ne	ne	ne	-1.853
KIDS	ne	-.205	ne	-2.257
ED1	.452	.304	7.880	4.508
ED2	.113*	.326	5.534	4.318
ED3	.318	.532	6.613	5.420
ED4	.091*	.474	8.749	7.477
ED5	.124*	.702	16.589	13.415
MASTERS	.368*	.944	23.688	20.736
PHD	.364*	.862*	31.037	22.184
DOCTOR	-.136*	.519*	35.799	21.946
EDUC	.402*	.396	-2.122*	3.106
ARTS	.279*	.024*	-3.214	-1.277
SOCSCS	.527	.235	8.936	1.991
MNGMT	.757	.483	11.190	6.121
SECTRY	.355*	.372	8.628	2.415
AGRIC	.188*	-.082*	-2.502*	-2.586
ENG	.764	.089*	8.187	2.750
TECH	.650	.343	3.853	3.731
NURSE	.828*	.523	-.738*	4.916
HEALTH	.817*	.557	9.267	5.756
SCIENCE	.608	.177*	5.544	2.927
BLACK	-.570	.442	-9.102	.302*
CHINESE	-.739	.161	-10.426	.436*
VISMIN	-.599	-.132	-10.950	-2.621
IMMIG	-.509	-.254	-5.510	-3.311
PIMM4	.063*	-.286	-6.718	-5.059
PIMM5	-2.83	-2.284	-46.383	-20.475
n-cases	44,266	47,877	44,265	47,877
R-Sq/Gamma	.631	.497	.2417	.2128
Mean/Prob.	.963	.864	38.567	21.009

** not different from zero at the .01 probability level

TABLE 7C

ESTIMATED PARAMETERS SHOWING THE EFFECT OF GENDER AND CHILDREN BY AGE GROUP ON TOTAL INCOME AND WAGES WITHOUT ACCOUNTING FOR DIFFERENCES IN HOURS AND WEEKS WORKED BY AFTER ACCOUNTING FOR DIFFERENCES IN AGE, EDUCATION, FIELD OF STUDY, ETHNIC ORIGIN AND IMMIGRATION STATUS

AGE GROUP	MEAN	FEMALE	PSCLD1	KIDS	R^2	n-case
TOTAL INCOME						
20-64 year olds	29.455	-10.964	-2.452	-2.708	.293	91,790
20-29 year olds	21.210	-4.208	-3.89-	-2.816	.249	17,914
30-39 year olds	29.661	-9.451	-3.398	-3.466	.292	28,287
40-49 year olds	34.929	-14.260	-4.316	-2.311	.289	23,032
50-64 year olds	30.157	-17.002	ns	-.802	.302	22,554
65+	21.543	-6.940	ns	-.654	.182	16,985
WAGE EARNINGS						
20-64 year olds	24.365	-8.375	-3.695	-2.506	.243	91,790
20-29 year olds	18.724	-2.868	-3.856	-3.175	.243	17,914
30-39 year olds	25.571	-6.968	-3.661	-3.560	.245	28,287
40-49 year olds	29.296	-10.630	-4.149	-2.512	.225	23,032
50-64 year olds	22.298	-14.466	ns	-.562	.245	22,554
65+	2.912	-2.494	ns	ns	.076	16,985

* all coefficients statistically different for zero at the .0001 probability level.

outside the home, work time effort, accceptance of unpaid work in the home, specialization within a field of study, anticipation of career interruption due to children, career orientation, discrimination. The average difference in the income of men and women after accounting for the presence of children, education, and work experience as proxied by age is $10,960.

2

HOUSEHOLD FORMATION

The estimated parameters for the logit regressions describing household formation rates are listed in Table 8A. Estimates that were not distinguishable from zero at the .01 probability level are not reported. Table 8B shows the estimated parameters for the same variables when the regressions are run separately for men and women, Vancouver and Toronto. These estimates were used to develop the graphs presented in this section. Table 8C lists the estimated coefficients for the four income variables and the interaction variables identifying women's income. Table 8D presents estimates for different age groups.

Figures 3A to 3G illustrate the probability a person is in a particular household type by their age when the mean values for the other characteristics are used with the control variables. The means were calculated separately for men and women and for Toronto and Vancouver. Each line presents the functions estimated by a separate logit regression as described in Table 8B. Figure 3A shows the rapid increase in the proportion of people leaving their parents' home and the constant 2 to 3 percent of the over 35 year-olds who stay at home. Figure 3B shows that the probability a person stays in a one-person household remains remarkably constant from the late 20s up until the mid 50s for women. At this point, headship rates for women rise quickly while they stay constant for men. Differences in mortality rates are one of the reasons for the difference.

Figure 3C shows that women enter a couple relationship earlier than men. At the age of 45, 80 percent of women live with a spouse or common-law partner and the proportion drops after that age. The headship rate for men keeps declining gradually due to their forming married or common-law couples. After their early 50s, their headship rate increases but less quickly than for women.

TABLE 8A
ESTIMATED PARAMETERS FOR THE HOUSEHOLD TYPE REGRESSIONS

	INDEP	SINGLE	NONFAM	COUPLE	CHILD	SEPARATED	SPARENT	UNWED	GROUP
	104,377	92,246	92,246	92,246	37,985	76,625	76,625	40,499	20,501
	88.4%	10.0%	22.2%	72.2%	70.6%	13.3%	6.5%	1.3%	35.6%
INTERCPT	-8.435	-1.053	5.426	-4.823	-9.744	-7.360	-9.490	-4.962	-15.818
TOR	-0.224	-0.244	-0.111	ns	0.262	ns	0.219	.307	ns
AGE	0.475	-0.043	-0.284	0.252	-	0.288	0.262	-	1.853
AGESQ	-0.411	0.044	0.283	-0.252	-	-0.309	-0.259	-	-6.853
FAGE	0.065	-0.164	-0.061	-0.042	0.571	-0.062	-0.141	.178	0.803*
FAGESQ	-0.108	0.224	0.116	ns	-0.694	0.067	0.125	-.288	-0.864*
SCHOOL	-0.960	0.210	0.759	-0.832	-0.398	0.471	0.663	-.551	0.351
BLACK	-0.439	ns	0.351	-0.744	0.897	0.360	1.213	1.899	ns
CHINESE	-1.205	-0.395	-0.178	0.302	0.334	-1.030	-0.565	-1.390	ns
MED	-0.771	-0.622	-0.760	0.753	0.309	-0.888	-0.639	-2.358	-0.335
VISMN	-0.397	-0.269	0.327	-0.252	0.449	-0.423	ns	ns	ns
CATHOLIC	ns	-0.100	0.122	-0.103	ns	ns	ns	ns	ns
FUND	ns	ns	ns	ns	ns	ns	ns	ns	
JEWISH	ns	0.292	0.146	-0.117	0.211	ns	ns	ns	
NONE	0.599	0.371	0.345	-0.365	-0.139	0.397	0.319	.374	ns
MOSLEM	0.249	ns	-0.326	0.281	ns	-0.253	ns	-1.246	ns
IMMIG	0.499	-0.109	-0.151	0.139	0.109	-0.141	ns	ns	-0.245
IMMIG25	0.223	ns	-0.229	0.158	ns	-0.139	ns	ns	ns
NONEF	-0.401	-0.849	-0.214	0.220	0.349	-0.552	-0.189	-.601	0.245
PIMM4	0.575	ns	0.118	ns	-0.342	ns	ns	-.562	ns
PIMM5	ns	ns	0.483	-0.277	-0.687	-0.465	-0.345	-1.723	ns
FEMALE	ns	1.831	ns	1.765	-	1.229	5.229	-	-0.472
EY	ns	ns	ns	0.006	-	-0.026	-0.025	-	ns
EYWMN	ns	0.051	0,042	-0.020	-0.039	ns	-0.016	-.128	ns
CONCORDANT	90.0%	65.4%	69.8%	67.4%	74.2%	67.1%	72.5%	78.8%	66.1%
DISCORDANT	9.6%	33.5%	29.7%	32.1%	25.5%	32.2%	26.3%	17.0%	33.4%
GAMMA	.807	.322	.403	.354	.489	.352	.468	.632	.329

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ns indicates not significantly different from zero at the .01 probability level

x coefficient for (age**3/1000) and AGE30 in spline function

TABLE 8B

THE RELATIONSHIP BETWEEN EXPECTED EARNINGS ($1000) AND HOUSEHOLD TYPE USING SEPARATE LOGIT REGRESSIONS FOR EACH SEX AND CITY

	ODDS RATIO	PARAMETER FOR EYN	P-VALUE	PARTIAL ODDS RATIO	GAMMA
INDEP					
Toronto men	5.848	.019	.0001	1.019	.813
Vancouver men	8.134	ns	ns	ns	.801
Toronto women	8.622	-.036	.001	.965	.808
Vancouver women	11.182	ns	ns	ns	.787
SINGLE					
Toronto men	.083	.011	.0004	1.011	.342
Vancouver men	.129	ns	.2067	ns	.303
Toronto women	.091	.059	.0001	1.061	.403
Vancouver women	.113	.055	.0001	1.057	.356
NON-FAMILY					
Toronto men	.243	-.010	.0001	.990	.337
Vancouver men	.323	-.026	.0001	.974	.342
Toronto women	.217	.044	.0001	1.045	.303
Vancouver women	.246	.035	.0001	1.036	.283
COUPLE					
Toronto men					
Vancouver men	1.797	.011	.0001	1.011	.578
Toronto women	1.712	.017	.0001	1.018	.521
Vancouver women	1.753	-.026	.0001	.975	.424
	1.835	-.030	.0001	.970	.357
CHILD					
Toronto women	1.068	-.048	.0001	.953	.537
Vancouver women	.935	-.043	.0001	.958	.510
SEPARATED					
Toronto men	.080	-.029	.0001	.971	.445
Vancouver men	.109	-.035	.0001	.965	.449
Toronto women	.121	-.029	.0001	.972	.414
Vancouver women	.151	ns	ns	ns	.418
SPARENT					
Toronto men	.016	-.024	.0007	.976	.454
Vancouver men	.015	ns	ns	ns	.425
Toronto women	.088	-.061	.0001	.941	.360
Vancouver women	.079	-.032	.0002	.969	.273
GROUP					
Toronto men	.084	-.011	.0046	.989	.443
Vancoover men	.103	-.033	.0001	.967	.470
Toronto women	.060	.051	.0001	1.052	.404
Vancouver women	.065	ns	ns	ns	.43

ns not significant at the .001 level

TABLE 8C

GENDER DIFFERENCES IN THE EFFECT OF THE FOUR INCOME VARIABLES ON HOUSEHOLD FORMATION, HOUSEHOLD TYPE AND THE PROPENSITY TO HAVE CHILDREN

	INCOME			INCOME*FEMALE			
	PARAMETER	P-VALUE	ODDS	PARAMETER	P-VALUE	ODDS	GAMMA
INDEP							
ACTUAL	.027	.0001	1.027	-.024	.0001	.977	.815
EXPECTED	ns	ns	ns	ns	ns	ns	.807
NO CHILD	ns	ns	ns	ns	ns	ns	.807
INSTRUMENT	ns	ns	ns	ns	ns	ns	.807
n-cases	92,246/12,131						
COUPLE							
ACTUAL	.016	.001	1.016	-.0297	.0001	.971	.400
EXPECTED	.006	.006	1.006	-.0198	.0001	.980	.351
NO CHILD	.006	.003	1.006	-.0162	.0001	.984	.354
INSTRUMENT	.007	.001	1.007	-.010	.0001	.990	.354
n-cases	66,749/25,497						
CHILD							
ACTUAL	ne	ne	ne	-.0165	.0001	.984	.511
EXPECTED	ne	ne	ne	-.0391	.0001	.962	.489
NO CHILD	ne	ne	ne	-.0323	.0001	.968	.488
INSTRUMENT	ne	ne	ne	-.0350	.0001	.966	.492
n-cases							
SINGLE							
ACTUAL	-.008	.0001	.992	.030	.0001	1.031	.371
EXPECTED	ns	ns	1.005	.051	.0001	1.053	.322
NO CHILD	ns	ns	1.006	.044	.0001	1.045	.322
INSTRUMENT	.009	.0001	1.009	.027	.0001	1.027	.326
n-cases	9,220/83,026						
NON-FAMILY							
ACTUAL	-.017	.0001	.983	.033	.0001	1.033	.445
EXPECTED	ns	ns	ns	.042	.0001	1.042	.403
NO CHILD	ns	ns	ns	.035	.0001	1.036	.403
INSTRUMENT	ns	ns	ns	.022	.0001	1.023	.402
n-cases	20,501/71,745						
SEPARATED							
ACTUAL	-.013	.0001	.987	.025	.0001	1.026	.384
EXPECTED	-.026	.0001	.974	ns	ns	ns	.352
NO CHILD	-.026	.0001	.974	.011	.0013	1.011	.352
INSTRUMENT	-.023	.0001	.978	.011	.0001	1.011	.352
n-cases							
SPARENT							
ACTUAL	-.005	.0001	.995	.013	.0001	1.013	.470
EXPECTED	-.025	.0001	.975	-.016	.0075	.984	.468
NO CHILD	-.027	.0001	.974	ns	ns	ns	.469
INSTRUMENT	-.030	.0001	.971	ns	ns	ns	.472
n-cases	4,996/71,629						
GROUP							
ACTUAL	-.066	.0001	.994	ns	ns	ns	.335
EXPECTED	ns	ns	ns	ns	ns	ns	.329
NO CHILD	ns	ns	ns	ns	ns	ns	.329
INSTRUMENT	ns	ns	ns	ns	ns	ns	.328
n-cases	7,295/13,206						

TABLE 8D

GENDER DIFFERENCES IN THE EFFECT OF INCOME ON HOUSEHOLD FORMATION BY AGE GROUPS

			EXPECTED INCOME (EYN) ($1,000)			EYN * FEMALE			
	Ratio	**n-cases**	**Parameter**	**P-value**	**Odds**	**Parameter**	**P-value**	**Odds**	**Gamma**
20-29									
NONFAM	.719	18,067	.020	.0002	1.020	.034	.0001	1.020	.379
GROUP	.988	7,556	.060	.028	1.017	.017	.0233	1.017	.195
SEPRTD	.088	10,935	-.135	.0001	.0874	ns	ns	ns	.326
30-39									
NONFAM	.260	28,412	ns	ns	ns	.020	.0001	1.020	.266
GROUP	.496	5,854	ns	ns	ns	ns	ns	ns	.185
SEPRTD	.154	23,944	-.035	.0001	.966	ns	ns	ns	.318
40-49									
NONFAM	.164	23,118	ns	ns	ns	.020	.0001	1.020	.265
GROUP	.339	3,256	ns	ns	ns	ns	ns	ns	.162
SEPRTD	.192	21,292	-.014	.0001	.986	.0144	.0001	1.015	.354
50-64									
NONFAM	.204	22,649	-.010	.0001	.990	.017	.0001	1.017	.292
GROUP	.252	3,835	ns	ns	ns	ns	ns	ns	.186
SEPRTD	.153	20,454	-.010	.0001	.990	.019	.0001	1.019	.355
65+									
NONFAM	.657	17,042	-.0141	.0001	.986	ns	ns	ns	.486
GROUP	.146	6,757	ns	ns	ns	ns	ns	ns	.187
SEPRTD	.103	11,189	ns	ns	ns	ns	ns	ns	.315

FIGURE 3A

THE PROBABILITY A PERSON IS IN AN INDEPENDENT HOUSEHOLD BY AGE

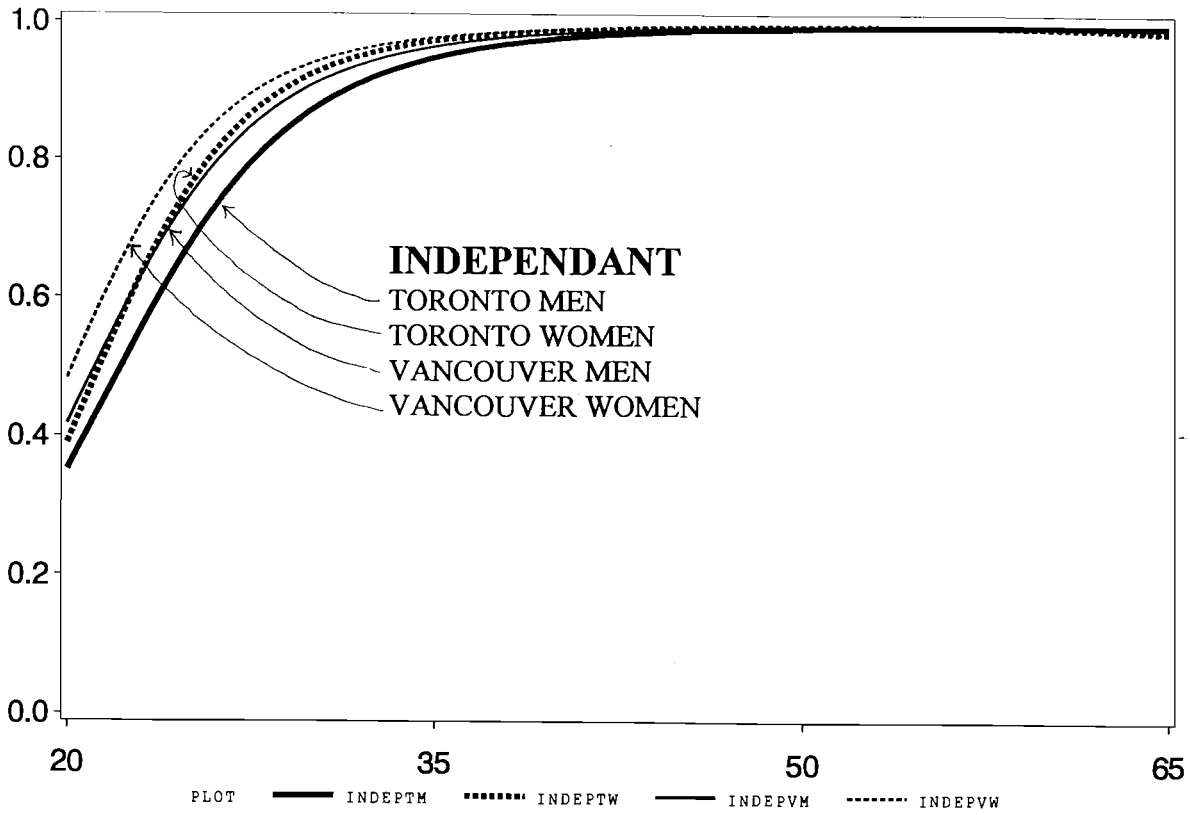


FIGURE 3B

THE PROBABILITY A PERSON IS LIVING ALONE BY AGE

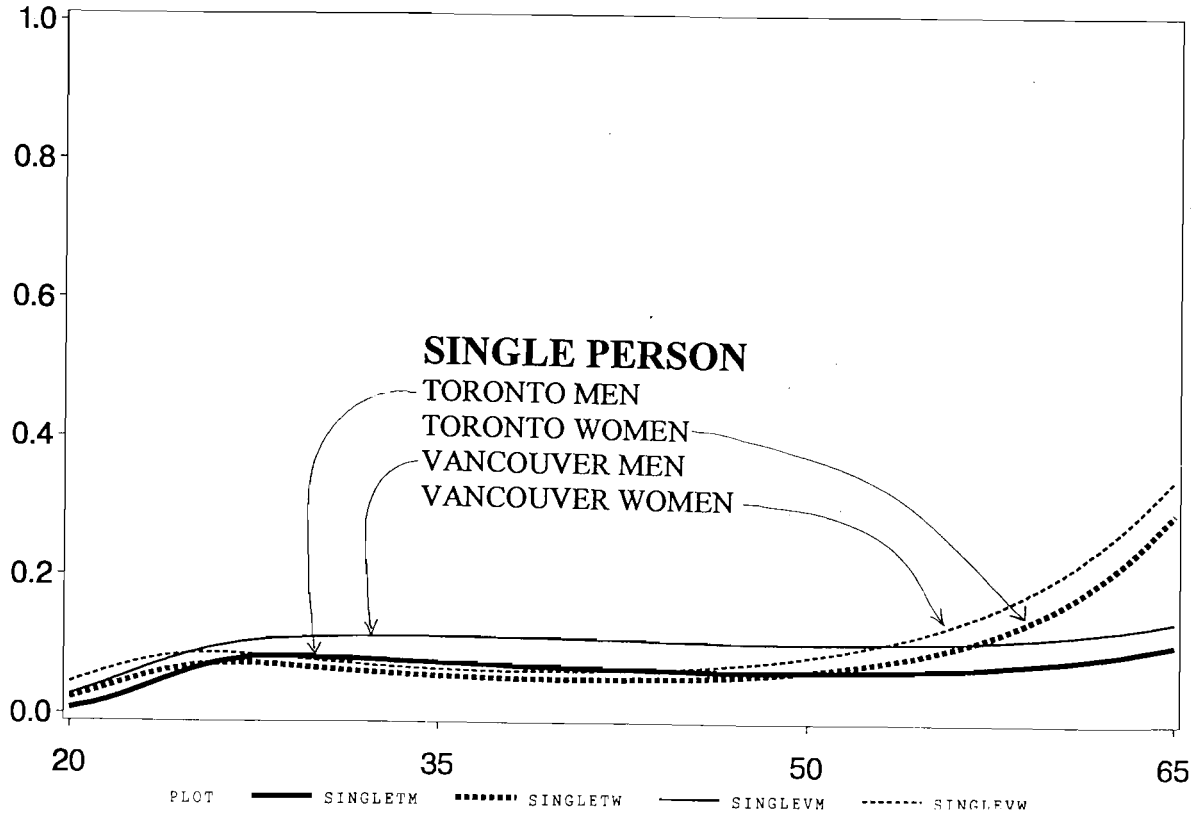


FIGURE 3C

THE PROBABILITY A PERSON FORMS A COUPLE HOUSEHOLD BY AGE

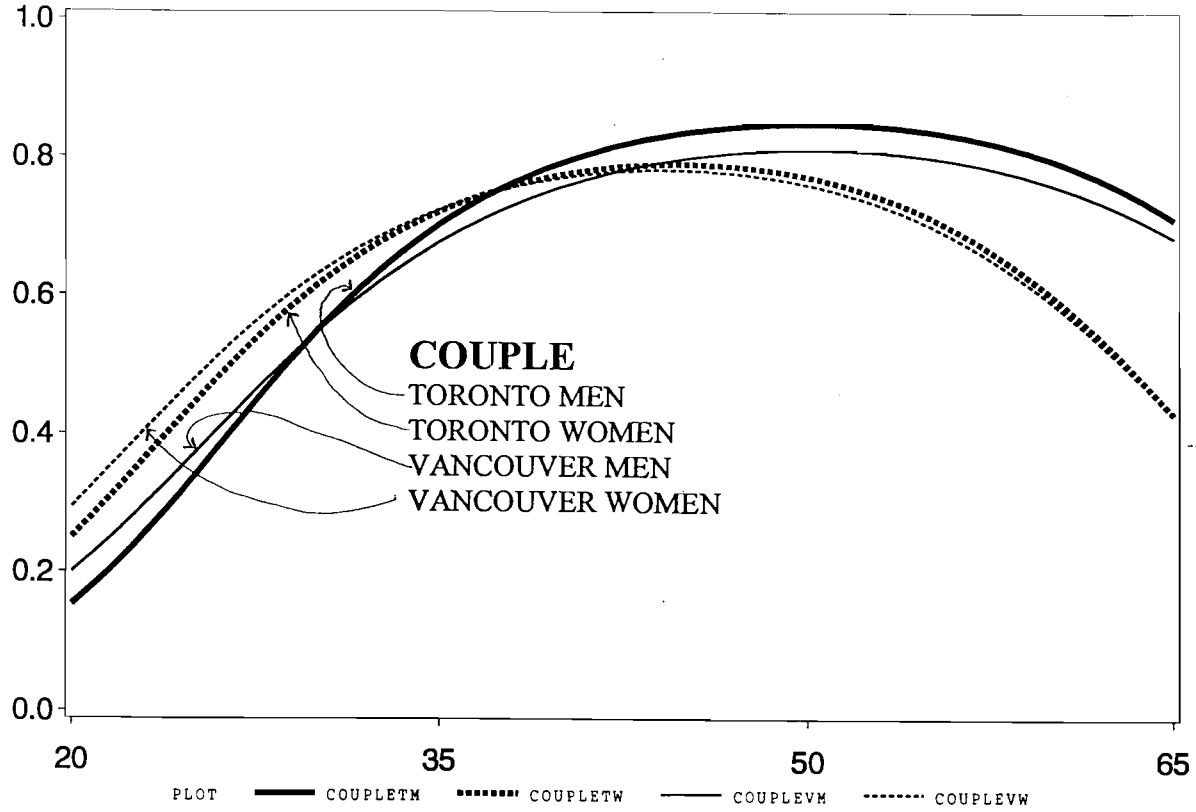


FIGURE 3D

THE PROBABILITY A PERSON IS IN A NON-FAMILY HOUSEHOLD BY AGE

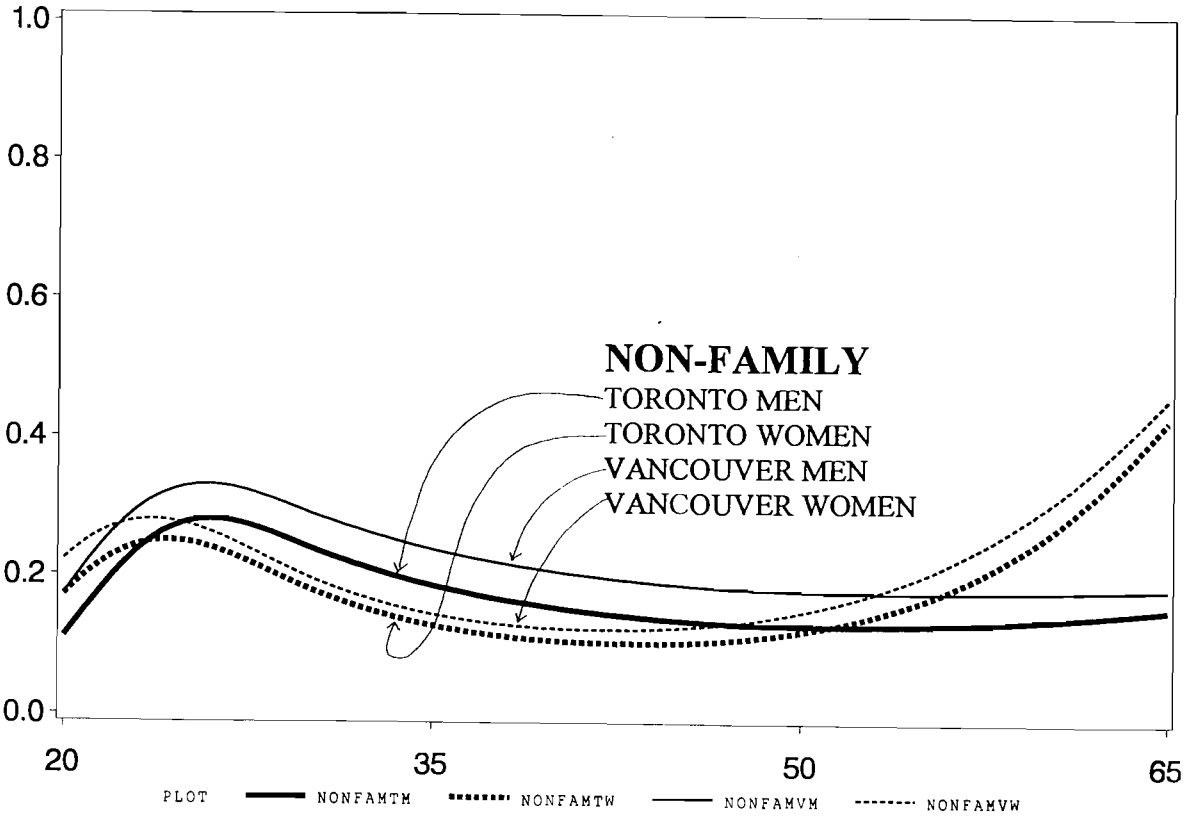


FIGURE 3E

THE PROBABILITY A WOMAN HAS A DEPENDANT CHILD AT HOME

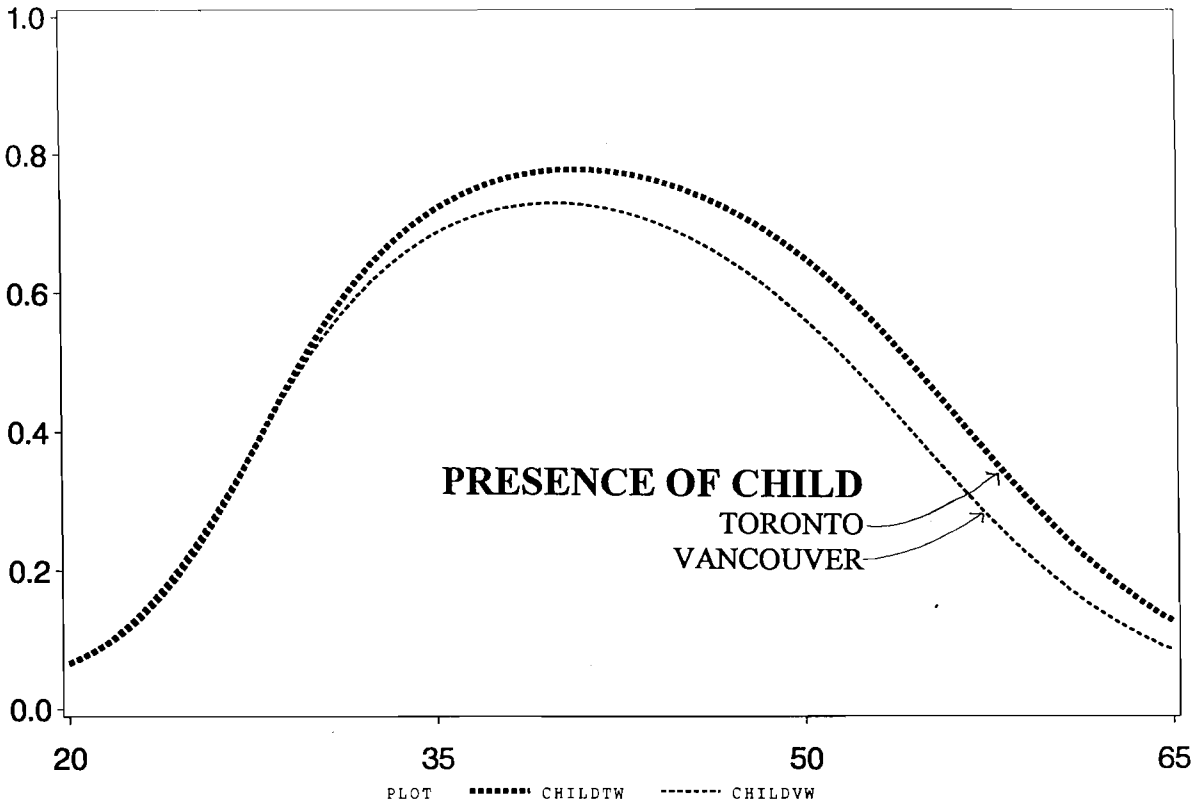


FIGURE 3F

THE PROBABILITY A PERSON IS CURRENTLY SEPARATED OR DIVORCED

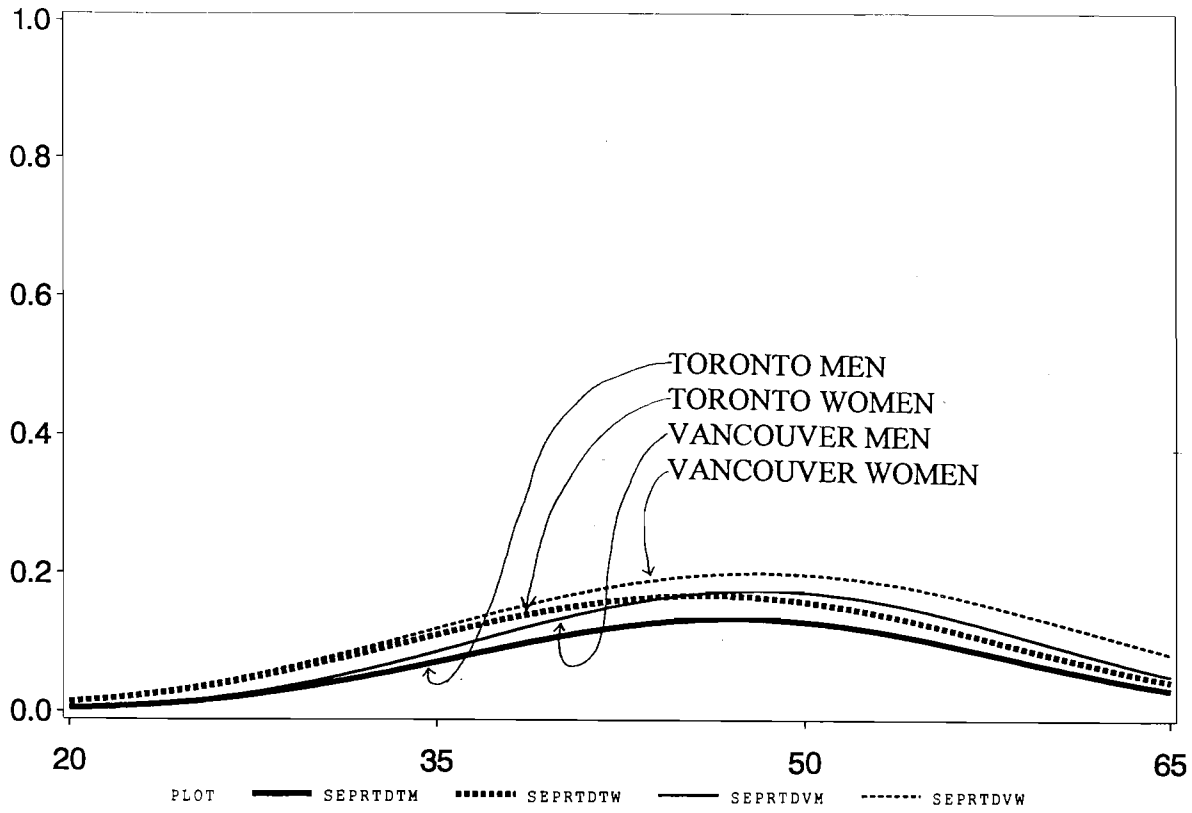


FIGURE 3G

THE PROBABILITY A PERSON IS A SINGLE PARENT BY AGE

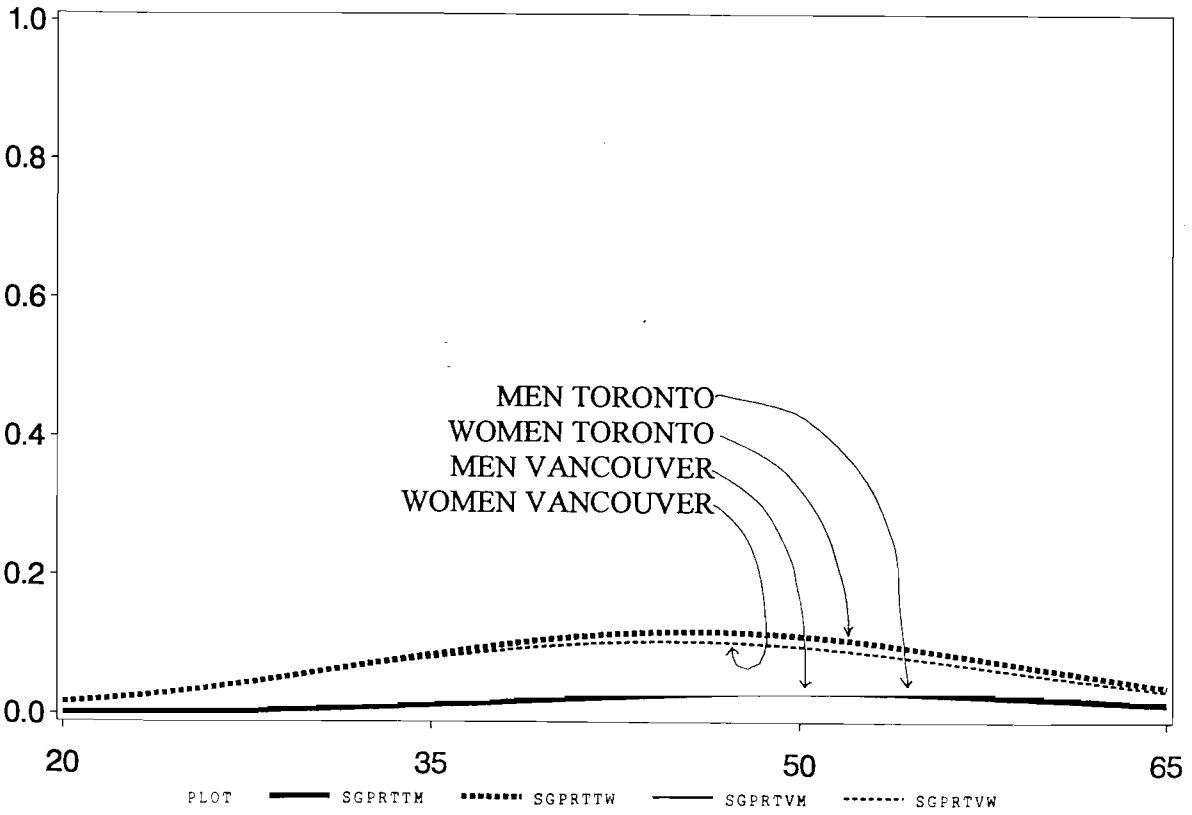


Figure 3D shows the probability a person is living in a non-family household and it shows men preferring their status more often than women up until the age of 50. At this point the proportion of women living in non-family households increases dramatically as a result of the higher mortality rate among men. Figure 3E illustrates the presence of children in a woman's household and shows the expected age distribution. Separation or divorce status is achieved by a smaller proportion of the population and the rate peaks in the latter for both men and women as illustrated in Figure 3F. The single-parent status follows similar lines for women but is less often attained by men as illustrated in Figure 3G.

The graphs illustrate differences in the living arrangements of men and women. Older women will more often form their own household. Men will have a slightly greater inclination to form new family households when young. Women tend to marry older men who die younger leaving them sole household members more often. Divorce and separation rates show similar trends for men and women despite the age differences in spouses. Mothers more often form the single-parent household than do separated or divorced fathers.

For the most part, gender differences by age are due to the timing of family formation and the differences in mortality rates. Women get married earlier to slightly older men and form single-person households later in life as their husbands die off. The differences are not particularly relevant to people preparing housing forecasts provided the behaviour and mortality rates stay constant over time. Headship rates for sex aggregated age groups can be calibrated to account for gender differences in household formation.

Differences in the aggregate behaviour may occur as a result of the changing economic circumstances of women. These changes will affect both men and women and evidence of the

differential impact of income increases can be discernible within the 1991 census data. The next part examines the differences due to different income expectations and asks questions regarding the connection among changing career opportunities, income expectations and family formation rates.

Table 8A presents the estimated coefficients for a number of sub-populations that correspond to a sequential binary decision process that starts with a person leaving home, deciding on family formation, having children and separating. Non-family people choose between living alone or in groups of unrelated people. Figures 4A through 4G illustrate the graphs developed by the regression summarized in Table 8B and show how the probabilities change in the income. These estimates were prepared for the four gender/city classes to allow a fair comparison of sex and city differences. Table 8C shows the parameter for the four different specifications of the income variables. Table 8D provides a breakdown of the effect of income for different age groups.

The proportion of people leaving home is a function of age as is illustrated by the first column in Table 8A. The coefficients show Toronto people tending to stay with their parents longer than similar people in Vancouver. A young person with a .50 probability of living at home in Vancouver would have a -.224 (.50) (1-.50)= -.056 lower chance of being independent should he or she live in Toronto. Slope differences for the age variable shows that changes in age have a greater effect for women but the difference decreases with age.

No systematic differences could be found for the expected earning variables. The separate regressions in Table 8B show a positive relationship for men and a negative one for women. Table 8C shows a positive relationship for men using the actual increase and indistinguishable results with the instrumental variables. The findings yield no conclusion as to the relationship between expected income and the propensity to leave home despite the theoretical reasons for believing that the young

FIGURE 4A

THE PROBABILITY A PERSON IS IN AN INDEPENDENT HOUSEHOLD
BY EXPECTED INCOME

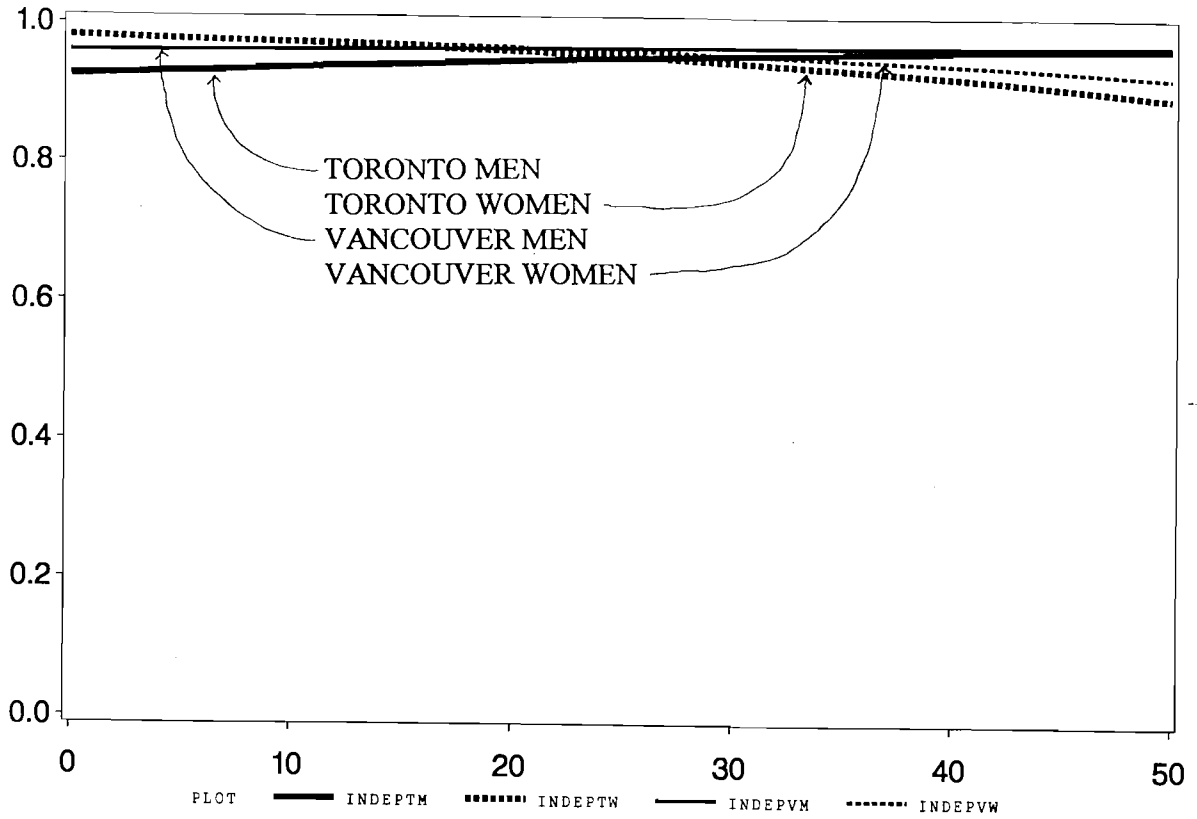


FIGURE 4B

THE PROBABILITY A PERSON IS LIVING ALONE BY EXPECTED INCOME

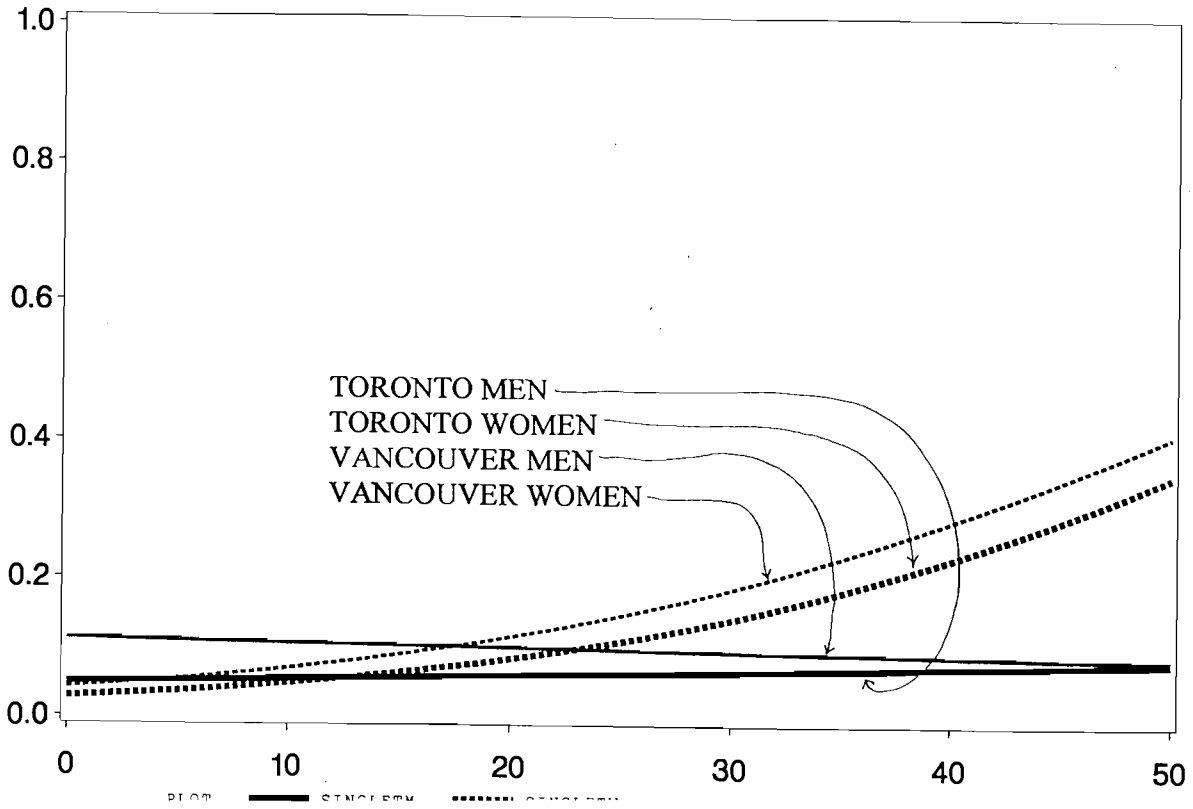


FIGURE 4C

THE PROBABILITY A PERSON IS IN A COUPLE OR COMMON-LAW RELATIONSHIP
BY EXPECTED INCOME

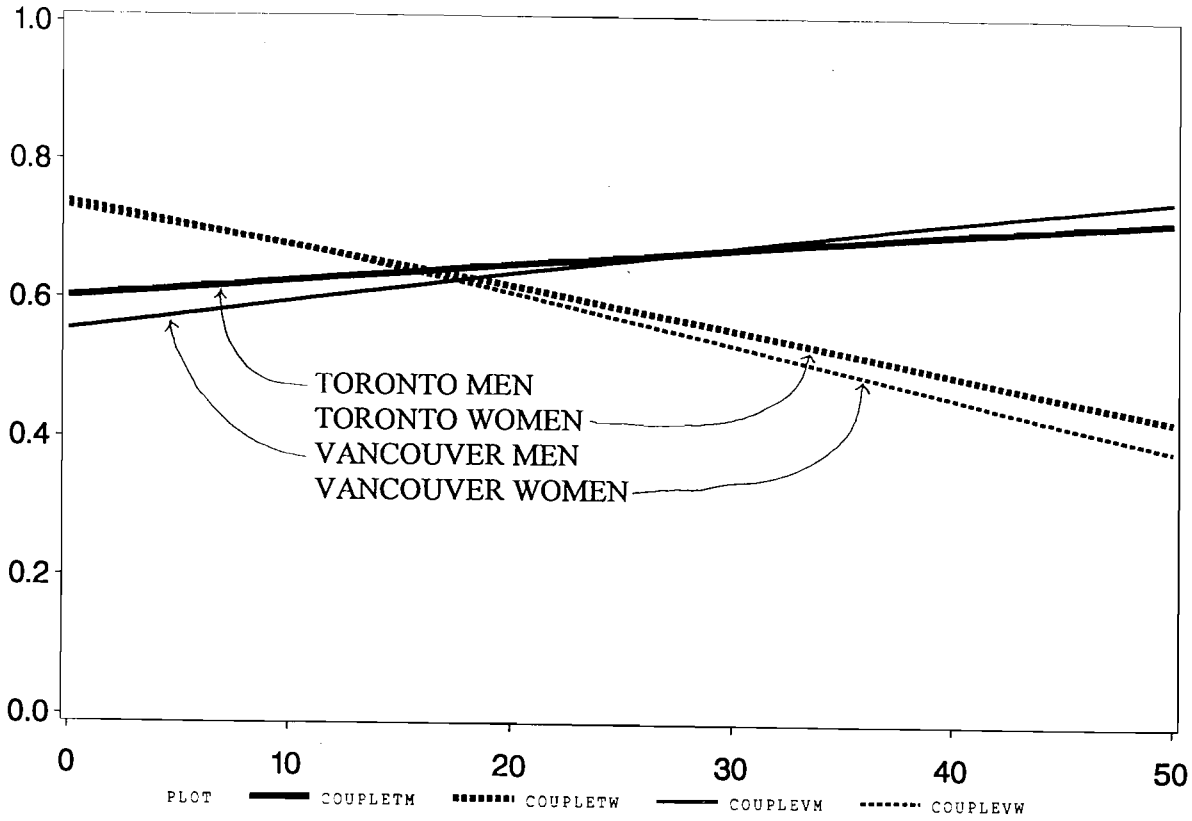


FIGURE 4D

THE PROBABILITY A PERSON IS IN A NON-FAMILY HOUSEHOLD
BY EXPECTED INCOME

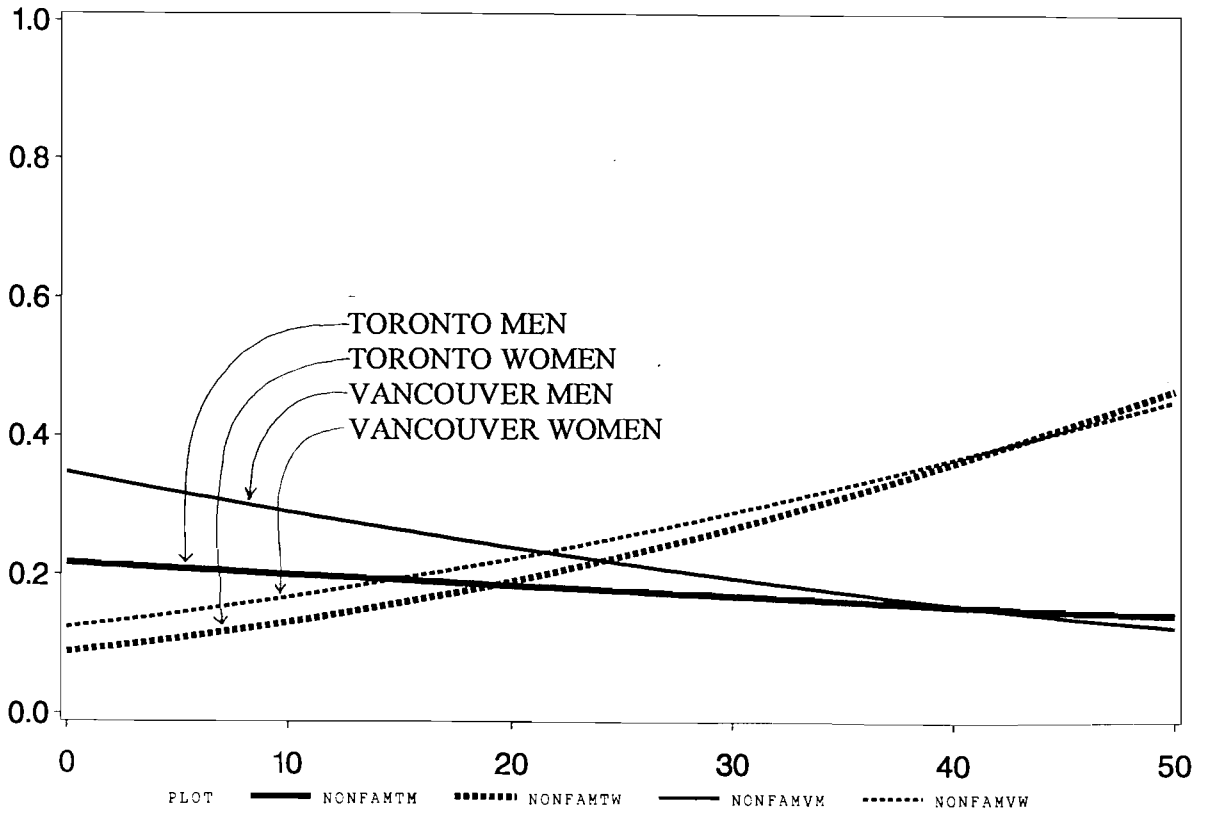


FIGURE 4Ea

THE PRESENCE OF A DEPENDANT CHILD BY EXPECTED INCOME

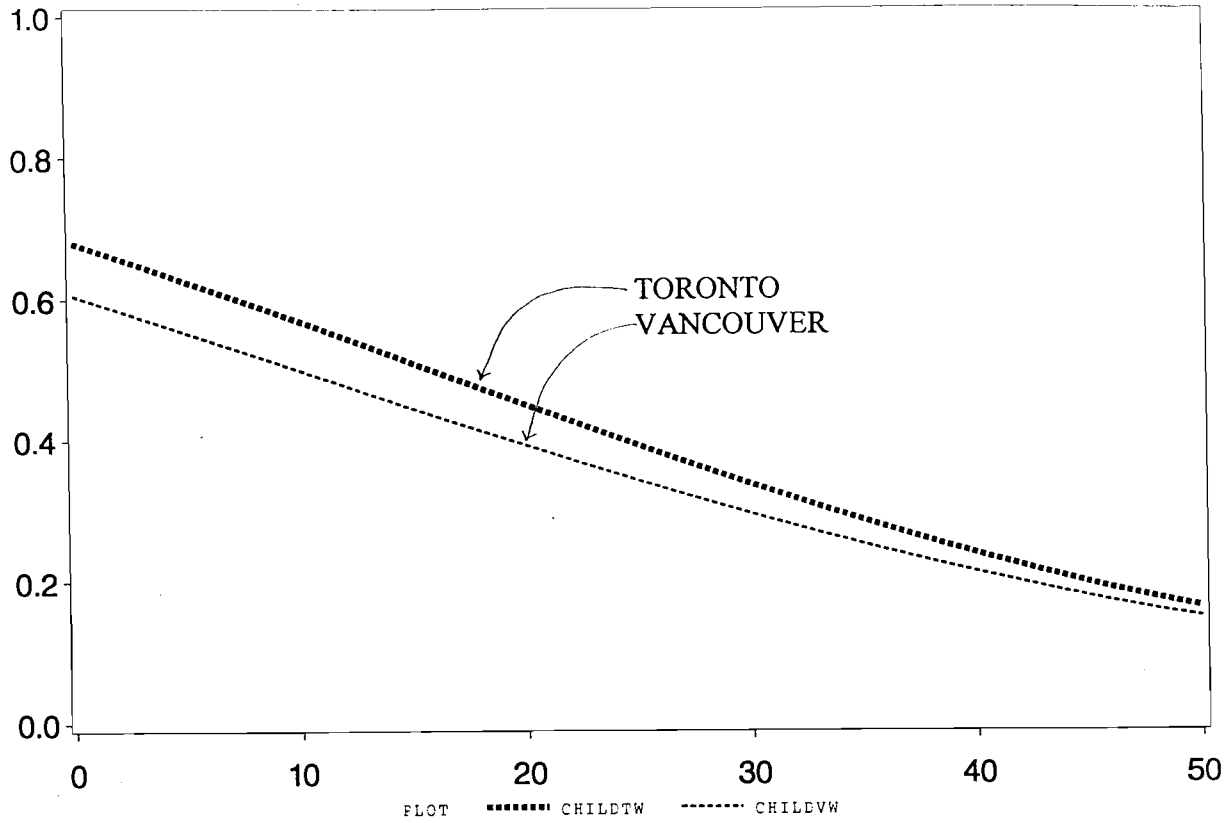


FIGURE 4Eb

THE NUMBER OF CHILDREN EVER BORN BY EXPECTED INCOME

FIGURE 4F

THE PROBABILITY A PERSON IS CURRENTLY SEPARATED OR DIVORCED BY EXPECTED INCOME

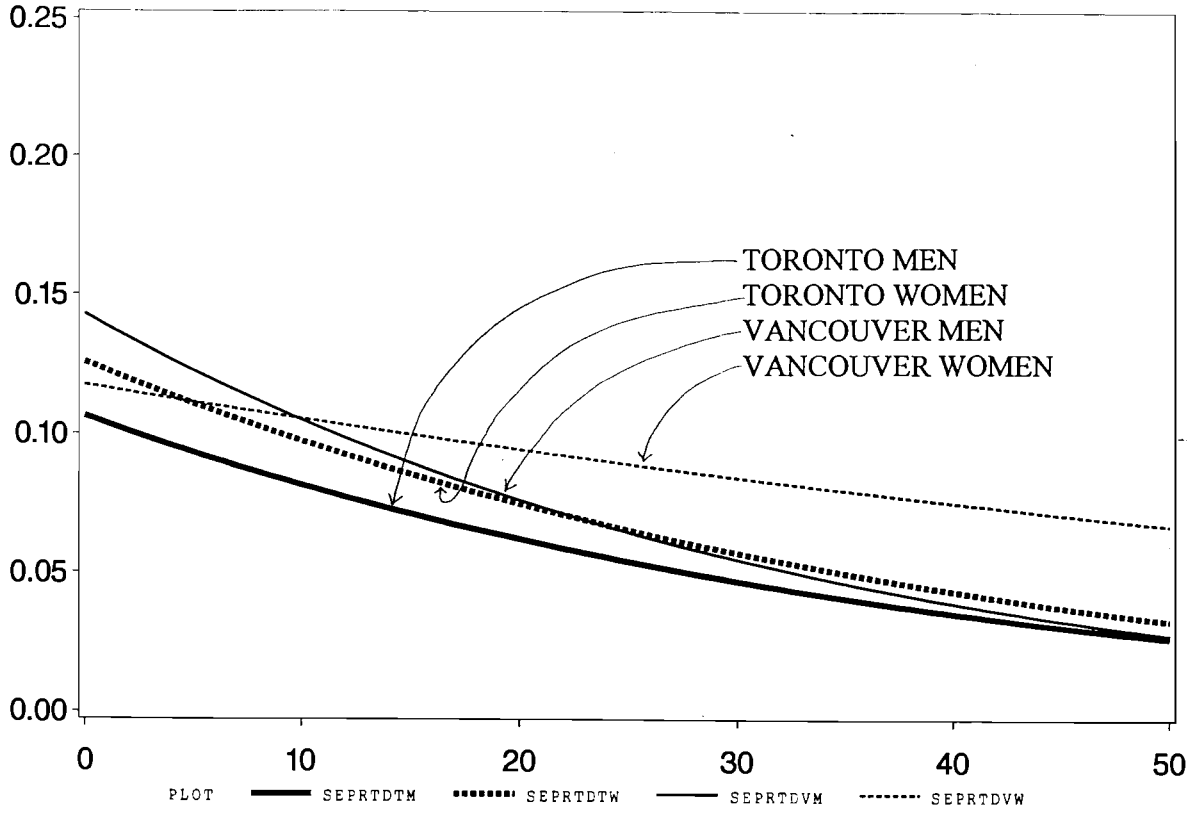


FIGURE 4G

THE PROBABILITY A PERSON IS A SINGLE PARENT BY EXPECTED INCOME

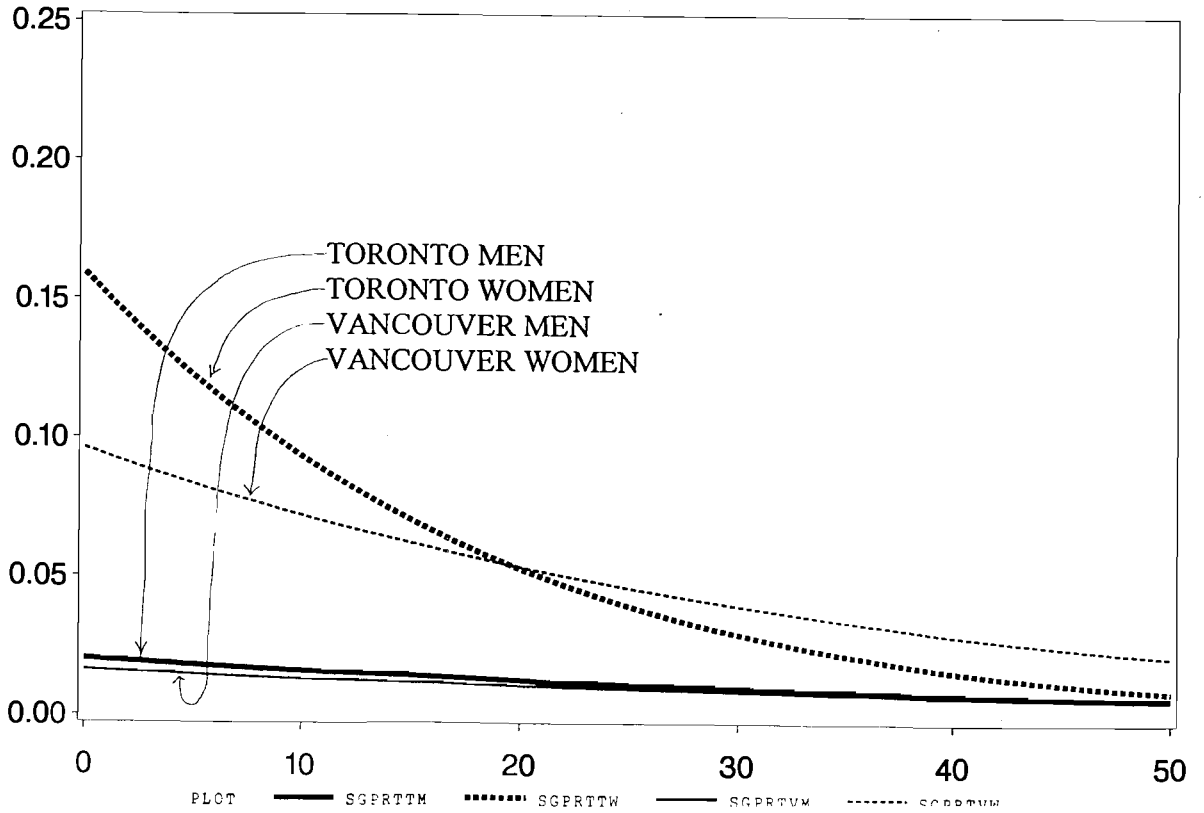
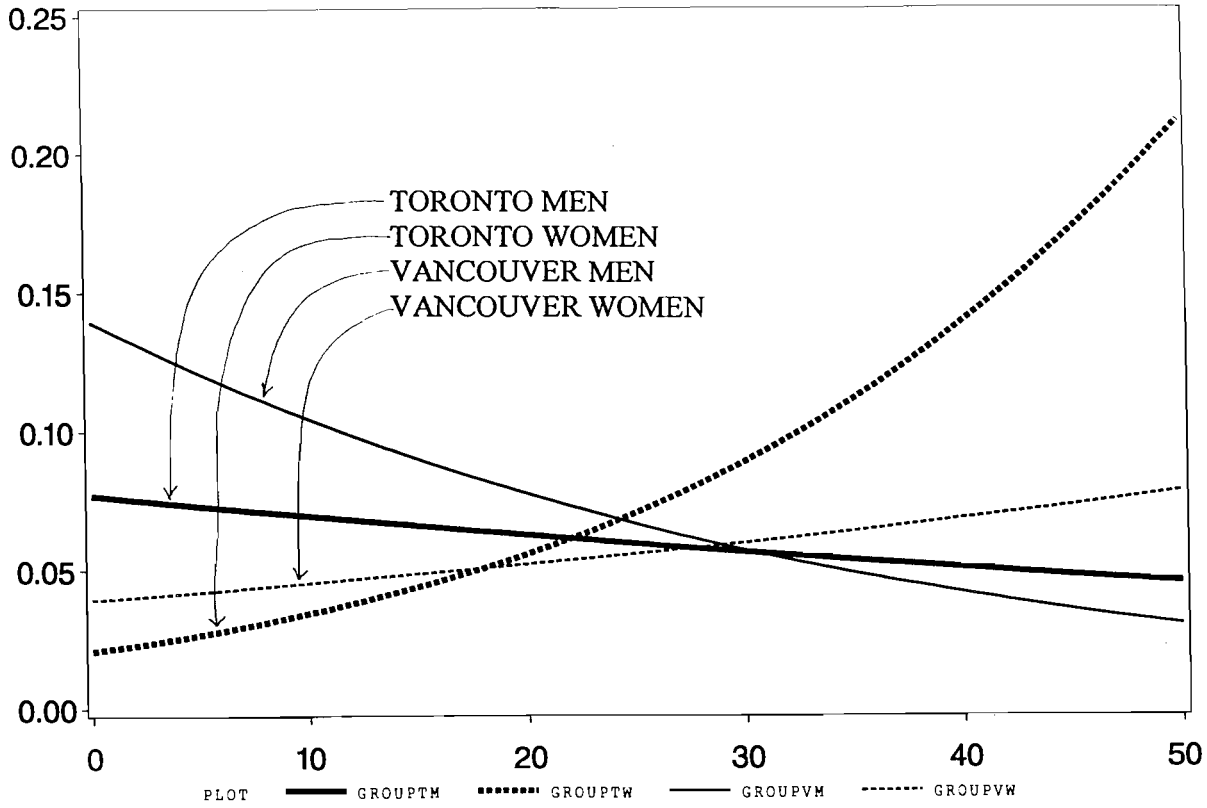


FIGURE 4H

THE PROBABILITY A PERSON IS IN A GROUP OF UNRELATED PEOPLE
BY EXPECTED INCOME



people who can earn the most will most want to gain independence from their parents.

Figure 4A illustrates the estimated relationship between expected income and independence. The inability to gain good estimates may be due to biases created by the omission of relevant data on the parents' home. Young people with higher income prospects may live in more affluent homes that are larger and more able to comfortably accommodate adult children. Further work with a data base that includes the parents' income and housing characteristics is needed before the leaving home event can be properly modelled.

The second column of Table 8A as well as the second set of numbers in Table 8B consider only the people who have left home and present parameters describing their probability of living in one-person households. The separate regression in Table 8B shows a small positive relationship for Toronto men, non-significant differences for Vancouver men and strong positive relationships between the expected earnings for women and their propensity to live alone. Table 8B shows that the actual income of single men is lower than that of men living in groups or with a spouse while the actual income of single women is higher. The two instrumental variables do not yield distinguishable non-zero coefficients for women. Figure 4B illustrates the relationships and shows the dramatic increase in the propensity of independent women to live alone when their income prospects grow. The estimated coefficient in Table 8A shows that a $10,000 increase in annual earnings will increase the proportion of women living alone from the average of 10 percent to 14.6 percent.[1] While changing income expectations do not affect the propensity of men that live alone, the changes for women will have repercussions that may induce changes in the nature of the relationships between men and women that, in turn, affect behaviour.

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[1] The probability is computed as follows: $10. * .10 * (1 - .10) x .0514 = .0463

Non-family formation follows a dramatic pattern as illustrated in Figure 4C. Income differences tend not to affect men very much while increases in income prospects are clearly associated with non-family household formation by women. The equations predicting the propensity to live with a spouse, married or common-law, illustrate a reversal in the effects of differences in income prospects for men and women as in Figure 4D. For men, increasing income prospects are associated with family formation but the opposite holds true for women. Table 8C shows that the differences associated with actual, rather than prospective, income is much larger for men but are about the same for women. A $10,000 increase in income for men increases their chance of living as a couple from 72 percent to 75.3 percent. For women, the same increase in income would decrease their chance of marriage or cohabitation by 2.8 percent. If both men and women would gain $10,000 in income there would be 75.3 percent of men and 69.2 percent of women wanting to form families. The housing analyst is left with the task of determining how the relationship between men and women will change to affect family formation rates. At equilibrium both rates have to be more or less the same.

The fifth column in Table 8A shows the propensity of women with or without a spouse, to have a dependent child living with them. All income variables and sub-populations yield the same strong conclusion: increasing income levels or income prospects for women reduce their propensity to have children. Figure 4Ea illustrates the relationship between the probability of having a child at home and a woman's income prospects while controlling for age and the other variables. Figure 4Eb shows how the number of children declines with income while controlling for age and the other

variables.[2] Changing the income expectations of women may or may not change family formation depending on how men and women adapt to the disequilibrium produced by shifts in economic power, but increases in income prospects and its associated attributes will reduce fertility rates and change the nature of the housing demanded by families.

Separation and divorce re-form households and increase headship rates while the former partners stay in one-person households. Income differences are expected to be related to the propensity to separate after a marital breakdown by giving people the financial ability to set up their own household. The findings presented in column 6 of Table 8A and illustrated in Figure 4F are the result of a logit regression using data on people who are either married or separated people. The vertical scale of Figures 4F and G are changed to help distinguish the graphs. The conclusions are consistent with the coefficients presented in the other three tables and point to the negative relationship between separation status and the income and the income prospects of the people involved. For women the observed relationship is much weaker when the earnings expectations without children (EYNK) is used in the regression. The expected earnings with children yields the same coefficient for men and women. The actual income of women who are separated or divorced is higher than the income of other women due to their need to support a household. Figure 4F illustrates the gradual drop in separation rates with income.

Single parenthood is negatively associated with income but here the relationship for men is weak while for women it is far more pronounced as illustrated in Figure 4G. While only 1.3 percent of women between 20 and 65 years of age have children without ever having been married, the

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[2] The marginal effect of increasing income expectations on fertility rates was expected to diminish with income. This is not the case as the income squared variable also yields a negative coefficient.

coefficient in column 8 of Table 8A shows a strong decline with expected earnings. Women with low income prospects have the greater chance of becoming unwed mothers but it is not clear as to the direction of causality and the degree to which the constructed income variable is exogenous. Young women who become pregnant may drop out of school and reduce their future income prospects. This would create endogeneity bias in the estimated parameter. The small size of this group reduces the magnitude of the bias.

Close to 36 percent of nonfamily households are formed by groups of unrelated people. Actual income was lower for households formed by groups but this may be due to the lower housing costs allowing people to choose more leisure time over work. The separate gender/city regressions in Table 8B confirm the negative relationship between expected earnings and group living among men to suggest that increases in income allow people the privacy they most value. The statistics and the graphs presented in Figure 4H show a strong positive association between income prospects and the tendency to form group households among women. This finding suggests that unmarried women with higher education levels and income prospects want to stay longer in non-family households and proportionally more share their dwellings with other unrelated women. The view that group households are formed because people cannot afford to live alone does not hold true for many women. How strong is the relationship? Table 8B shows that the odds for a Toronto woman living in a group is .06, i.e., she has a .06/94=.064 probability of living with unrelated others. This represents a .064/.277 = 23.1 percent of nonfamily women. A $10,000 increase in income prospects will increase the proportion of women living in a group to 9 percent, ceteris paribus. The change in proportion is the same as the decrease in the family formation rates of women. The increase in the proportion of women staying in nonfamily households will therefore not increase headships rates as

the alternative of shared accommodation increases by the same proportion.

CONCLUSION

Changing income prospects are likely to increase the rate by which young people leave their parents' home but this conclusion is not developed in this study due to the inability to specify a complete model with the available data. Increasing income prospects for women reduce their tendency to form family households and to have children. Fertility rates decrease with income and career orientation. The propensity to live in groups increases for women as their income prospects rise. The net effect is a relatively stable headship rate but a change in the type and location of housing demand. The nature of these changes is the subject of the next section of this report.

3

HOUSING CONSUMPTION

Introduction

Housing consumption can be described by the tenure choice of individuals and households, by their propensity to buy a condominium, by the amount they spend on rental housing or the value of the homes they own, and by the building type and centre city location of their dwelling. The tenure, expenditure, and building/type and location will be examined in sequence. The first part of this chapter describes the nature of housing demand and why gender differences are expected. The general approach is discussed before presenting the findings.

The Expectation of Differences in Demand

A person's demand for a good or service is a function of their preferences and income. It is a function of the price of the goods or services and the price of other goods or services. In this study of housing demand, price effects can be ignored due to the one period that is examined. Major differences between Vancouver and Toronto can be easily accounted for by a categorical variable. The analysis focuses on the extent to which tenure and expenditure decisions vary with income and how they differ across household types and gender.

Gender differences in housing consumption may arise due to differences in the relative importance attached to the dwelling as a result of the manner in which it is used, in the need for local neighbourhood ties, and in the symbolic value attached to the home. Women may rely more on their housing purchases to present an image of themselves than the men who may consider their car to be an important symbol. Differences in the mobility of single people will affect their tenure choice; views

of the permanence of their family status will affect their propensity to buy a house or condominium. Ability to borrow funds affects tenure decisions. The variability of income, the distinction between permanent and transitory income, affect tenure choice and housing expenditure decisions. Wealth, inheritance, endowments affect the ability to buy a house. The extent of other expenditure commitments, for the support of children, for example, can vary across households and affect their ability to buy a house. Past tenure decisions and the accumulation of wealth through the building of equity during inflationary periods determine present tenure. Liquidity needs and the ease of borrowing affect the ability to invest and the chance the household will use its savings for a downpayment.

Within the homeownership option, the choice of condominium over freehold tenure is determined in part by the need for space and by locational preferences. The value of the safety offered by condominiums and freedom from maintenance may differ for men and women. The demand for single-family suburban housing may vary as this form is often cited by women's studies scholars as an expression of male-dominated family structure that should go with emancipation.

Housing expenditures may differ for men and women as a result of their income level and as a result of the expected permanence of their future income. Housing decisions involve long-term commitments to monthly expenditures as a result of high transaction costs. Home purchases are affected by the expected income stream over many years that is often disrupted for women by the arrival of children. Whereas the household formation analysis distinguished between actual and prospective income, housing consumption is determined only by actual income and wealth but it is affected differently by permanent and transitory income.

In summary, the demand for homeownership for men and women may differ as a result of

differences in: tenure history, wealth and endowments, income level, income variation, liquidity needs, access to finance, value of homeownership per se, expected household stability, mobility, maintenance concerns.

The choice of condominium over freehold tenure may differ due to differences in: the preference for inner-city location, the valued safety attribute, freedom from maintenance, degree of permanence of single status.

The amount of housing purchased and the expenditure to income ratio may differ for men and women due to differences in: income levels, variation in income levels over time, preference for housing relative to other goods and services.

The preference for building type and central locations may differ as a result of differences in: the use of the home, the need for local support services and neighbourhood contacts, the location of work.

The Approach

The regression models used to examine housing consumption are similar to those used in the household formation analysis. Ethnic, cultural and life-cycle stages affect housing consumption and household formation. The variables are included in the logit and ordinary least squares regressions relating housing consumption to the gender, household type and income level of the occupants. City differences are identified. Household size and type are relevant and differences are accounted for by including categorical variables in the regressions using all cases and by estimating the models separately for each major category of household type.

The identification of gender differences in housing consumption is straightforward for people

living alone, or for groups of people of the same sex, or for single parents. The tenure or housing expenditures variable is regressed against the control variables and a categorical variable identifying one of the sexes. Variables identifying household type show major differences across groups. Separate variables are also entered identifying the women of each household type to search for intercept differences. Income of each individual is entered along with a variable describing the income of women. This variable is set to zero for men and its coefficient shows how tenure or having expenditures differ for women. By including the women's income as an interaction term, a single t-test can be used to assess the probability that the observed difference is not due to random fluctuations in the data.

With couples, the housing consumption of the male and female partners is the same and no interaction term is included. Household consumption may vary with differences in the relative incomes of the partners. The income of the female partner may be discounted when making long-term housing decisions. Alternatively, the women's income may be used primarily for housing while the male partner assures financial responsibility for general expenditures. The income of couples is specified with three variables. A variable INC identifies the income of both partners and a variable WINC lists the female partner's earnings when the observation in the PUMF individual file is for the female member of the couple and takes the value of zero when the observation is for the male partner. The household's income is given in the Individual PUMF file as a 26 valued variable that is converted back to a ratio scale. The difference between personal and household income OTHER is entered as a control variable for the other partner's income and its parameter will present the general effect of the income difference due to the partner and other contributors in the household. The estimated parameter for the variable INC describes the contribution of male partners income to the tenure or

expenditure decision while holding constant for his partner's earnings. The coefficient for WINC describes the differences in the effect of the individual's income when the individual is a woman while controlling for the effect of the spouses and other contributor's income. The relevant parameter describing the effect of the women's earnings is the sum of the parameters for INC and WINC. Since the effects of permanent and transitory income may differ, the income variables are entered as the permanent and transitory income PINC and TINC for either partners and PWINC and TWINC for the female partner.

The household file presents less information on the individuals and precludes the construction of the permanent and transitory income categories. The file does list each member's income separately and the models were estimated with these data developed parameters that were similar in magnitude to those gained with a much larger individual file. This file allows the identification of the primary household maintainer in the case of couples and the data were used to develop graphs illustrating tenure differences of men and women heads of households. The building type and central location analysis is possible only with the household file.

Homeownership: All Households

The logistic regression results using the PUMF data on individuals in Toronto and Vancouver between 20 and 64 years of age who have left their parents' home are presented in Table 9.[1] The housing consumption is described in terms of tenure, condominium ownership, rent paid, rent/income and owner's major monthly payment to income ratios. The regressions with all cases present an

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[1] Household with zero income and individuals with income less than -1000 were excluded.

overview that can show how tenure and housing expenditure vary across household types and the sex of the household maintainer within single, group or single-parent households. The base for the equation is a childless couple, white, born in Canada and living in Vancouver. The coefficients that differ from zero at the .01 probability level are listed along with their associated odds ratios.

The first two columns of Table 9 describe the contribution of the variables to the probability the person is a homeowner rather than a renter. The full regression using the permanent and transitory distinction is presented. The two parameters for regressions using the TOTINCP variable and the interaction variable WINC = FEMALE*TOTINCP are listed to show the overall income effects. These parameters were also estimated using the complete model.

The proportion of individuals in the "yes" category is listed along with the odds of finding a person in the "yes" category. The first column in Table 9 shows that a person who has left home and is between 20 and 64 years of age has a .626 probability of being a homeowner. The odds ratio shows that a person drawn at random has 1.676 compared to 1 chance of being a homeowner.

The estimated parameter for the categoricial variable TORONTO yields a coefficient .2549. This shows that the probability that a group of people who would have a 60 percent chance of being homeowners in Vancouver have a -.2549*(.60)(1-.60) = -.0612 lower chance of being homeowners should they live in Toronto. A person with a 60 percent chance of being a homeowner in Vancouver would have a 53.9 percent chance of having this status in Toronto. A person with a 60 percent chance of being a homeowner in Vancouver has an odds ratio of .60/.40 = 1.5 suggesting that a random draw from a subset of people with the same characteristics living in Vancouver would yield a homeowner 1.5 times as often as a renter. The estimated odds ratio for Toronto shows that a similar person has a 1.50*.775 = 1.163 chance of being a homeowner rather than a renter. This

TABLE 9

HOMEOWNERSHIP PROBABILITIES

	ALL HOUSEHOLDS		NON-FAMILY		COUPLES		SINGLE PARENTS	
VARIABLES	PARAMETER	ODDS	PARAMETER	ODDS	PARAMETER	ODDS	PARAMETER	ODDS
INTERCPT	-4.038	0.018	-4.903	0.007	-4.316	0.013	-4.434	0.012
TOR	-0.254	0.775	-0.188	0.829	-0.279	0.757	-0.349	0.705
AGEP	0.066	1.068	0.099	1.104	0.072	1.075	ns	ns
AGESQ	ns	ns	-0.049	0.952	ns	ns	ne	ne
BLACK	-0.637	0.529	ns	ns	-0.631	0.532	-1.171	0.310
CHINESE	1.219	3.383	1.346	3.842	1.265	3.545	0.992	2.697
MED	1.248	3.484	0.702	2.019	1.361	3.902	1.220	3.388
VISMN	-0.101	0.904	ne	ne	-0.121	0.886	ne	ne
IMMIG	0.232	1.261	ns	ns	0.208	1.231	0.606	1.833
IMMIG25	-0.310	0.734	-0.260	0.771	-0.283	0.754	-0.375	0.687
NONEF	-0.302	0.739	ne	ne	-0.325	0.723	-0.388	0.679
PIMM4	-0.583	0.558	ne	ne	-0.661	0.516	-0.684	0.505
PIMM5	-0.374	0.688	ne	ne	-0.506	0.603	ne	ne
SINGLE	-0.780	0.459	ne	ne	ne	ne	ne	ne
GROUP	-0.865	0.421	0.619	1.857	ne	ne	ne	ne
SPARENT	-0.428	0.652	ne	ne	ne	ne	ne	ne
SINGLEF	ns	ns	ne	ne	ne	ne	ne	ne
GROUPF	-0.279	0.757	-0.113	0.893	ne	ne	ne	ne
SPARENTF	-0.315	0.730	ne	ne	ne	ne	ne	ne
CHILD	0.448	1.566	ne	ne	0.527	1.693	ne	ne
UNITSP	0.173	1.189	-0.207	0.813	0.167	1.181	0.334	1.396
FEMALE	ne	ne	ne	ne	ne	ne	-0.968	0.380
OTHERY	0.021	1.022	0.016	ne	0.022	1.022	0.021	1.021
PINC	0.031	1.031	0.025	1.025	0.034	1.034	0.030	1.030
PWINC	0.017	1.017	ns	ns	0.019	1.019	0.045	1.046
TINC	0.024	1.024	0.022	1.023	0.026	1.026	0.027	1.027
TWINC	-0.003	0.997	0.005	1.005	-0.008	0.992	ne	ne
MEAN/ODDS	.626	1.676	.279	.387	.726	2.647	.421	.728
GAMMA	.672		.508		.608		.664	
n-cases	91,004		16,268		65,796		4,974	
TOTINCP	.022	1.022	.023	1.023	.022	1.025	.025	1.025
WINC	.005	1.005	ns	ns	.003	1.003	.018	1.018

ne indicates variable was not entered in the regression

ns indicates that the estimated coefficient was not different from zero at .02 probability

translates to the probability a member from this group owns their home in Toronto as 1.163/2.163 = .538.

The first equation shows homeownership increasing with age at a more or less constant rate as the coefficient for the age square variable is not distinguishable from zero. Black people have a much lower chance of attaining homeownership even after accounting for differences in household type, immigration status, date of arrival, and income level. The people of Chinese and Mediterranean origin have partial odds ratios of 3.383 and 3.484 indicating that a random draw from this population would select an owner 3.383*1.676 = 5.839 times more often than a renter. Immigrants who have lived in the country for a long period of time have a higher propensity to own homes, while most recent immigrants are renters.

Single people, people living in groups of unrelated people, and single parents have a lower chance of owning their home than couples after accounting for their individual income levels, immigration status and age. Young people are often more mobile and many may find the high transaction costs associated with homeownership as an impediment. They may not have saved the needed downpayment. They may not want to invest in the upkeep and maintenance of a dwelling. They have half (.459) the chance of being homeowners compared to the base population that consists of childless couples.

The next three variables identify single women, group women and female single-parents in the attempt to identify intercept differences showing how their tenure status might differ from that of their male counterparts after controlling for the effects of income differences. The results show that single women and single men have about the same propensity to be homeowners. However, women living in groups and women single-parents are less often homeowners than their male counterparts

as illustrated by the estimated odds ratios of .757 and .730. Given that the odds ratio of the base population is 1.676, the odds for men living in groups is 1.676*.459 = .769 and for women the ratio drops by another factor: .769*.757 = .582. Men living in non-family groups have a .434 probability of being homeowners compared to .368 for women.

The comparison of group and single-person households has to recognize the effect of increasing the number of people in the household. Single people have partial odds ratios of .459 compared to .421 for groups. But if the group has two people in it, then the comparison of ratios for single people and group households is equal to .421*1.189 = .501. Accounting for the effect of increases in the number of people shows that people living in groups are more often homeowners than people living alone but the difference is small. Still, they are homeowners .501/1.676 = .299 as often as a similar person who is married or living common-law. Single-parent households have a lower chance of being homeowners by a ratio of .652 and women single-parents have a still lower chance by a factor of .730 after accounting for income differences.

The income variables show the importance of permanent income relative to transitive income. With every $1,000 increase in permanent income, the odds of becoming a homeowner go up by 1.031; a $10,000 increase in income raises the odds by $1.031^{10} = 1.357$. For women the increase is more pronounced: every $1,000 increase in a woman's salary raises her chance of being a homeowner by 1.031*1.017 = 1.049. A $10,000 increase raises her odds by $1.049^{10} = 1.606$. If a woman had a 50 percent chance of being a homeowner before the raise then she has a 61.6 percent chance after the $10,000 raise. Permanent earnings have more than 1.5 times the effect on a woman's propensity to buy a house as they do for a man.

The effect of transitory income on the home purchase decision is less pronounced. For each

$1,000 dollars increase in transitory income, the odds ratio changes by a factor of 1.024 for men. Women differ in that their transitory income contributes 10 percent less to the purchase decision and the difference is statistically significant at the .0038 probability level.

The findings are consistent with the view that a woman's "transitory" income in less permanent than a man's. The following sections present the analysis for each set of household types: non-family, couples and single parents. Figure 5A illustrates the estimated coefficients presented in Table 8. Figure 5A.HH presents regressions showing homeownership as a function of the income of the primary household maintainer and uses the household file data that distinguish between male and female primary maintainers. The range of the graphs is set by the mean income for the group plus and minus one standard deviation.

Homeownership: Non-Family Households

Non-family households have lower ownership rates than couples or single parents as expected; 27.9 percent of this group own their homes. The second set of columns in Table 9 shows how the demographic and income variables affect the tenure choice of people living alone or with other unrelated people. People living with other relatives are included in the base along with one-person male households. As before, a smaller proportion of Toronto residents own their homes and homeownership increases with age but at a decreasing rate as is illustrated by the negative coefficient on the age square variable. People living in two-person groups have a 1.857*.813 = 1.510 greater odds ratio suggesting that this census category includes quite stable households. Increases in the

FIGURE 5A

HOMEOWNERSHIP RATES BY INCOME FOR COUPLES, SINGLE PARENTS AND SINGLE PERSON HOUSEHOLDS

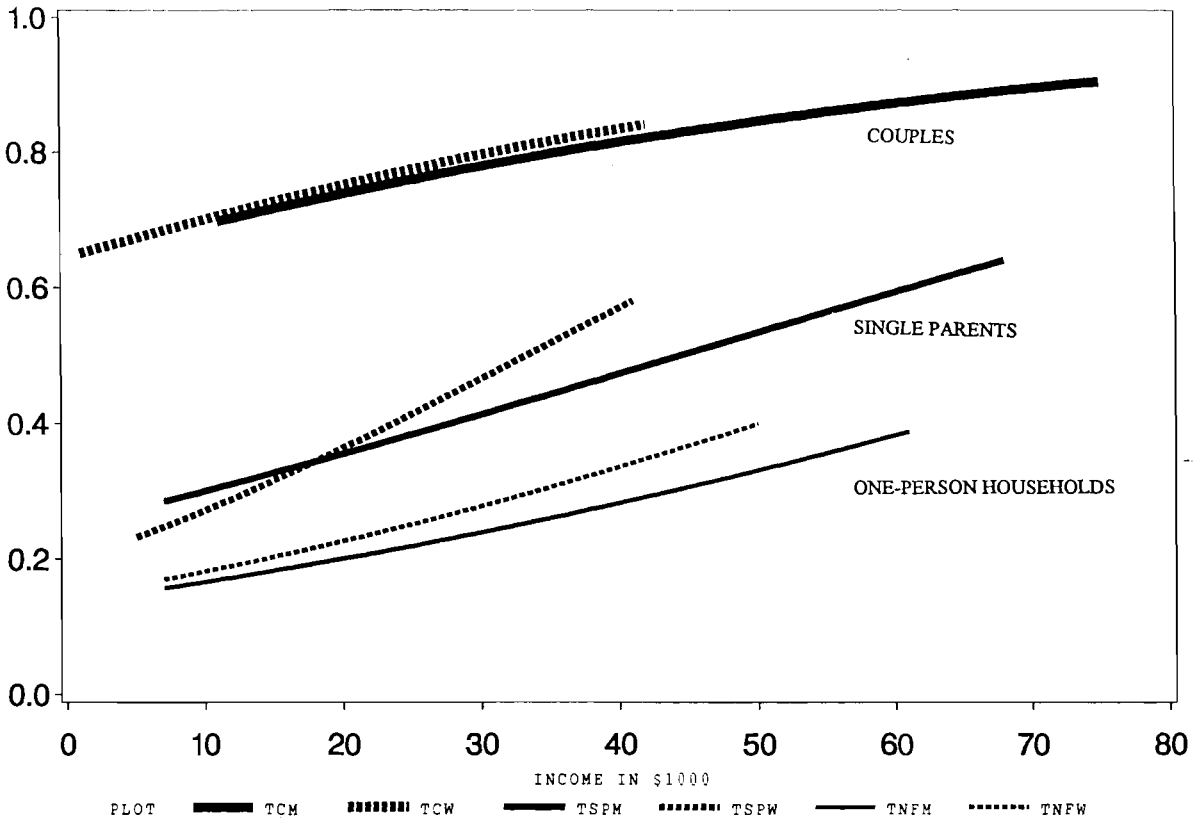


FIGURE 5A-HH

HOMEOWNERSHIP RATES BY INCOME USING THE HOUSEHOLD FILE DATA

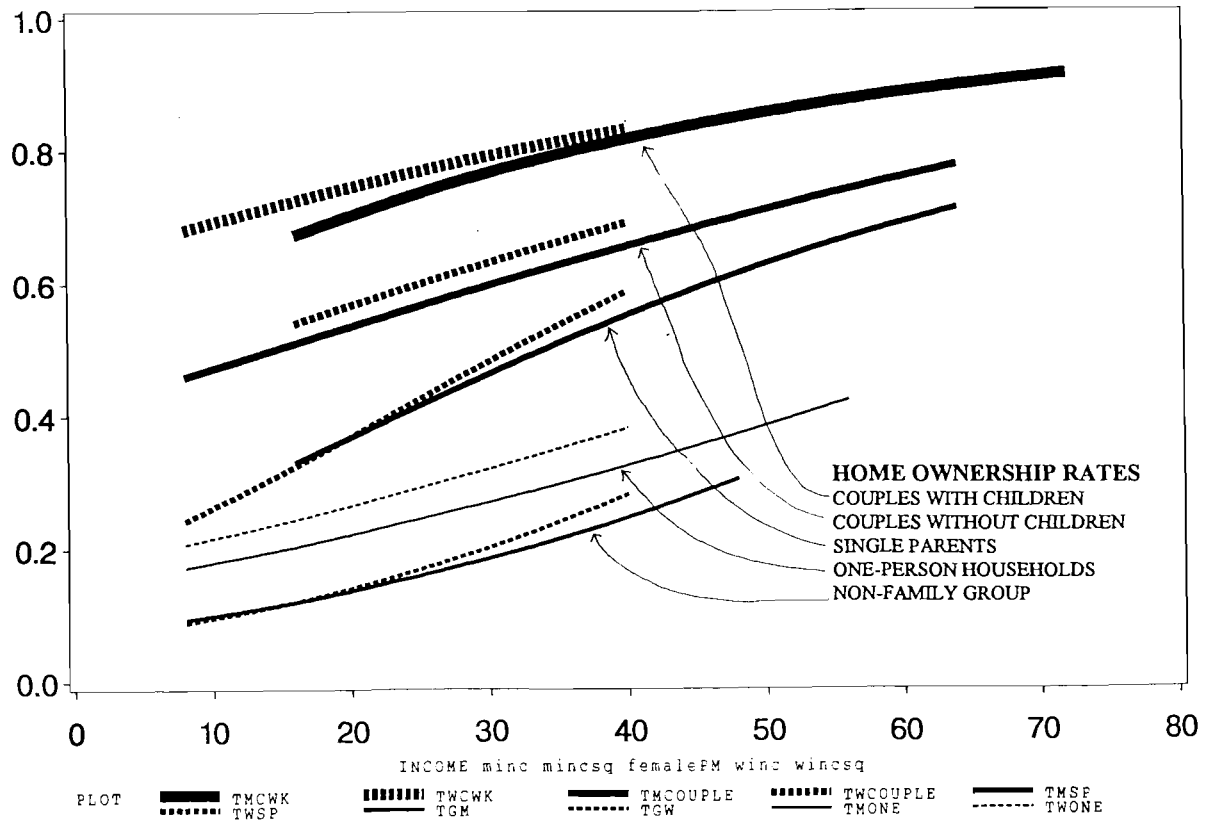
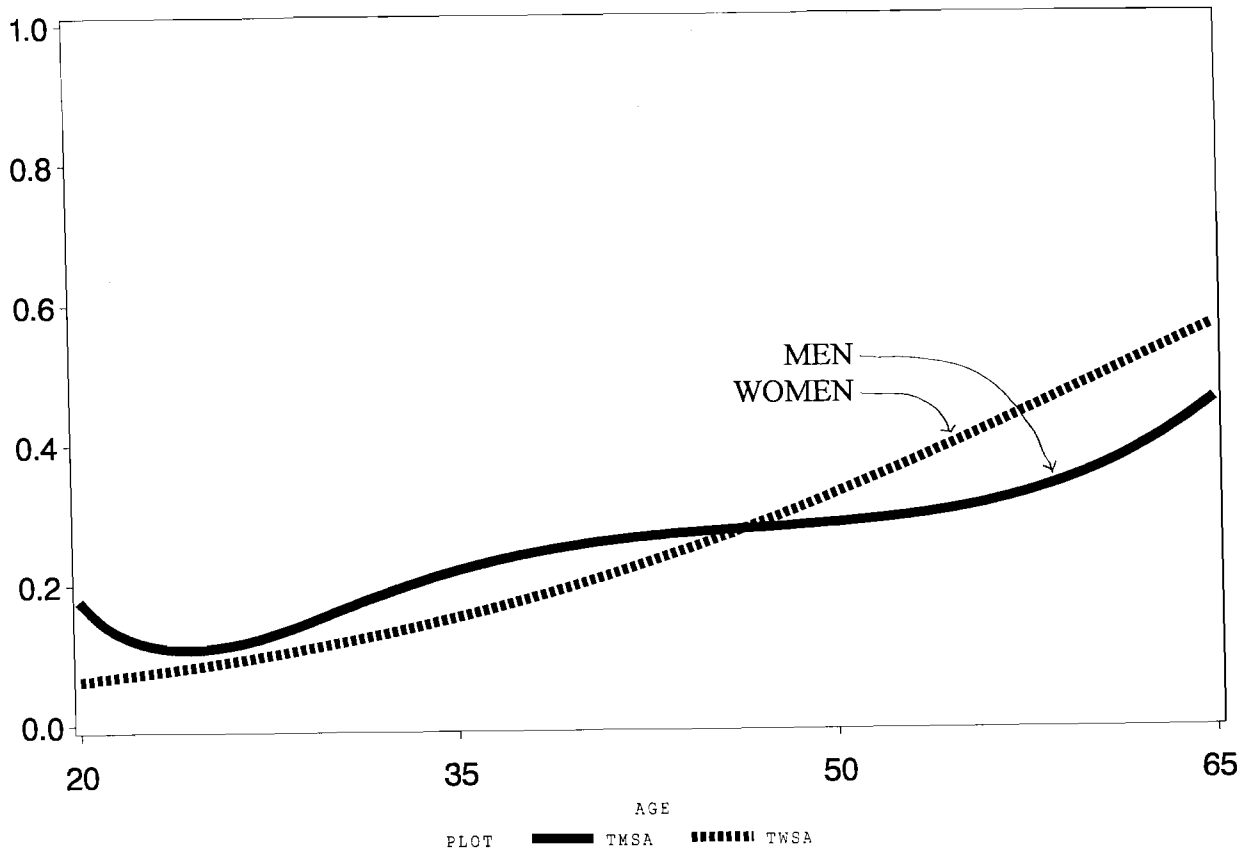


FIGURE 5B

HOMEOWNERSHIP RATES FOR ONE-PERSON HOUSEHOLDS



number of people in a group reduces their chance of ownership by a factor of .813 per person.[2]

Homeownership increases with income level at the same rate it does for the combined households described in the first two columns. Indeed, throughout this analysis, the effects of income differences are very similar. Overall, no difference between the effect of income on tenure could be discerned for men and women. Changes in transitory income, however, have a slightly more acute effect on tenure choice of non-family women. Single women have the same propensity to be homeowners as single men. Women in groups have a lower chance of owning their home. To examine the gender differences more closely separate spline functions in age were included in regressions using only data on single-person households and they were run separately for men and women. Table 5B presents the estimated graphs and shows the intertwining of the rates. The differences are not statistically significant.

Of the 16,268 people living in non-family households, 11,045 have never been married. Regressions were run using this subset to avoid the possibility that the home was purchased with the joint income of previous spouses. The results suggest that single women have a slightly lower chance of being homeowners than men, but the effect of the permanent and transitory income on their propensity to buy a house is no different. When examining all non-family people under 45 years of age, no gender differences are discernible for any of the variables. Overall, single women and men appear to have similar preferences for owning a home and the same access to homeownership. The Table 9 coefficients show that increases in earnings prospects increase the homeownership rate for both sexes.

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[2] These results suggest that two-person group households may be formed by couples that have not yet declared their "common-law" status.

Homeownership: Couples

The third pair of columns in Table 9 show the logit regression results using data on couples only. As each couple is formed by a man and woman, the focus is on the difference in how men's and women's income is considered in the home purchase decision. The coefficients for the control variables support the findings developed in the last section. Blacks and other visible minorities have much lower chances of being homeowners even after controlling for differences in income levels. Recent immigrants tend to be renters. Larger households and couples with children are much more often homeowners as expected.

The personal income of the male partner increases the odds of homeownership by a factor of 1.022 per $1,000 increase. The woman's income raise these odds by another factor of 1.003. If a couple has a 50 percent chance of being a homeowner, then a $10,000 increase in the man's earnings will increase the homeownership odds by $1.022^{10} = 1.243$ and the probability of homeownership is 55.4 percent. A similar increase in the woman's income raises the odds to $(1.022*1.003)^{10} = 1.280$ and raises the probability of ownership to 56.2 percent. The breakdown by permanent and transitory income shows even larger gender differences. When the permanent income increases to $10,000 the odds for the male partner increase to $(1.0338^{10}) = 1.394$ or 58.2 percent. For the female, the permanent income change yields odds of $(1.0339*1.0190)^{10} = 1.685$ and an increase in the probability of owning a home from 50 percent to 62.7 percent. Increases in transitory income also increase the homeownership rates for couples. Increases in the transitory income of the female partner, however, have a smaller effect on their tenure status than does a similar increase in the male partner's transitory income. The woman's "transitory" income may be more variable than the man's and may therefore be discounted in tenure decisions. The woman's transitory income may

be seen as less permanent or less stable than that of the male partners. All of the estimated coefficients for the four income variables were different from zero at the .0001 level.

Out of the 65, 796 couples in Toronto and Vancouver, 3,332 (or 5.06 percent) have never been married and are living in a common-law relationship. The regressions run for this group yield coefficients similar to those in Table 9 but with a much lower accuracy due to the smaller sample. The permanent income variable for women was different from zero at the .0248 level and the temporary income for women was not statistically distinguishable from zero. The main permanent and transitory income variable, however, differs from zero at the .0001 level and shows the similarity of the common-law and married couples' behaviour. The coefficients for under-45 year-old couples are very close to those for all couples indicating that major changes in the preference for homeownership are not occurring over time.

Homeownership: Single Parents

Divorce or separation often leads to the sale of the family home. While over 80 percent of couples with children own their homes, 42.1 percent of single parents are homeowners and single mothers are less often homeowners than single fathers when their income is low. Income effects are remarkably different for the two sexes. The propensity to own a home by single fathers increases with income at the same rate as for men living in a two-parent family. The effect of permanent income on the homeownership of single-parent women is one and a half times greater. One explanation of the difference may be due to single mothers devoting proportionally more of their pay increases toward the purchase of a home. Another explanation may be due to the relationship between the mother's higher income and their previous spouse's income and the household's ability

to maintain ownership of the home for the raising of the child. Regressions using people who are currently separated or divorced, but not necessarily single parents, yield coefficients remarkably similar to those for single parents.[3] The coefficients in Table 9 show that men and women single partners have exactly the same chance of being homeowners when they earn (.9679 / .0447) * $1,000 = $21,653. This is a little below the mean income for single-parent women. Above this income level, single-parent women are more often homeowners while below this level proportionally more single fathers are homeowners. Figures 5A and 5A-HH show single parents have a lower chance of being homeowners compared to couples (with two incomes) but a higher chance than most non-family people.

Single partners under 45 years of age are no different than the larger group except for the higher propensity to use income increases toward the purchase of a home. Increases in the permanent income of single mothers have twice the effect they have on fathers' chances of homeownership. Transitory income has the same effect for both. The data on unwed mothers are too small to yield interesting results with this method of analysis.

Homeownerships: Conclusions

The study of non-family households shows that men and women have similiar preferences for homeownership. For both, homeownership rates increase with permanent and transitory income. Single women tend to use more of their transitory income toward a home purchase. Proportionally

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[3] 30 percent are single parents, 22 percent live-in couples and half of these have children. 59.4 percent of currently separated or divorced people are women. Within this group women have a .562 odds ratio for homeownership indicating that separation and divorce lends to the sale of the home perhaps 1 in 3 times. Divorced or separated women who are not living with a man have a partial odds ratio of .486.

fewer non-family women who form groups own their homes less often than the men who live in groups of unrelated people. For couples, increases in the permanent income expectations of the female member will have a stronger effect on homeownership than similar increases for men. A larger part of the extra household income brought in by women goes toward the purchase of the home.

Condominium: All Cases

A person's ability and interest in becoming a homeowner may depend on the availability of condominiums. This option offers the ability to buy a much smaller dwelling than the traditional single-family house. Condominiums can be located in the inner city, trading higher densities for access to urban amenities. Condominium lifestyles, the freedom from maintenance and increased security may be valued differently by women and men and the findings are presented in Table 10 and illustrated in Figure 5C.

Of all homeowners in Vancouver and Toronto, 11.5 percent live in condominiums. The odds of selecting a random homeowner and finding him or her to have selected a condominium is .13 to 1. Other coefficients show that Toronto and Vancouver have the same proportion of condominium owners. Condominium occupancy by homeowners decreases at first with age but then rapidly increases along a parabolic curve suggesting a bimodal age distribution within this sector. Caribbean, African and Chinese origin homeowners have a considerably higher propensity to select a condominium than their white counterparts. Immigrants tend to select condominiums more often than other homeowners. Single people living by themselves select a condominium 1.010 times more often than a freehold option when the effect of the other factors are accounted for. Groups are no different from couples without children. Single parents, however, have a partial odds ratio 1.111

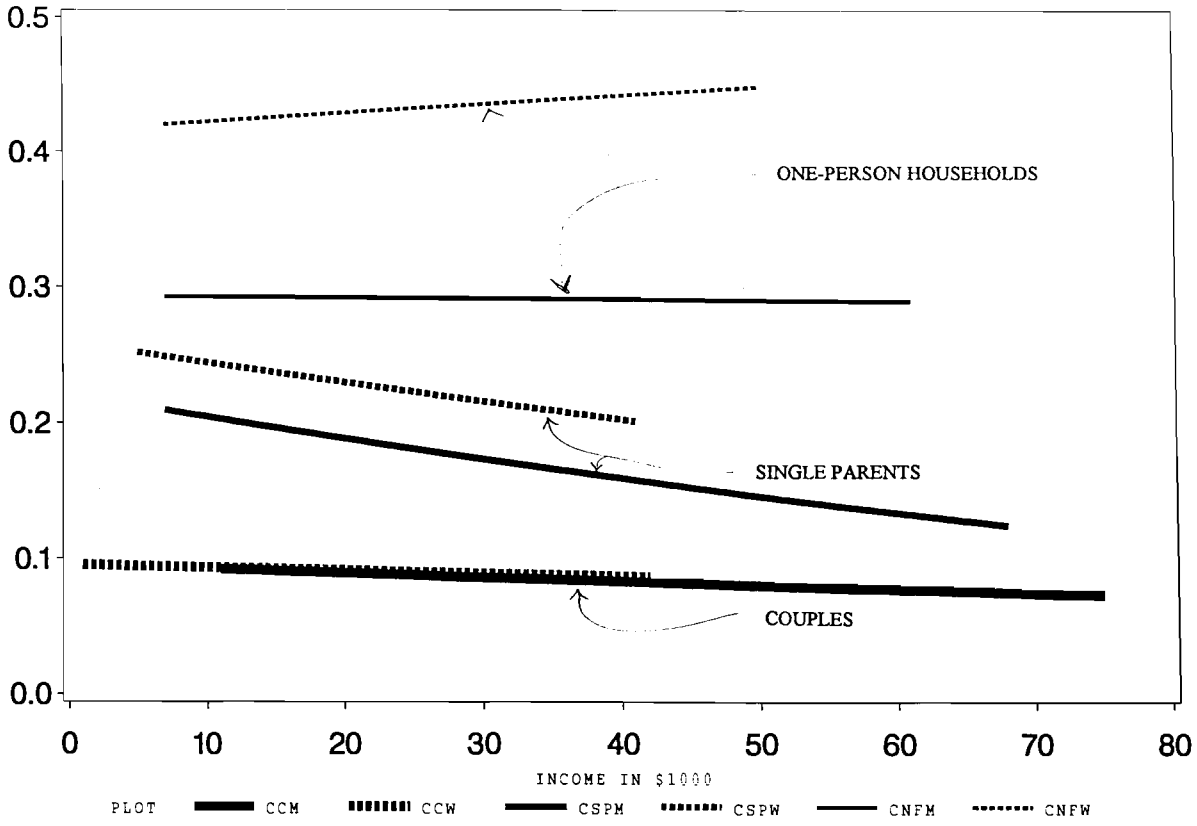
TABLE 10

CONDOMINIUM PURCHASES BY HOMEOWNERS

	ALL CASES		NON-FAMILY		COUPLES		SINGLE PARENTS	
VARIABLES	**PARAMETER**	**ODDS**	**PARAMETER**	**ODDS**	**PARAMETER**	**ODDS**	**PARAMETER**	**ODDS**
INTERCPT	1.409	4.093	1.019	2.770	2.366	0.658	ns	ns
TOR	ns	ns	-0.503	0.605	ne	ne	ns	ns
AGEP	-0.081	0.922	ns	ns	-0.127	0.881	ns	ns
AGESQ	0.072	1.075	ns	ns	0.124	1.132	ns	ns
BLACK	0.571	1.769	ns	ns	0.562	1.754	0.674	1.962
CHINESE	0.282	1.325	0.460	1.585	0.281	1.325	ns	ns
MED	-0.636	0.529	ne	ns	-0.701	0.496	-0.679	0.507
VISMN	0.516	1.676	0.575	1.777	0.562	1.753	ns	ns
IMMIG	ns	ns	ne	ne	ns	ns	ns	ns
IMMIG25	0.228	1.256	ne	ne	0.245	1.278	ns	ns
NONEF	0.137	1.146	ne	ne	ns	ns	ns	ns
PIMM4	0.656	1.926	ne	ne	0.733	2.081	ns	ns
PIMM5	0.523	1.687	ne	ne	0.475	1.608	ns	ns
SINGLE	0.476	1.610	ne	ne	ne	ne	ne	ne
GROUP	ns	ns	ne	ne	ne	ne	ne	ne
SPARENT	0.105	1.111	ne	ne	ne	ne	ne	ne
SINGLEF	0.480	1.617	ne	ne	ne	ne	ne	ne
GROUPF	ns	ns	-0.511	0.600	ne	ne	ne	ne
SPARENTF	ns	ns	ns	ne	ne	ne	ne	ne
CHILD	-0.499	0.607	ne	ne	-0.605	0.546	ne	ne
UNITSP	-0.394	0.674	-0.504	0.604	-0.356	0.700	-.289	.749
FEMALE	ne	ne	0.769	2.157	ne	ne	ns	ns
OTHERY	-0.004	0.996	ns	ns	-0.003	0.997	-.012	.989
PINC	ns	ns	0.018	1.018	ns	ns	ns	ns
PWINC	ns	ns	ns	ns	ns	ns	ns	ns
TINC	-0.006	0.994	ns	ns	-0.007	0.993	ns	ns
TWINC	0.006	1.006	ns	ns	0.007	1.007	ns	ns
MEAN/ODDS	.115	.130	.336	.505	.092		.189	.233
GAMMA	.509		.386		.459		.327	
n-cases	56,784		4,525		47,584		2,092	
TOTINCP	-.003	.997	ns	ns	-0.004	.996	ns	ns
WINC	ns	ns	ns	ns	ns	ns	ns	ns

FIGURE 5C

CONDOMINIUM PURCHASES BY INCOME FOR COUPLES, SINGLE PARENTS AND SINGLE PERSON HOMEOWNERS



greater than couples without children. Single women yield a remarkable interaction coefficient showing that their odds ratio is 1.617 higher than that of single men. A single woman has an odds ratio of 1.610*1.617 = 2.603 favouring a condominium purchase. Households with dependent children living at home strongly favour freehold over the condominium tenure and housing options.

Permanent income has no overall effect on the choice between freehold and condominium tenure, for men or women, suggesting that there is not a clear identification of this sector with the income level of its occupants. Transitory income, however, reduces the chance that the man selects a condominium: for each $1,000 increase in transitory income, the odds ratio for a condominium purchase decreases by a factor of .984. The interaction term TWINC yields a coefficient of slightly larger size but of opposite sign to cancel the effect found for men. The overall findings suggest that men use their transitory income to help buy freehold housing while women do not.

Condominium: Non-Family

Non-family homeowners have a three times higher chance of occupying a condominium unit than couples. Women show a strong preference for condominiums with partial odds ratios of 2.157. If a non-family male homeowner with a particular set of characteristics has a 30 percent chance of owning a condominium, then a woman with the same characteristics would have a 46.1 percent chance of occupying a condominium. The under-45 year-old women have an even higher chance of owning a condominium with their partial odds ratios of 2.751 that was estimated using separate regressions. The never-married women have odds ratios of 2.494.

A permanent income variable yields a positive coefficient of .0177 which is different from zero at the .0001 probability level. No other income variables could yield a non-zero coefficient, not even

the total personal income variable in the separate regression. As permanent income increases the proportion of homebuyers who select condominiums increases. This finding is consistent for the under 45 year-olds and the never-married people. Condominiums offer a "superior" service over freehold options to non-family households. The increase in the proportion of the population that forms non-family households will reduce homeownership rates but it will have less of an effect for the condominium sector.

Condominiums: Couples

Only 9.2 percent of homeowning couples with or without children occupy condominiums. The presence of children reduces this proportion to 4.25 percent. As income increases the chance the couple buys a home goes up but their chance of selecting a condominium decreases. The breakdown of income into the permanent and transitory components, however, yields a small negative coefficient for the permanent income variable that is different from zero (.003) at the .0644 probability level and is therefore not included in Table 10. The permanent income of women has the same effect as that of men but transitory income variables yield solid coefficients that differ from zero at the .0001 level. As the transitory income of men increases, the couple is less likely to select a condominium. As the transitory income of the female partner increases, the couple's propensity to buy a condominium remains unchanged. Women appear to have a preference for condominium options. Young couples, men and women, try to buy houses not condominiums.

Estimates using the data on people under 45 years of age show clearly that the permanent income of men and women is positively associated with freehold tenure, with the women's income having an even greater effect on the couple's decision to buy a house. Men's transitory income has

a strong negative association with freehold tenure while the interaction term for women under 45 years of age shows that their transitory income has no effect in the condominium/freehold choice.

Condominiums: Single Parents

A larger proportion (18.9 percent) of single-parent homeowners than couples occupies condominium units and no gender differences are discerned. Blacks tend to favour condominiums, while people of Chinese origin are no different from others. Other visible minority homeowners tend to stay away from condominiums. Larger households tend to occupy freehold houses. Single-parent homeowners with larger amounts of money from "other" than personal sources tend to live in freehold dwellings rather than condominiums.

Conclusions

Condominiums appear to offer attractive housing options to two distinct groups. Both men and women non-family households often consider condominiums a superior option to the traditional single-family housing available with freehold tenure. The non-family person propensity to buy a condominium increases with income equally for men and women. Couples with higher income increases have a lower propensity to buy a condominium and single parents show no systematic relationship between condominium purchases and income.

Increases in the income of non-family households increase homeownership odds by a factor of 1.023 while increases in permanent income increase their propensity to select a condominium by 1.018. Each $1,000 increase in income of non-family people will increase the odds the person buys a condominium by 1.041. Female non-family households have twice (2.157) the odds of buying a

condominium than a male equivalent. The condominium sector is expected to grow with the increase in the proportion of non-family households.

Housing Expenditures: All Households

Table 11 presents the ordinary least squares regressions of monthly gross income and Table 12 presents regressions using the data in the household file to show how the respondents assess the value of their home.[4] The rent statistics show no inner-city differences in the size of rents in 1990 despite Toronto having had rent controls since 1973 while Vancouver dropped its controls in 1980. Blacks tend to spend an average of $30 less on rent than whites. Recent immigrants spend much more: a person arriving in Canada in 1990 spends $94.63 more each month compared to other renters with the same household and income characteristics. The differences may be due to the immigrants paying current market rents while others may, by virtue of their longer tenancy, have had fewer rent increases. It may be due to restricted search patterns and limited knowledge of options. The immediacy of the immigrants' need to find housing may force them to accept one of the first available options. Rental purchases increase by $40.07 for each additional person in the household. Single-people households spend $38.00 less than couples after accounting for the different household sizes. Groups spend $73.70 more than couples and $101.70 more than singles after accounting for differences in household size.

The rental expenditure of women is lower for singles, groups and single parents at lower

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[4] The individual PUMF truncates the value of the home at $200,000 and is of little use in the study of Vancouver and Toronto even in 1990. The household file shows a broader range but does not have sufficient detail on individuals to allow the distinction of permanent and transitory income.

TABLE 11

PARAMETER ESTIMATES FOR MONTHLY GROSS RENT TO HOUSEHOLD INCOME

VARIABLES	ALL HOUSEHOLDS	NON-FAMILY	COUPLES	SINGLE PARENTS
INTERCPT	551.918	528.291	507.996	447.358
TOR	ns	13.700	-11.159	-38.198
AGEP	-4.907	-8.341	ns	ns
AGESQ	3.914	6.451	ns	ns
BLACK	-29.084	ns	ns	-79.898
CHINESE	ns	ns	ns	ns
MED	ns	ns	ns	ns
VISMN	ns	ns	ns	ns
IMMIG	ns	ns	ns	ns
IMMIG25	-13.492	ns	-18.562	ns
NONEF	-54.845	-60.358	-51.523	-61.846
PIMM4	24.213	ns	37.208	ns
PIMM5	94.628	50.685	105.091	180.258
SINGLE	-38.001	ne	ne	ne
GROUP	73.702	92.526	ne	ne
SPARENT	ns	ne	ne	ne
SINGLEF	-41.042	ne	ne	ne
GROUPF	-36.552	ns	ne	ne
SPARENTF	-64.053	ne	ne	ne
CHILD	ns	ne	29.775	ne
UNITSP	40.070	63.887	28.082	47.136
OTHERSY	1.755	1.139	1.867	2.332
PINC	4.552	5.921	4.015	7.002
PWINC	2.366	ne	2.027	-2.63*
TINC	2.094	2.981	1.680	1.263
TWINC	0.524	0.647	ns	3.322
MEAN/ODDS	703.55	654.95	736.54	650.27
r-squared	.225	.3417	.129	.1872
n-cases	33,953	11,718	17,999	2,875
TOTINCP	2.46	3.358	2.00	2.10
WINC	.58	.609	ns	3.12

ne indicates variable was not entered in the regression

ns indicates that the estimated coefficient was not different from zero at .02 probability level

TABLE 12

HOMEOWNERS ASSESSMENT OF THEIR VALUE OF THEIR DWELLING

VARIABLE	ALL HOUSEHOLDS	NON-FAMILY	COUPLES	SINGLE PARENTS
INTERCEP	43.834	100.543	ns	ns
TOR	24.973	42.598	21.910	21.673
HMAG	3.631	1.315	4.974	2.648
HMAGESQ	-2.534	ns	-3.801	ns
EUROPEAN	ns	ns	ns	ns
ASIAN	ns	ns	ns	ns
OTHERIMG	-7.755	ns	-8.639	ns
IMMIG4	ns	ns	ns	ns
NONEF	18.651	10.542	19.786	21.350
GROUP	21.052	23.637	ne	ne
SPARENT	ns	ne	ne	ne
FEMALE	6.850	ne	ne	ne
SINGLEF	ns	ne	ne	ne
GROUPF	ns	ns	ne	ne
SPARENTF	ns	ne	ne	ne
CHILD	ns	ne	4.925	ne
HHSIZE	7.851	ns	7.315	9.965
OTHERY	0.159	ns	ns	ns
INC	0.848	0.713	0.849	0.969
WINC	ns	0.342	ns	ns
MEAN	257.848	218.372	266.961	245.590
R-SQUARE	.1629	.1104	.1557	.1151
n-cases	34,503	4,956	26,300	2,155

ne not entered in the regression
ns estimated coefficient is not different from zero at the .02 probability level.

income levels. Each $1,000 increase in permanent income leads men to spend $4.55 a month more on rent while the same amount would cause women to spend $6.92 on rent. The effect of transitory income is less than half that of permanent income, as is expected, for both men and women but a larger proportion of the transitory income of women is spent on rent. Housing decisions are influenced more by long-run income expectations than by short-term gains and women increase their expenditure on housing with income at a higher rate than men. Single women earning over $17,336 a year spend more on rental accommodation than men.

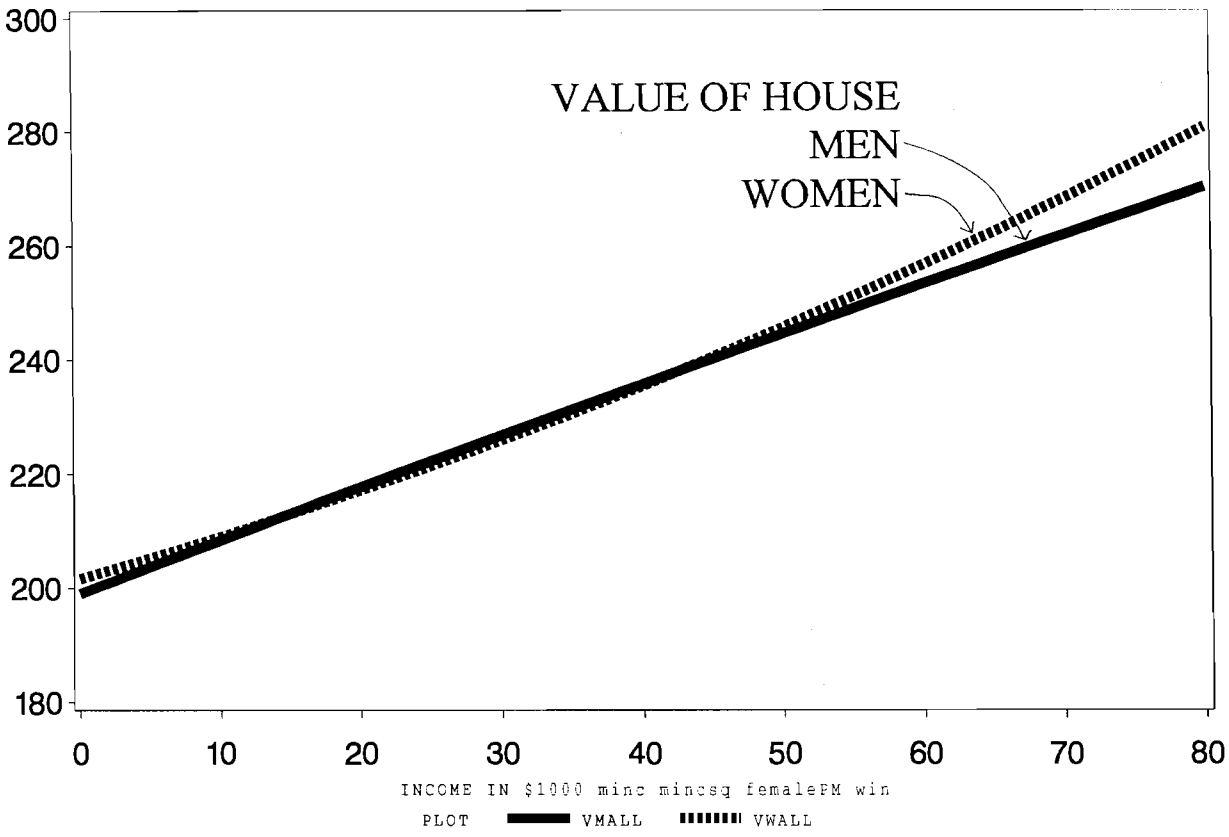
The regression using value of dwellings as the dependent variable shows that the 1991 Toronto homeowners thought that their houses were, on average, worth $24,973 more than did their Vancouver counterparts. People living in groups thought their houses were worth $21,052 more than others. Households with women as the primary maintainer had houses worth $6,850 more than households with a man as the primary maintainer. Income is strongly associated with house value; each $1,000 increase in income is related to an $848 increase in the value of the house. No discernible difference is found between the effects of men's and women's income. Figure 5D presents the graphs showing the change in house value with income for men and women primary maintainers that were developed by using the household data. The graphs clearly show the absence of a systematic gender difference.

Housing Expenditures: Non-Family

Whereas the average rent for all renters is $703.55, non-family households pay an average of $654.95 and Toronto non-family people pay $13.70 a month more than their Vancouver counterparts. Recent immigrants pay $50.69 a month more than other non-family households. Increases in

FIGURE 5D

VALUE OF HOUSE BY INCOME FOR MEN AND WOMEN
PRIMARY HOUSEHOLD MAINTAINERS



permanent income result in a $5.92 per $1,000 rise in rental expenditures for both men and women. Transitory income has half the effect, and a larger amount of women's transitory income goes toward rent. Similar coefficients were obtained for the under-45 year-old sub-sample showing that expenditure patterns are quite constant over age.

Whereas the average value of the houses in Toronto and Vancouver was thought to be $257,848 in 1991, the value of houses occupied by non-family people was $218,372. Toronto house values were $42,598 higher than Vancouver's for this group. As before, the value of a house is correlated with income and goes up by $713 per $1,000 income increase. For women the value of the house goes up by $1,067 per $1,000 increase in income. Although the intercept term for women ($-11,527) was statistically distinguishable from zero at only the .0238 level, the slope coefficient shows that women earning under $32,458 a year tend to have lower house prices.

Housing Expenditures: Couples

Couples occupy higher than average priced rental housing and recent immigrants pay the most within this sub-population as well. The relationship between permanent income and rents is less pronounced than it is for non-family people as each $1,000 in the male partner's permanent income raises rental purchases by $4.01 per month. Proportionally larger amounts of the female partner's income is used for housing: each $1,000 difference in annual income is associated with a $6.03 increase in rents. Transitory income has a smaller effect and no gender differences can be discerned. Similar coefficients were estimated for couples under 45 years of age. The value of owner-occupied dwellings increases by $849 with each $1,000 increase in income but no gender differences are identifiable.

Housing Expenditures: Single Parents

Single parents pay an average of $650.27 month in rent. Single-parent immigrants pay $180.26 more than other single parents. Women and men pay about the same after accounting for the effects of income. Women use larger proportions of their income increases on rent than do single-parent men. The value of the house of single mothers and fathers is about the same. House values increase with income at a high rate ($969 for each $1,000 in income) and mothers may increase their housing purchases with their income at a slightly faster rate.

Housing Expenditures: Conclusions

The amount of housing people buy as indicated by gross rents and the owners' assessment of the value of their house shows a consistent difference for men and women at lower income levels. At low incomes women tend to spend less on housing but at higher levels they spend more. Increases in women's income will lead to larger outlays for housing than similar increases in men's income. Increases in the income of women will lead to even larger increases in housing expenditures.

Expenditure Effort: All Households

The proportion of income spent on housing is a measure of the relative importance the household attaches to housing as opposed to other goods and services as well as an indicator of possible affordability problems created by the shortage of less expensive dwellings. The average rent to income ratio was .2414 in 1990 for the Vancouver and Toronto populations. It is considerably higher for recent immigrants (.3109) as indicated in Table 13. Single people spend a larger share of their income on housing than couples. Single-parent men spend the same proportion as couples but

single-parent women spend more (.2759). The proportion decreases with income at a rate of .0036 for every $1,000 of income. It decreases faster with women's income.

A homeowner's major monthly payment for mortgages and taxes reflects the size of its housing purchase as well as the amount of time it has had to build up equity and pay off their mortgage. Table 14 shows homeowners spending, on average, 15.3 percent of their income on monthly payments. Many of the people included in this average will have paid off their mortgage. Single people and single parents spend proportionally more. Single mothers spend no more than single fathers. Women living alone in their own homes spend proportionally more than the men who live alone. The housing expenditures decrease with income, permanent income has the same effect for men and women but the ratio declines faster with increases in women's transitory income. Figures 5E and F plot the relationships between expenditure to household income ratios against total personal income for the three types of households considered in the following paragraphs.

Expenditure Effort: Non-Family

Among non-family people, women spend proportionally more of their income on rental housing than do men, but their proportion declines faster with increases in income. At the $30,544 income level, both men and women spend the same proportion on housing. Above this level, women spend less but this conclusion might not hold as the true relationship between housing expenditure and income may be non-linear. Non-family people under 45 years of age have similar expenditure patterns with the exception that the rent to income ratio declines faster with increases in transitory rather than in permanent income. This is expected as housing decisions are based primarily on permanent income. An increase in transitory income will be seen as a fortuitous event and reduce the

TABLE 13

RENT TO HOUSEHOLD INCOME RATIOS

VARIABLES	ALL HOUSEHOLDS	NON-FAMILY	COUPLES	SINGLE PARENTS
INTERCPT	0.447	0.510	0.388	0.470
TOR	-0.011	-0.013	-0.008	-0.020
AGEP	-0.005	-0.006	-0.003	-0.006*
AGESQ	0.005	0.007	0.004	ns
BLACK	ns	ns	ns	ns
CHINESE	ns	ns	ns	ns
MED	ns	ns	ns	-0.023*
VISMN	ns	ns	ns	0.029
IMMIG	ns	ns	ns	0.017*
IMMIG25	-0.010	-0.015	-0.017	ns
NONEF	ns	ns	ns	ns
PIMM4	0.009	ns	0.020	ns
PIMM5	0.061	0.056	0.084	ns
SINGLE	0.017	ne	ne	ne
GROUP	0.026	-0.008	ne	ne
SPARENT	ns	ne	ne	ne
SINGLEF	ns	ne	ne	ne
GROUPF	ns	ns	ne	ne
SPARENTF	0.035	ne	ne	ne
CHILD	ns	ne	0.008	ne
UNITSP	0.011	0.016	0.008	-0.005
FEMALE	ne	0.042	ne	0.140
OTHERSY	-0.003	-0.003	-0.003	-0.005
PINC	-0.003	-0.003	-0.002	-0.004
PWINC	ns	-0.001	0.001	-0.004
TINC	-0.004	-0.004	-0.003	-0.003
WINC	-0.001	-0.002	-0.001	ns
MEAN	.2414	.2646	.2168	.321
r-squared	.4144	.4013	.4144	.3790
n-cases	32,485	11,141	17,430	2,587
TOTINCP	-.0036	-.0042	-.0030	-.0035
WINC	-.0009	-.0016	-.002	-.0033

ne indicates variable was not entered in the regression

ns indicates that the estimated coefficient was not different from zero at .02 probability level

TABLE 14

OWNERS MAJOR MONTHLY PAYMENT TO HOUSEHOLD INCOME RATIOS

VARIABLES	ALL HOUSEHOLDS	NON-FAMILY	COUPLES	SINGLE PARENTS
INTERCPT	0.317	0.298	0.338	0.312
TOR	0.013	0.031	0.011	0.022
AGEP	ns	ns	-0.002	ns
AGESQ	-0.002	-0.005	ns	ns
BLACK	0.022	0.047	0.020	ns
CHINESE	ns	ns	ns	ns
MED	-0.018	ns	-0.017	-0.023*
VISMN	0.017	ns	0.017	0.029
IMMIG	ns	ns	ns	0.017*
IMMIG25	0.014	ns	0.014	ns
NONEF	ns	ns	ns	ns
PIMM4	0.014	ns	0.018	ns
PIMM5	0.036	ns	0.047	ns
SINGLE	0.020	ne	ne	ne
GROUP	ns	-0.045	ne	ne
SPARENT	0.013	ne	ne	ne
SINGLEF	0.023	ne	ns	ne
GROUPF	ns	ns	ne	ne
SPARENTF	ns	ne	ne	ne
CHILD	0.004	ns	ne	ne
UNITSP	0.001	ns	0.002	ns
FEMALE	ne	0.062	ne	0.052
OTHERY	-0.002	-0.002	-0.002	-0.003
PINC	-0.001	-0.002	-0.001	-0.001
PWINC	ns	-0.001	ns	-0.001
TINC	-0.001	-0.002	-0.001	-0.002
TWINC	-0.001	-0.001	-0.000	-0.001
MEAN	.1534	.1945	.1485	.1908
r-squared	.3795	.3205	.3882	.3772
n-cases	56,007	4,392	47,034	2,020
TOTINCP	-.0014	-.0019	-.0014	-.0017
WINC	-.0003	-.0013	-.0002	-.0011

ne indicates variable was not entered in the regression

ns indicates that the estimated coefficient was not different from zero at .02 prob. level

* ns different from zero at .02 level

expenditure to income ratio for that year.

Homeowners show similar patterns with most women spending a larger share of their income on their monthly payments but the rate declines faster with increases in income level. At $41,664, proportions are the same for men and women. The coefficients for the transitory and permanent income are similar suggesting that non-family homebuyers do not distinguish between their permanent and transitory income. Similar results were obtained for the under-45 non-family people despite their having had less opportunity to pay off their mortage.

Expenditure Effort: Couples

Couples spend the smallest proportion of their household income on housing, 21.7 percent for renters and 14.9 percent for homeowners, and this is clearly illustrated in Figure 5E. Renters with children have slightly higher rates than couples without children but no difference was found for homeowners. The ratio declines with permanent and transitory income. It declines less with a woman's permanent income and faster with her transitory income. With homeowners no distinction could be found for the effect of men and women's permanent income and the effort couples make in buying a home. Similar coefficients are estimated with the under-45 year-old couples.

Expenditure Effort: Single Parents

Single parents spend 32.1 percent and 19.1 percent of their income on rents and mortgages. Single mothers with less than $32,161 income a year spend proportionally more on rents than single fathers. At permanent income levels of $20,000 per year, a single mother would spend 5.3 percent more of their income on housing than a single father with the same income. The single mother who

FIGURE 5E

RENT TO HOUSEHOLD INCOME RATIOS BY INCOME FOR COUPLES, SINGLE PARENTS AND SINGLE PERSON HOUSEHOLDS

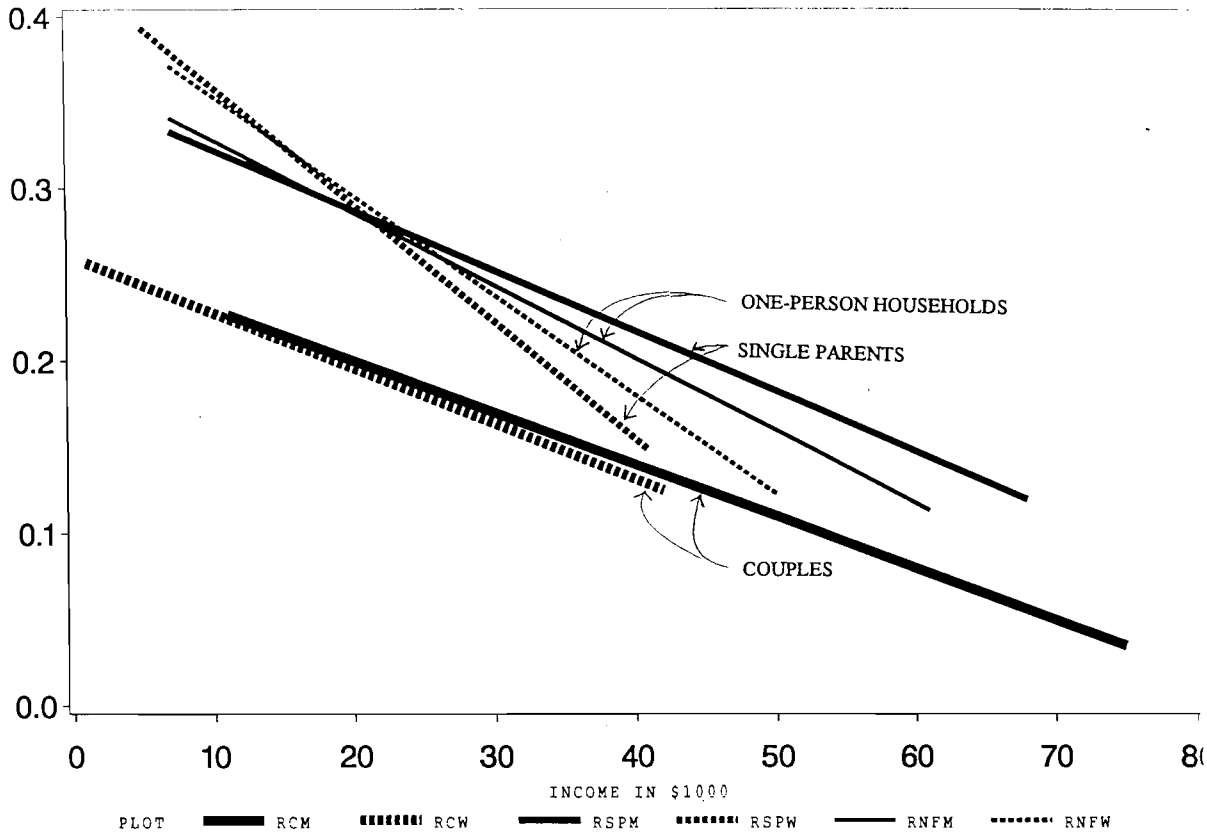
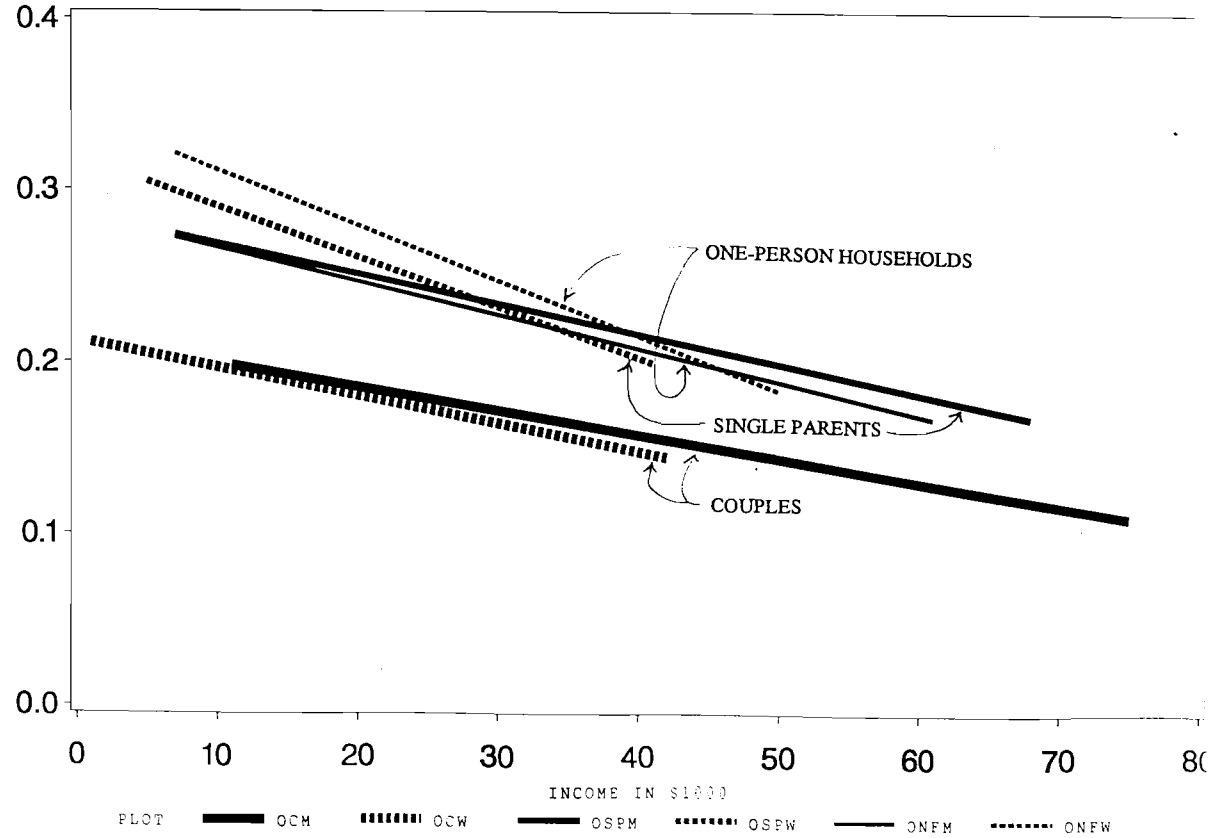


FIGURE 5F

OWNERS MAJOR PAYMENTS TO HOUSEHOLD INCOME RATIOS FOR COUPLES, SINGLE PARENTS AND SINGLE PERSON HOUSEHOLDS



earning under $38,081 spend larger proportions of income on housing than do men with the same income. At an annual income of $20,000, single mothers would have .0245 higher expenditures to income ratios. Single parents and people living in one-person households have similar expenditure to income ratios as illustrated in Figures 5E and F.

Conclusions

The strength of housing preferences reflected by the financial effort men and women make to maintain their housing shows lower-income women as valuing housing relative to other goods and services more than men with similar incomes. As personal income increases, the housing expenditure to income ratios of men and women become the same. As the disparity in the income of men and women is reduced, differences in their housing expenditures are eliminated.

Location: All Cases

Two variables were constructed using the household file to provide an indication of general locational preferences. One variable identifies households choosing the central city, the City of Toronto or the City of Vancouver, over the suburban municipalities within the metropolitan region. The other variable identifies the people occupying single-family detached houses located outside the central city. It identifies the people selecting a suburban house and Tables 15 and 16 present the results. Out of the 59,223 households on which data is available, 23.5 percent live in either of the central cities. In Toronto, this proportion is lower. Almost half of the households (46.9 percent) live in single-family detached houses and, again, the proportion is lower in Toronto. The distribution by household type is as expected: single-person households, groups and single parents tend toward the

central city relative to households formed by couples with or without children. Proportionally fewer non-family and single-parent households occupy single-family detached housing.

Women living in groups or as single parents are no different from their male counterparts in their choice of location or building type. Single women are similar to single men, by tending to choose housing other than single-family detached. Single women, however, more often than single men of similar incomes, select locations outside the central city. While a single man has .93 to 1 chance of living in the central city, a single woman with $20,000 a year income has a .67 x $(1.005)^{10}$ = 70.4 chance of living in the central city. With increasing income people tend to choose single-family detached houses over other options. A $10,000 increase in a man's income will increase his odds of occupying a single-detached house by $1.016^{10} = 1.172$. The increase for women is less pronounced: a $10,000 income increase might raise a woman's odds of selecting a single-family detached suburban house by 1.119.

Location: Non-Family

Almost forty percent (39.4 percent) of non-family households live in the central cities and the regression results using only data for this group show clear gender differences in the effect of income on the choice of locational building type. Increasing income for single men causes them to move toward the suburbs exhibiting the neoclassical rent-bid schedules. Increases in the income of non-family women, however, increase their tendency to locate in the central city.[5] Nevertheless, the intercept terms are very different and the locational choices of men and women with annual incomes

[5] From a developer's point of view, this suggests that lower priced suburban condominiums should be aimed at women. Higher priced condominiums for women should be located in the central cities. For men, the opposite holds true.

TABLE 15

PROPENSITY TO LIVE IN THE CENTRAL CITY

	ALL CASES		NON-FAMILY		COUPLES		SINGLE PARENTS	
VARIABLE	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**
INTERCPT	ns	ns	0.9709	2.640	-0.071	0.932	ns	0.896
TOR	-0.692	0.501	-0.506	0.603	-0.836	0.434	-0.616	0.540
HMAGE	-0.032	0.968	-0.021	0.979	-0.049	0.952	-0.037	0.963
HMAGESQ	0.023	1.023	ns	ns	0.045	1.046	0.044	1.045
EUROPEAN	ns	ns	ns	ns	0.122	1.113	ns	0.962
ASIAN	0.589	1.802	0.377	1.458	0.715	2.045	0.463	1.589
OTHERIMG	0.120	1.127	ns	ns	0.268	1.307	ns	0.853
IMMIG4	ns	ns	-0.241	0.786	ns	ns	ns	0.939
NONEF	0.363	1.438	0.249	1.282	0.385	1.469	0.534	1.705
SINGLE	1.116	3.051	ne	ne	ne	ne	ne	ne
GROUP	1.068	2.908	ns	ns	ne	ne	ne	ne
SPARENT	0.374	1.454	ne	ne	ne	ne	ne	ne
FEMALE	ne	ne	-0.345	0.709	ne	ne	ns	1.090
SINGLEF	-0.326	0.722	ne	ne	ne	ne	ne	ne
GROUPF	ns	ns	0.228	1.255	ne	ne	ne	ne
SPARENTF	ns	ns	ne	ne	ne	ne	ne	ne
CHILD	-0.396	0.673	ne	ne	-0.417	0.660	ne	ne
HHSIZE	-0.069	0.933	ns	ns	ns	ns	ns	0.946
OTHERY	0.002	1.002	ns	ns	ns	ns	ns	0.995
INC	-0.001	0.999	-0.004	.996	0.001	1.001	ns	0.996
WINC	0.005	1.005	0.007	1.007	0.004	1.004	ns	1.003
MEAN/ODDS	.235	.306	.394	.650	.162	.194	.220	.282
GAMMA	.400		.229		.299		.266	
n-cases	59,223		16,166		36,124		4,886	

ne not entered in the regression
ns estimated coefficient is not different from zero at the .02 probability level.

TABLE 16

PROPENSITY TO BUY A SUBURBAN SINGLE-FAMILY DETACHED HOUSE

	ALL CASES		NON-FAMILY		COUPLES		SINGLE PARENTS	
VARIABLE	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**	**PARAMETER ESTIMATE**	**ODDS RATIO**
INTERCPT	-3.502	0.030	-4.491	0.011	-3.990	0.018	-3.179	0.042
TOR	-0.431	0.650	0.158	1.171	-0.507	0.603	ns	ns
HMAGE	0.080	1.083	0.062	1.064	0.110	1.116	0.049	1.050
HMAGESQ	-0.051	0.950	-0.036	0.965	-0.081	0.922	ns	ns
EUROPEAN	ns	ns	ns	ns	-0.090	0.914	ns	ns
ASIAN	-0.489	0.613	-0.556	0.574	-0.533	0.587	-0.483	0.617
OTHERIMG	-0.713	0.490	-0.472	0.623	-0.764	0.466	-0.744	0.475
IMMIG4	-0.635	0.530	ns	ns	-0.710	0.492	ns	ns
NONEF	ns	ns	ns	ns	ns	ns	ns	ns
SINGLE	-0.928	0.396	ne	ne	ne	ne	ne	ne
GROUP	-0.340	0.712	0.309	1.362	ne	ne	ne	ne
SPARENT	-0.297	0.743	ne	ne	ne	ne	ne	ne
FEMALE	ne	ne	-0.204	0.815	ne	ne	-0.351	0.704
SINGLEF	ns	ns	ne	ne	ne	ne	ne	ne
GROUPF	ns	ns	ns	ns	ne	ne	ne	ne
SPARENTF	ns	ns	ne	ne	ne	ne	ne	ne
CHILD	0.274	1.315	ne	ne	0.350	1.419	ne	ne
HHSIZE	0.279	1.321	0.364	1.439	0.249	1.283	0.257	1.293
OTHERY	0.005	1.005	ns	ns	0.003	1.003	0.010	1.010
INC	0.016	1.016	0.009	1.009	0.016	1.016	0.014	1.014
WINC	-0.004	0.996	ns	ns	-0.006	0.994	ne	ne
MEAN/ODDS	.469	.884	.157	.187	.605	1.529	.308	.446
GAMMA	.566		.327		.453		.419	
n-cases	59,223		16,166		36,124		4,886	

ne not entered in the regression
ns estimated coefficient is not different from zero at the .02 probability level.

of $50,292 is the same.

Increases in income raise the demand for single-family housing by men and women. However, the proportion of non-family people choosing this option is small to start with, 15.8 percent. While no gender differences could be found for the income variables, women tend choose suburban single-family houses less often than men with similar characteristics. If a particular class of men were to choose single-family houses 15.0 percent of the time, then women with the same characteristics would select this option 12.4 percent of the time.

Couples

Only 16.2 percent of couples with or without children live in the central cities of the metropolitan areas and the proportion drops to 10.6 percent for couples with children. Sixty percent of couples live in suburban single-family detached houses and this proportion increases to 68.5 percent for couples with dependent children living at home. The proportions change as expected with household size; larger households tend to live in the suburbs.

The effect of income on the central location of couples runs counter to expectations based on traditional neoclassical location theory. Increases in income increase the chance the couple will locate in the central city. A $1,000 increase in the female partner's income increases the odds of locating in the centre by a factor of 1.004. However, the rates are small to start with. If 16 percent of couples were to live in the central city, a $10,000 increase in the woman's salary would cause a 1.1 percent increase in the couples choosing the central city for their home. A similar change in the male partner's income would have an effect that is a quarter this size. Higher income couples have a greater

tendency of occupying suburban single-family houses.[6] The effect of the female partner's income is less pronounced and the difference is statistically significant at the .0001 level of probability.

Location: Single Parents

Twenty-two percent of single parents live in the central cities and 30.8 percent choose suburban houses. Central locations are unrelated to the sex or the income of single parents. Single mothers, however, have a smaller chance of living in a suburban house. Since the tendency to move to a central location does not differ, single mothers more often than single fathers live in multi-family suburban housing. If a single father has a 30 percent chance of living in a suburban house, the single mother with the same income and other characteristics has a 23 percent chance of occupying this type of housing. Single mothers may have less wealth and, may be less able to make the downpayment needed for a house.

Conclusions

The reduction in the income disparity between men and women will increase the demand for central city locations by non-family households as well as by childless couples.

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[6] Increase in income can move some people to the central city and others to suburban single-family houses. They would be leaving suburban houses that are not single-family detached.

4

CONCLUSIONS AND PROJECTIONS

Introduction

This chapter summarizes the general conclusions that can be drawn regarding gender differences in housing demand. It presents qualifications and suggestions for future research. A model is developed to help illustrate the conclusions and integrate the findings in ways that show their implications for long-term housing forecasts.

Major Conclusions

Household Formation

The most important finding of this study is the negative association between a woman's income prospects and family formation and fertility. Furthermore, the very strong negative correlation between the number of children a woman will have, if she decides to have children, and her income prospects suggests that average household sizes will continue to decrease while employment and career opportunities for women improve. These conclusions are not affected by variations in the definition of income or by selecting sub-samples of different age groups. The findings are developed by using cross-sectional data and the differences that prevail across people with different income prospects may differ from those that manifest over time as income levels rise and income disparity is reduced. As mentioned in the first chapter, household formation behaviour is affected by the characteristics of the household a person expects to form. As the propensity to form families is reduced, the nature of the relationship between men and women within families may change to reduce the downward trend in family formation rates. Long-term housing forecasts, however,

should still be based on the continuing trend toward non-family and smaller households.

The other qualification of the findings is due to the likelihood that the variables used to construct the income expectation variables are themselves endogenous to household formation behaviour. Some women expecting to become mothers and homemakers may not continue their education or select the disciplines or career options that offer the higher financial rewards. To an extent, the negative correlation between the education variables and family formation is due to the decision to become a homemaker affecting the decision to continue education. The magnitude of the endogeneity bias created by this relationship, however, may be small because the increasing age of marriage gives people more time for higher education. The sequencing of the education and family formation decisions eliminate endogeneity bias.

The belief in continuing the trend toward non-family and smaller family households is based not just on the change in income prospects but on a change in the outlooks and attitudes that are currently associated with income differences across a population. Census data tell little about attitudes to career. The values of the estimated parameters for the income prospects variables are influenced by the direct role played by income as well as by the systematic variation in outlooks and attitudes that are associated with income differences but are not fully accounted for by the variables describing the individual's age, ethnicity, religion and immigration status. Changes in income prospects that are not accompanied by the other changes will have demographic consequences but ones that are not as large as indicated by the estimated parameters. The findings should, therefore, be seen as indications of long-run trends and are appropriate for use in long-run, not short-term, forecasts.

Given the lack of any other empirical basis for extrapolating the trend to non-family and

smaller family housholds, the use of the parameters estimated in this study is reasonable. While no one can advance a convincing long-run projection depicting overall growth in affluence, the past trend towards income equality can be extrapolated to serve as a basis for projecting future population and housing characteristics. A reasonable long-term forecast can be based on the expectation that the approximately $10,000 difference in income between men and women, not including the effects of children, will be overcome gradually.

Two other conclusions are developed that have qualifications and potentials. Increasing income prospects reduce family formation and reduce the formation of couples, married or common-law. It also reduces the prospects of becoming a single parent after having formed a couple. Increasing income and career prospects reduce the propensity to marry and may delay marriage. It also reduces separation and divorce rates contrary to the expectations based on the belief that low levels of income force couples to stay together because they cannot afford alternative housing.

The increase in income prospects increases the number of non-family women but does not have a great effect on headship rates as it is also associated with their propensity to live in groups of unrelated people.

Housing Consumption

No overall major difference could be found in the housing consumption patterns of men and women. Single women as well as single men have about the same propensity to buy houses and the rate increases equally with actual income. Lower income single mothers and women living in groups have a lower propensity to be homeowners but the ratio increases with income faster than it does for men. Within households formed by couples, an extra dollar earned by women has one and a half

times the effect of an extra dollar earned by the male partner in increasing the propensity to buy a dwelling. While the presence of the woman's income has a greater effect than the man's income on the home purchase decision, it has the same effect on the size of the housing expenditure. The housing expenditure to income ratios for couples decline faster with increases in the woman's income than with the man's income. This holds for all household types.

Increases in the two-parent family incomes increase the tendency to choose freehold over condominium tenure. Among non-family homeowners, condominium purchases increase with income. No income effect is discernible for single parents. Non-family women and men show some differences in the effect of income on location and building type. Women more often seek central locations, as their income increases while men appear content with the suburbs. Both non-family men and women who become homeowners consider condominiums to offer superior services, the propensity to select a condominium increases with income for both men and women. Women appear to buy higher priced condominiums in the inner city and lower priced units in the suburbs.

The main conclusion that is developed here affirms that increases in income raise homeownership rates. Increases in the income of family women raises homeownership rates more than would a similar increase in men's income. Condominiums are a preferred option for both non-family men and women and their purchases increase with income. Couples, however, prefer freehold options. The study shows that there are some differences in the expenditure patterns and financial effort made by single parents at the lower income levels but work by other methods is needed to develop the reasons for these differences before attempting to assess their welfare implications. The expenditure and financial effort identifies gender differences at the lower income levels for single parents. No overall effect on housing expenditures can be determined as a result of income increases

for women without considering the income distribution of the women and the income distribution of the expected changes in income. As a result, the projection model presented next considers only the tenure distribution when integrating the demographic with the housing consumption consequences of reductions in the income disparity between men and women.

The Projection Model

The integration of findings is achieved with the help of a very crude model depicting household formation and tenure choice as a set of sequential decisions. It considers only the 20 to 64 year-old population but it recognizes that these people have children and thereby form households containing about 90 percent of the city's population. The first step in the model divides the base population into people who form independent households and the proportion living with their parents. Since the aim is to show how the household types and tenure distributions change with increases in women's income and because a relationship between the decision to leave home and income prospects could not be discerned, the proportion leaving home is kept at a constant .884 ratio. At the start, 77.8 percent of the people leave home to form family households but this ratio decreases as women's income goes up by a factor of (.997 x 1.042 = 1.039). Within family households 6.96 percent are single parents and this proportion decreases by a factor of (.975 x .984 = .959) for each $1,000 increase in the mother's income. The ratio of single fathers stays at (.06964 x .1625) of the family households. Within the couples, 71.68 percent have children present and the associated odds ratio is reduced by a factor of .962 per $1,000 increase for mothers. To compute the average household size, the model recognizes that the households that have dependent children present have on average 2.1 children. Some of these children are over 20 years of age and this fact is recognized. The average

number of children decreases by .03 for each $1,000 increase in the mother's income prospects.

The population projections by household types is converted to household projections by dividing couples by 2 and non-family groups by their average household size. Doubled-up families are accounted for. After projecting the distribution of couples with children, couples without children, single-parent fathers and single-parent mothers, the current ratio of homeowners to renters is included and then adjusted to reflect the rise in the propensity to buy a house that is occasioned by increases in income. For couples, the odds ratio for homeownership is raised by a factor of (1.022*1.003 = 1.025) and for single-parents by (1.025*1.018 = 1.043).

The non-family component is the difference between those who have left home and the couples and single parents. This group is divided into men and women and into single-person and group households by using the appropriate ratios for each sex. Group formation by women will increase by a factor of (.995 x 1.010 = 1.005) per $1,000 increase in income. The tenure split is recognized for each of the four (sex and group status) categories. The homeownership rate for women is increased by a factor of 1.023 for each $1,000 increase in income.

In all household categories, the homeowners are divided into condominium and freehold tenure and the rates are adjusted to show homebuying couples moving away from condominiums (.996) with increasing incomes and non-family households increasing their condominium population by a factor of 1.018 per $1,000 income. The SAS model is included in the appendix. It uses the average ratios for Toronto and Vancouver and it has not been calibrated to yield precise breakdowns of household types or housing counts.

Projections

The changes due to the reduction in the difference in men's and women's income and career orientation are illustrated by using the model to project the population of one million people who are between 20 and 64 years of age. This number is very close to the 1991 Vancouver estimate using the PUMF (1,002,390) and thereby allows an appreciation of the magnitude of the changes. The tables using 2.25 million people as the base number to present magnitudes similar to the ones expected for Toronto. The age group represents 63.16 percent of the Vancouver population and 64.14 of Toronto's. In Vancouver and Toronto, 11.69 and 9.92 percent are 65 or over, respectively. Most people under 20 are dependents of the base population used in this illustration. The tables are placed at the end of the text.

Table P.1 in the Appendix summarizes the household's size and headship rate changes for each $1,000 increase in a woman's annual income. A population of one million adults between 20 and 64 years of age will generate 513 thousand households with an average size of 2.95 and a headship rate of .5128. A $10,000 increase in women's income will increase the headship rates to .5251, reduce the average household size to 2.544 and add about 12,000 households to the city.

Table P.2 in the Appendix shows the change in the distribution of household types. Family households, couples and single parents decline with increases in women's income. The non-family households increase by about 25,000 for men and 37,000 for women as a result of fewer single mothers between 20 and 64 years of age. The number of non-family women increases by 46 percent.

Table P.3 in the Appendix illustrates the consequences on tenure. With increasing incomes, the number of homeowners increase by 14,583. The increase in freehold units is one percent compared to the 24 percent increase in the aggregate condominium demand. The aggregate demand

for rental housing declines by about one percent despite the increase in the size of the non-family population.

Tables P.4A, B and C in the Appendix list the projected changes in the rental households, by type, for each $1,000 increase in women's income. Table P.4B shows the incremental changes brought by each additional $1,000 increase in income while Table P.4C lists the cumulative differences. Figures 6A, B and C present the household and the change in rental and ownership demand by household type. The rate of decline in rental demand decreases with income growth due to the offsetting effect created by increases in the non-family sector as illustrated by the column 1 statistics. The largest drop is for couples with children. The size of the drop in rental demand by couples with children increases with each $1,000 income at a decreasing rate. The non-family sector maintains its demand for rental housing as a result of their increasing numbers. Only the male non-family group who are not experiencing the income growth shows an increase in their consumption of rental housing with each $1,000 increase in the women's income. The cumulative changes are presented in Table P.4C.

Tables P.5A, B and C in the Appendix show the changes by household type in the homeownership sector that includes both condominiums and freehold options and Figure 6C illustrates the cumulative changes. The projections show declines in the aggregate demand for ownership units by families with children. The non-family sector shows increases in the rate of growth as expected.

Tables P.6A and B present summary statistics for the much smaller condominium sector. Table P.6A lists the 20 to 64 year-old population, the expected number of households, the proportion of households who are homeowners, the number of homeowners and the proportion of homeowners

FIGURE 6A VANCOUVER
PROJECTED HOUSEHOLDS BY TYPE

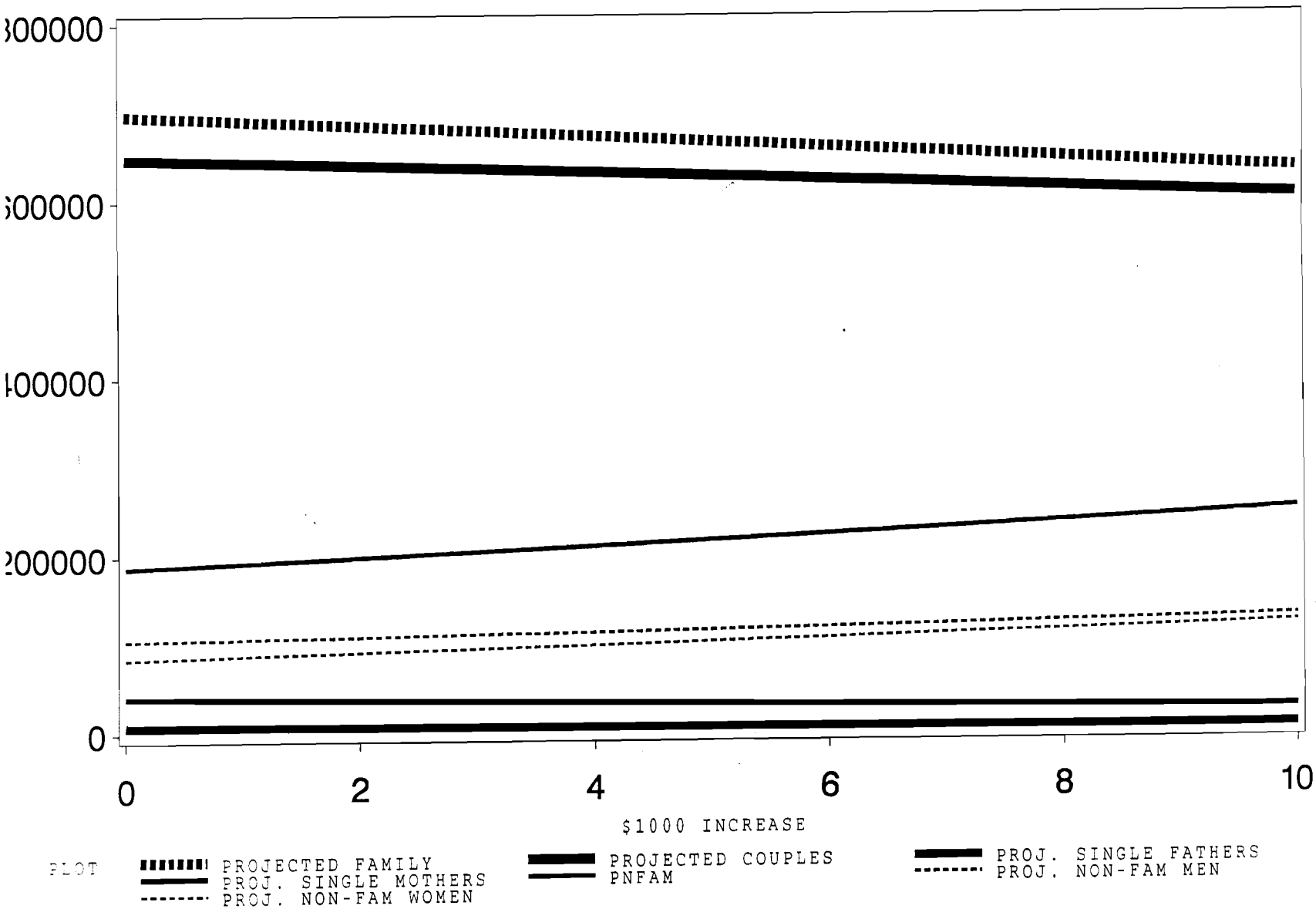


FIGURE 6B VANCOUVER

NET CHANGE IN RENTAL REQUIREMENTS BY HOUSEHOLD TYPE

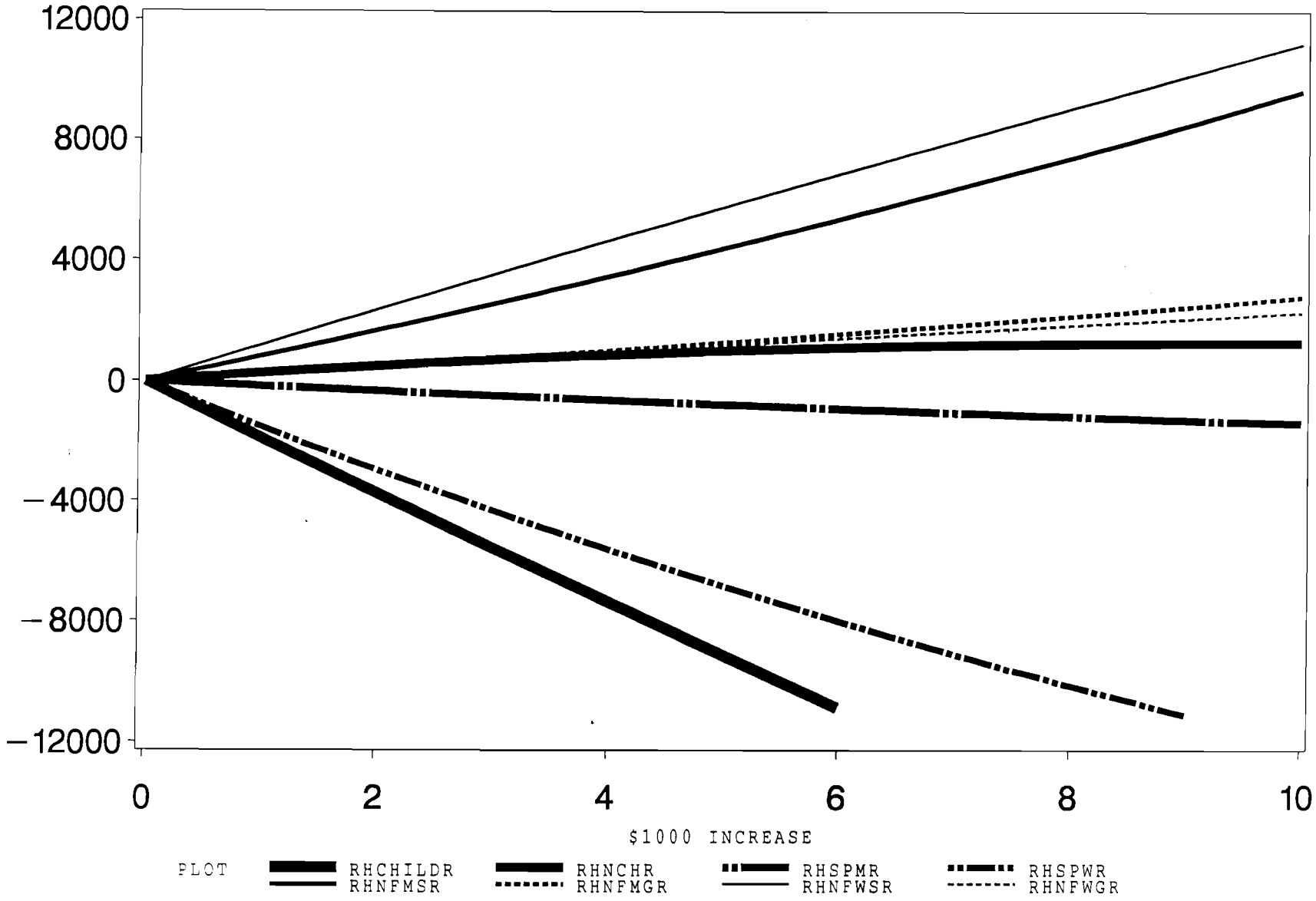
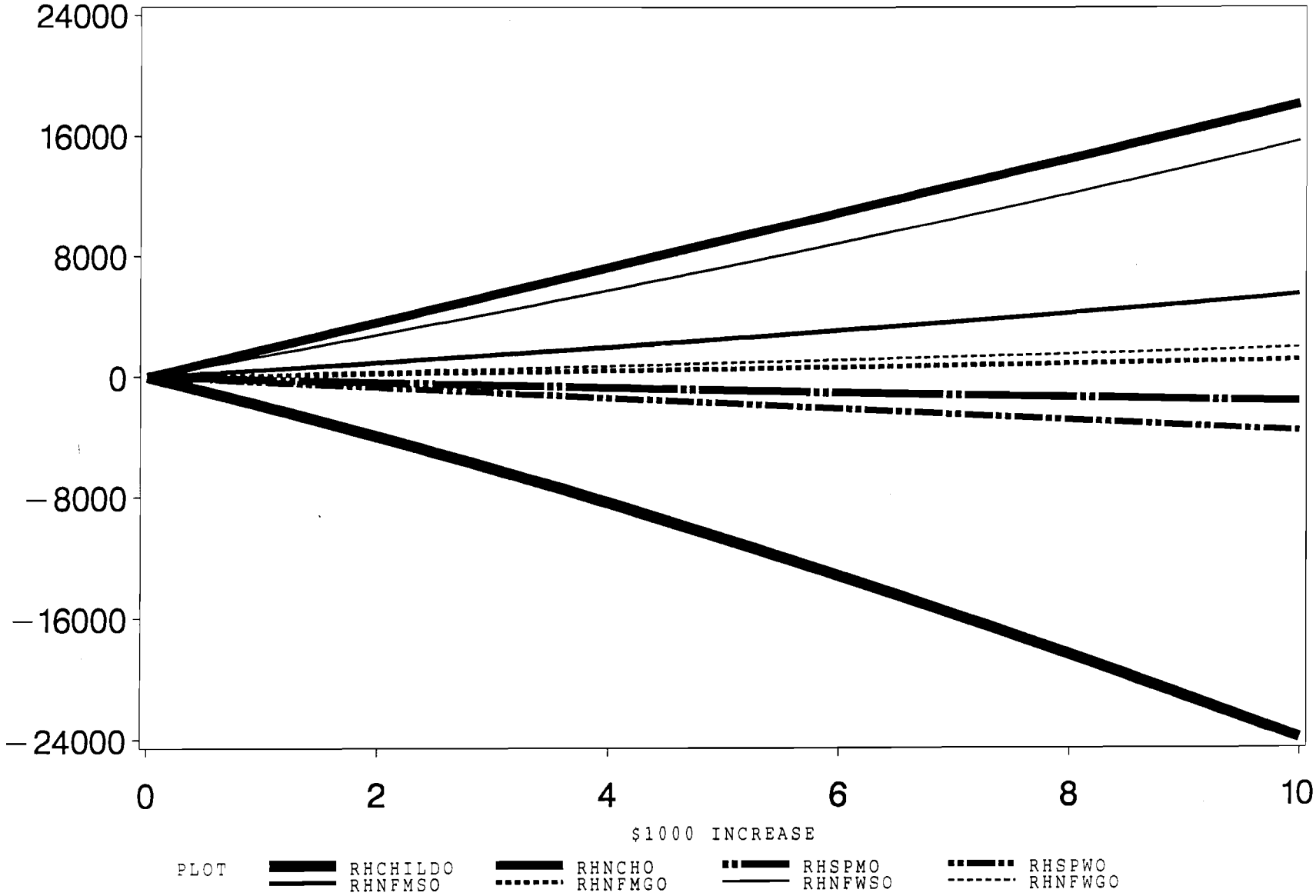


FIGURE 6C VANCOUVER

NET CHANGE IN OWNERSHIP UNITS BY HOUSEHOLD TYPE



who occupy condominiums. The condominium housing tenure type sector is the most impacted by the reduction in income disparity. The equalization of average income, while holding the population constant, would increase condominium demand by 24 percent. Its growth is entirely due to the large increase in the number of non-family people and due to the increasing income of these households. The rate of change in this sector increases with income as is illustrated by the last column in Table P.6A. Table P.6B breaks down the condominium sector by major household type and shows that the major growth is for the non-family group. Couples without children also increase aggregate demand for condominiums and offset the decline by families with dependent children at home. Tables 17A and 17B show the changes by household type that are created by the reduction of gender differences in employment and career outlook and opportunity.

The changes described in this section are restricted to a fixed number of people between 20 and 64 years of age and presents a hypothetical case. The population in this city drops by about one percent for each $1,000 increase in the average income of women. The large changes that are depicted in these projections correspond to very large changes in women's income. Ten thousand dollars represent almost a 50 percent increase in income and such changes are likely to take place over a long period of time. To gain a sense of the impact within a growing population, the model was run on the assumption that the city is growing at a rate of 2.5 percent and that the $10,000 increase is spread over 25 years. The tables corresponding to the ones used earlier for Vancouver and Toronto are attached to the report. Table P7 presents the household and tenure statistics to show that all housing sectors are expected to grow, including rental. The income change moderates the rate of growth in each sector. A 2.5 percent compounded annual growth rate for the 20-64 year-old population will increase the aggregate demand for freehold units by 84.3 percent over 25 years. The

TABLE 17A
PROJECTED CHANGES IN THE OWNER OCCUPIED STOCK BY HOUSEHOLD TYPE

TOTAL			FAMILY				NON-FAMILY			
Income Increase ($1000)	Ownership	Couples with Kids	Couples without Kids	Single Parent Men	Single Parent Women		Single Men	Group Men	Single Women	Group Women
1	3503.20	-4183	4060	-419	-749		1043	232	3093	424
2	6947.91	-8616	8144	-823	-1503		2130	474	6280	860
3	10337.4	-13289	12245	-1210	-2269		3263	727	9564	1307
4	13674.9	-18195	16355	-1582	-3044		4439	989	12947	1767
5	16964.1	-23324	20467	-1940	-3826		5659	1260	16429	2239
6	20208.8	-28669	24574	-2283	-4613		6921	1541	20013	2724
7	23411.6	-34217	28668	-2612	-5405		8226	1832	23700	3221
8	26577.2	-39961	32740	-2928	-6201		9572	2132	27492	3730
9	29708.9	-45887	36782	-3230	-6998		10959	2440	31390	4253
10	32810.6	-51987	40786	-3521	-7795		12386	2758	35394	4788

TABLE 17B
PROJECTED CHANGES IN THE RENTAL STOCK BY HOUSEHOLD TYPE

TOTAL			FAMILY				NON-FAMILY			
Income Increase ($1000)	**Rental**	**Couples with Kids**	**Couples without Kids**	**Single Parent Men**	**Single Parent Women**		**Single Men**	**Group Men**	**Single Women**	**Group Women**
1	-1523	-4094	583	-365	-3298		1823	568	2652	600
2	-2819	-8130	1104	-716	-6429		3725	1160	5277	1191
3	-3867	-12103	1560	-1054	-9399		5706	1776	7874	1773
4	-4684	-16010	1950	-1378	-12213		7763	2417	10443	2346
5	-5275	-19849	2273	-1689	-14878		9896	3081	12983	2910
6	-5647	-23617	2527	-1988	-17398		12104	3768	15493	3464
7	-5809	-27310	2712	-2275	-19780		14386	4478	17971	4009
8	-5766	-30926	2826	-2550	-22029		16740	5211	20418	4544
9	-5526	-34464	2869	-2813	-24151		19165	5966	22832	5070
10	-5098	-37920	2840	-3066	-26151		21660	6743	25212	5585

condominium stock will increase by 222.3 percent and rental demand goes up by 78.8 percent.

Suggestions for Further Work

One of the major contributions of this study is the demonstration that the increased size of the 1991 public use microdata files allows housing research integrating demographic and economic trends at the major metropolitan level. Much work can still be done with the Toronto data and differences between the major English-speaking cities may be small enough to allow their pooling to yield estimates of value to metropolitan area planners. Further work can expand the crude model presented in this chapter to:

1. calibrate the model's parameters for each city
2. re-estimate the behaviour coeffients for each city
3. add the 65 and over population
4. link the model to cohort projections for the populations
5. parameterize the projections and re-estimate the explanatory models to show how the income effects differ by age.

The most important finding of the study is the illustration of the link between the increase in women's income and the reduction in both family formation and fertility rates. While the finding is qualified by the nature of the cross-sectional analysis and by the possibility of some endogeneity bias, the magnitude of the estimated parameters, their robustness to model specification and the importance of their implications make it imperative to confirm the findings and examine the relationships by using other research methods that more directly look at the determinants of family formation. The present work foretells of a major reduction in the ability of urban populations to reproduce themselves as

gender equality is attained. The corollary to this conclusion is the increased importance that should be attached to the study of immigrant housing consumption. Major differences exist across immigrant groups in their adaption to the Canadian housing markets and their preference for different types of housing.

This study has presented the differences in the expenditure patterns of single parents that have to be examined by work focusing on this group before welfare conclusions can be developed. The reasons for the extra importance of the female partner's income in a couple's decision to buy a house can be assessed by survey methods. The assessment should try to determine if the importance is due to the changing role of women in the household's decision making that has brought about a reduction in income disparity, or if it is due to the male partner's income being used for the ongoing household expenses while the female partner's is used for the downpayment. If women's income is being treated as being less secure or less permanent, then an increase in the security of this income may bring its disposition in line with that of men and eliminate its extra effect on home purchases.

A number of minor follow-up studies could be of interest to developers. The preference for condominiums by non-family people and the locational preferences of single women can be confirmed through market research and the study of absorption rates. This study of gender differences confirms their existence. The developers' hunches regarding gender differences in the housing demand by non-family people are true.

Summary

Increases in women's income will reduce family formation and fertility rates: each $1000 increase is associated with an average reduction in expected fertility of married women of .03

children. A $10,000 increase will reduce fertility rates to below 1.7 children per women: a fertility rate yielding an average of 2.11 children per woman is needed for a population to reproduce itself. If no other changes were to occur, then the 1.51 million people associated with the one million adult population would decline to 1.34 million while household counts would increase from 513,000 to 525,000 as a result of lower family formation rates. The increasing wealth stimulates the demand for single-family housing and the demand for rental accommodation declines slightly. The demand for owner-occupied condominiums increases substantially from about 40,000 to 50,000 units.

The study of expenditure patterns and propensity to buy central city or suburban housing found only small difference between unmarried and childless men and women. While most non-family households were renters, increases in their income increased their propensity to become homeowners and both groups showed a preference for suburban houses. Women favour the condominium option and increases in the income of the higher income women will stimulate the demand for inner city condominiums. Similar increases for men will slightly increase the demand for suburban housing.

Single parents, male or female, spend about the same on housing. Unmarried men and unmarried women have similar housing purchases. The main difference is at the lowest income levels: low-income women spend more on housing than low-income men but their expenditure to income ratios drop faster as their income increases. This finding is consistent with the view that women have higher minimal quality thresholds than men. The very lowest priced housing may not be suitable for women for safety and other reasons. The remarkable similarity of the tenure choices by non-family men and women indicates the absence of gender discrimination in the mortgage or real estate markets.

Differences were found in the way married men and women used their income to buy houses. The wife's income makes a greater contribution to the home purchase decision than the husband's

income. This is consistent with the view that the wife's income is counted on more heavily to meet the mortgage obligations than the husband's. Formulas used to describe mortgage burdens could be adjusted to allow a larger proportion of the wife's earnings than the husband's in determining mortgage eligibility provided all other factors are the same.

The main conclusion of interest to city planners shows the effect of changes in women's income prospects on city growth. As women gain equality with men, the natural growth of the city is reduced to well below sustaining levels. Cities may have to decline in size and suffer the consequences, or, they will have to attract inmigrants (causing decline elsewhere) or immigrants. The future life of our major cities depends on immigration. Canada's major cities will become even more multicultural or they will eventually die as women's employment and career prospects approach that of men. The removal of gender differences will make cities more diverse.

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APPENDIX

A1

PROJECTIONS USING ONE MILLION 20-64 YEAR OLDS AS THE BASE POPULATION

PROJECTION OF POPULATION AND HOUSEHOLD CHARACTERISTICS
OF 1.0 MILLION BETWEEN 20 AND 64 YEARS OF AGE

OBS	POP	POPTOT	Y	PHH	PHDRATE	HHSIZE	DKIDS
1	1000000	1511235	0	512794	0.51279	2.94706	1.82086
2	1000000	1492013	1	513670	0.51367	2.90461	1.79079
3	1000000	1473150	2	514629	0.51463	2.86255	1.76072
4	1000000	1454651	3	515670	0.51567	2.82090	1.73065
5	1000000	1436520	4	516790	0.51679	2.77970	1.70058
6	1000000	1418764	5	517990	0.51799	2.73898	1.67051
7	1000000	1401385	6	519266	0.51927	2.69878	1.64044
8	1000000	1384389	7	520618	0.52062	2.65913	1.61037
9	1000000	1367780	8	522044	0.52204	2.62005	1.58030
10	1000000	1351562	9	523542	0.52354	2.58157	1.55023
11	1000000	1335739	10	525111	0.52511	2.54373	1.52016

Variable	Label	Minimum	Maximum
POP	POP. BETWEEN 20-64	1000000.00	1000000.00
POPTOT	POP. BETWEEN 0-64	1335739.00	1511235.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	512794.00	525111.00
PHDRATE	HEADSHIP RATE	0.5127942	0.5251109
HHSIZE	HOUSEHOLD SIZE	2.5437272	2.9470600
DKIDS	NO. KIDS UNDER 20	1.5201646	1.8208646

PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH
1.0 MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0

OBS	PFAM	PCPL	PSPM	PSPW	PNFAMM	PNFAMW
1	696592	648109	7878	40604	103879	83529
2	690898	644633	7518	38747	105977	87125
3	685081	640948	7172	36961	108167	90753
4	679140	637056	6839	35245	110445	94415
5	673076	632961	6519	33597	112813	98111
6	666891	628665	6212	32014	115268	101841
7	660584	624172	5917	30495	117809	105607
8	654157	619486	5634	29037	120435	109408
9	647611	614609	5363	27639	123145	113244
10	640948	609547	5103	26298	125936	117116
11	634170	604303	4853	25014	128807	121023

Variable	Label	Minimum	Maximum
PFAM	PROJECTED FAMILY	634170.00	696592.00
PCPL	PROJECTED COUPLES	604303.00	648109.00
PSPM	PROJ. SINGLE FATHERS	4853.00	7878.00
PSPW	PROJ. SINGLE MOTHERS	25014.00	40604.00
PNFAMM	PROJ. NON-FAM MEN	103879.00	128807.00
PNFAMW	PROJ. NON-FAM WOMEN	83529.00	121023.00

PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH
1.0 MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0

OBS	POP	Y	PHH	PHHO	PHHF	PHHC	PHHR
1	1000000	0	512794	302887	263602	39285	209907
2	1000000	1	513670	304444	264380	40065	209226
3	1000000	2	514629	305975	265097	40878	208654
4	1000000	3	515670	307482	265756	41726	208188
5	1000000	4	516790	308965	266355	42610	207825
6	1000000	5	517990	310427	266896	43531	207563
7	1000000	6	519266	311869	267378	44491	207397
8	1000000	7	520618	313292	267801	45491	207325
9	1000000	8	522044	314699	268167	46533	207344
10	1000000	9	523542	316091	268474	47617	207451
11	1000000	10	525111	317470	268724	48746	207641

Variable	Label	Minimum	Maximum
POP	POP. BETWEEN 20-64	1000000.00	1000000.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	512794.00	525111.00
PHHO	HOMEOWNERS	302887.00	317470.00
PHHF	FREEHOLD	263602.00	268724.00
PHHC	CONDOMINIUM	39285.00	48746.00
PHHR	PROCECTED RENTING HOUSEHOLDS	207325.00	209907.00

TABLE P.4A

PROJECTION OF RENTERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION
OF 1.0 MILLION BETWEEN 20 AND 64 YEARS OF AGE

09:25 Thursday, June 6, 1996

OBS	PHHR	PHCHILDR	PHNCHR	PHSPMR	PHSPWR	PHNFMSR	PHNFMGR	PHNFWSR	PHNFWGR
1	209907	52059	36112	3549	23658	40115	12488	33752	8172
2	209226	50239	36372	3387	22192	40926	12741	34931	8439
3	208654	48446	36603	3231	20801	41771	13004	36098	8702
4	208188	46680	36806	3081	19481	42651	13278	37252	8960
5	207825	44943	36979	2936	18230	43565	13562	38394	9215
6	207563	43237	37122	2798	17046	44513	13858	39522	9466
7	207397	41563	37236	2665	15926	45495	14163	40638	9712
8	207325	39921	37318	2538	14867	46509	14479	41740	9954
9	207344	38314	37368	2416	13867	47555	14805	42827	10192
10	207451	36742	37387	2299	12924	48633	15140	43900	10426
11	207641	35205	37375	2186	12036	49742	15485	44958	10655

Variable	Label	Minimum	Maximum
PHHR	PROCECTED RENTING HOUSEHOLDS	207325.00	209907.00
PHCHILDR	PROJECTED CPLS WITH KIDS	35205.00	52059.00
PHNCHR	PROJECTED CPLS NO CHILDREN	36112.00	37387.00
PHSPMR	PROJECTED SPARENT MEN RENT	2186.00	3549.00
PHSPWR	PROJECTED SPARENT WOMEN RENT	12036.00	23658.00
PHNFMSR	PROJ. NON-FAM MEN SINGL RENT	40115.00	49742.00
PHNFMGR	PROJ. NON-FAM MEN GROUP RENT	12488.00	15485.00
PHNFWSR	PROJ. NON-FAM WOMEN SNGL RENT	33752.00	44958.00
PHNFWGR	PROJ. NON-FAM WOMEN GRP RENT	8172.00	10655.00

TABLE P.4B

PROJECTION OF ANNUAL CHANGES IN THE RENTAL STOCK FOR A POPULATION OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:42 Sunday, September 3, 1995

OBS	DR	DHCHILDR	DHNCHR	DHSPMR	DHSPWR	DHNFMSR	DHNFMGR	DHNFWSR	DHNFWGR
1	.	.	.	.	.	.	.	.	.
2	-681	-1820	259	-162	-1466	810	252	1179	267
3	-572	-1794	231	-156	-1392	845	263	1167	263
4	-466	-1766	203	-150	-1320	880	274	1154	259
5	-363	-1737	173	-144	-1251	914	285	1142	255
6	-263	-1706	144	-138	-1184	948	295	1129	251
7	-166	-1674	113	-133	-1120	981	306	1115	246
8	-72	-1641	82	-127	-1059	1014	316	1102	242
9	19	-1607	51	-122	-1000	1046	326	1088	238
10	106	-1572	19	-117	-943	1078	336	1073	234
11	190	-1536	-13	-112	-889	1109	345	1058	229

Variable	Label	Minimum	Maximum
DR	DIFFERENCE RENTAL UNITS	-681.0000000	190.0000000
DHCHILDR	DIFFERENCE CPLS WITH KIDS	-1820.00	-1536.00
DHNCHR	DIFFERENCE CPLS NO KIDS	-13.0000000	259.0000000
DHSPMR	DIFFERENCE S PARENT MEN RENT	-162.0000000	-112.0000000
DHSPWR	DIFFERENCE S PARENT WOMEN RENT	-1466.00	-889.0000000
DHNFMSR	DIFFERENCE NON-FAM MEN SINGL RENT	810.0000000	1109.00
DHNFMGR	DIFFERENCE NON-FAM MEN GROUP RENT	252.0000000	345.0000000
DHNFWSR	DIFFERENCE NON-FAM WOMEN SNGL RENT	1058.00	1179.00
DHNFWGR	DIFFERENCE NON-FAM WOMEN GRP RENT	229.0000000	267.0000000

TABLE P.4C INCREASES IN WOMEN S INCOME
PROJECTION OF TOTAL CHANGES IN THE RENTAL STOCK FOR A POPULATION
OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE
20:42 Sunday, September 3, 1995

OBS	RR	RHCHILDR	RHNCHR	RHSPMR	RHSPWR	RHNFMSR	RHNFMGR	RHNFWSR	RHNFWGR
1	0	0	0	0	0	0	0	0	0
2	-681	-1820	259	-162	-1466	810	252	1179	267
3	-1253	-3613	490	-318	-2858	1656	515	2345	529
4	-1719	-5379	693	-468	-4177	2536	789	3500	788
5	-2082	-7116	867	-612	-5428	3450	1074	4641	1043
6	-2344	-8822	1010	-751	-6612	4398	1369	5770	1293
7	-2510	-10496	1123	-884	-7733	5379	1675	6886	1540
8	-2582	-12138	1205	-1011	-8791	6394	1990	7987	1782
9	-2563	-13745	1256	-1133	-9791	7440	2316	9075	2020
10	-2456	-15317	1275	-1250	-10734	8518	2652	10148	2253
11	-2266	-16854	1262	-1363	-11623	9627	2997	11205	2482

Variable	Label	Minimum	Maximum
RR	TOTAL CHG. RENTAL UNITS	-2582.00	0
RHCHILDR	TOTAL CHG. CPLS WITH KIDS RENT	-16854.00	0
RHNCHR	TOTAL CHG. CPLS NO KIDS RENT	0	1275.00
RHSPMR	TOTAL CHG. S PARENT MEN RENT	-1363.00	0
RHSPWR	TOTAL CHG. S PARENT WOMEN RENT	-11623.00	0
RHNFMSR	TOTAL CHG. NON-FAM MEN SINGL RENT	0	9627.00
RHNFMGR	TOTAL CHG. NON-FAM MEN GROUP RENT	0	2997.00
RHNFWSR	TOTAL CHG. NON-FAM WOMEN SNGL RENT	0	11205.00
RHNFWGR	TOTAL CHG. NON-FAM WOMEN GRP RENT	0	2482.00

TABLE P.5A

PROJECTION OF HOMEOWNERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:42 Sunday, September 3, 1995

OBS	PHHO	PHCHILDO	PHNCHO	PHSPMO	PHSPWO	PHNFMSO	PHNFMGO	PHNFWSO	PHNFWGO
1	302887	172721	55660	4075	15635	22939	5108	23407	3343
2	304444	170861	57464	3889	15303	23403	5212	24781	3531
3	305975	168892	59279	3709	14967	23886	5319	26198	3725
4	307482	166815	61102	3537	14626	24389	5431	27657	3924
5	308965	164634	62929	3372	14282	24912	5548	29161	4128
6	310427	162354	64756	3213	13934	25454	5668	30708	4338
7	311869	159979	66582	3060	13584	26015	5793	32301	4553
8	313292	157513	68401	2914	13232	26595	5922	33940	4774
9	314699	154960	70211	2774	12879	27194	6056	35625	5001
10	316091	152326	72007	2639	12525	27810	6193	37358	5233
11	317470	149616	73787	2510	12170	28444	6334	39137	5471

Variable	Label	Minimum	Maximum
PHHO	HOMEOWNERS	302887.00	317470.00
PHCHILDO	PROJECTED CPLS WITH KIDS OWN	149616.00	172721.00
PHNCHO	PROJECTED CPLS NO KIDS	55660.00	73787.00
PHSPMO	PROJECTED SPRT WONMEN OWN	2510.00	4075.00
PHSPWO	PROJECTED SPRT WNWOMEN OWN	12170.00	15635.00
PHNFMSO	PROJ. NON-FAM MEN SINGL OWN	22939.00	28444.00
PHNFMGO	PROJ. NON-FAM MEN GROUP OWN	5108.00	6334.00
PHNFWSO	PROJ. NON-FAM WOMEN SNGL OWN	23407.00	39137.00
PHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	3343.00	5471.00

TABLE P.5B

PROJECTION OF ANNUAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:42 Sunday, September 3, 1995

OBS	DHHO	DHCHILDO	DHNCHO	DHSPMO	DHSPWO	DHNFMSO	DHNFMGO	DHNFWSO	DHNFWGO
1	.	.	.	.	.	.	.	.	.
2	1557	-1859	1805	-186	-332	463	103	1375	188
3	1531	-1970	1815	-179	-336	483	108	1417	194
4	1506	-2077	1822	-172	-341	503	112	1460	199
5	1483	-2180	1827	-165	-344	523	116	1503	204
6	1462	-2280	1828	-159	-347	542	121	1548	210
7	1442	-2375	1825	-152	-350	561	125	1593	215
8	1424	-2466	1819	-146	-352	580	129	1639	221
9	1407	-2553	1810	-140	-353	598	133	1685	227
10	1392	-2634	1797	-135	-354	616	137	1732	232
11	1379	-2711	1780	-129	-355	634	141	1780	238

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	1379.00	1557.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	-2711.00	-1859.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	1780.00	1828.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	-186.0000000	-129.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	-355.0000000	-332.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	463.0000000	634.0000000
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	103.0000000	141.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	1375.00	1780.00
DHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	188.0000000	238.0000000

TABLE P.5C

PROJECTION OF TOTAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:42 Sunday, September 3, 1995

OBS	RHHO	RHCHILDO	RHNCHO	RHSPMO	RHSPWO	RHNFMSO	RHNFMGO	RHNFWSO	RHNFWGO
1	0.00	0	0	0	0	0	0	0	0
2	1556.98	-1859	1805	-186	-332	463	103	1375	188
3	3087.96	-3829	3620	-366	-668	947	211	2791	382
4	4594.38	-5906	5442	-538	-1009	1450	323	4251	581
5	6077.75	-8086	7269	-703	-1353	1973	439	5754	785
6	7539.61	-10366	9096	-862	-1700	2515	560	7302	995
7	8981.53	-12742	10922	-1015	-2050	3076	685	8895	1211
8	10405.14	-15208	12741	-1161	-2402	3656	814	10533	1431
9	11812.07	-17760	14551	-1301	-2756	4254	947	12219	1658
10	13203.96	-20394	16348	-1436	-3110	4871	1085	13951	1890
11	14582.47	-23105	18127	-1565	-3465	5505	1226	15731	2128

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	1379.00	1557.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	-2711.00	-1859.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	1780.00	1828.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	-186.0000000	-129.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	-355.0000000	-332.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	463.0000000	634.0000000
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	103.0000000	141.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	1375.00	1780.00
DHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	188.0000000	238.0000000

TABLE P.6A

PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS

20:42 Sunday, September 3, 1995

OBS	PHH	PPHHO	PHHO	PCRAT	PHHC	DHHC
1	512794	0.59066	302887	0.12970	39285	.
2	513670	0.59268	304444	0.13160	40065	780
3	514629	0.59455	305975	0.13360	40878	813
4	515670	0.59628	307482	0.13570	41726	848
5	516790	0.59785	308965	0.13791	42610	884
6	517990	0.59929	310427	0.14023	43531	921
7	519266	0.60060	311869	0.14266	44491	960
8	520618	0.60177	313292	0.14520	45491	1000
9	522044	0.60282	314699	0.14786	46533	1042
10	523542	0.60376	316091	0.15064	47617	1085
11	525111	0.60458	317470	0.15355	48746	1129

Variable	Label	Minimum	Maximum
PHH	PROJECTED HOUSEHOLDS	512794.00	525111.00
PPHHO	PROPORTION HOMEOWNERS	0.5906604	0.6045765
PHHO	HOMEOWNERS	302887.00	317470.00
PCRAT	PROP. CONDO AMONG OWNERS	0.1297012	0.1535454
PHHC	CONDOMINIUM	39285.00	48746.00
DHHC	DIFFERENCE CONDOMINIUM	780.0000000	1129.00

TABLE P.6B

PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:42 Sunday, September 3, 1995

OBS	PHHC	PCCHILD	PCNCH	PCSPM	PCSPW	PCNFAM
1	39285	11652	10514	593	3133	13392
2	40065	11481	10855	566	3067	14096
3	40878	11303	11198	540	2999	14838
4	41726	11119	11542	515	2931	15618
5	42610	10930	11887	491	2862	16440
6	43531	10736	12232	467	2792	17303
7	44491	10536	12577	445	2722	18210
8	45491	10332	12921	424	2652	19162
9	46533	10124	13263	404	2581	20161
10	47617	9912	13602	384	2510	21209
11	48746	9697	13938	365	2439	22306

Variable	Label	Minimum	Maximum
PHHC	CONDOMINIUM	39285.00	48746.00
PCCHILD	CONDOMINIUM CPLS W KIDS	9697.00	11652.00
PCNCH	CONDOMINIUM CPLS NO KIDS	10514.00	13938.00
PCSPM	CONDOMINIUM SPARENT MEN	365.0000000	593.0000000
PCSPW	CONDOMINIUM SPARENT WOMEN	2439.00	3133.00
PCNFAM	NONF-FAM CONDOMINIUMS	13392.00	22306.00

PROJECTION OF POPULATION AND HOUSEHOLD CHARACTERISTICS
OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%
20:42 Sunday, September 3, 1995

OBS	POP	POPTOT	Y	PHH	PHDRATE	HHSIZE	DKIDS
1	1000000	1511235	0.0	512794	0.51279	2.94706	1.82086
2	1025000	1541091	0.4	525963	0.51313	2.93004	1.80884
3	1050625	1571555	0.8	539484	0.51349	2.91307	1.79681
4	1076891	1602641	1.2	553366	0.51386	2.89617	1.78478
5	1103813	1634362	1.6	567620	0.51424	2.87932	1.77275
6	1131408	1666734	2.0	582256	0.51463	2.86255	1.76072
7	1159693	1699770	2.4	597284	0.51504	2.84583	1.74870
8	1188686	1733485	2.8	612714	0.51546	2.82919	1.73667
9	1218403	1767896	3.2	628559	0.51589	2.81262	1.72464
10	1248863	1803018	3.6	644829	0.51633	2.79612	1.71261
11	1280085	1838868	4.0	661535	0.51679	2.77970	1.70058
12	1312087	1875461	4.4	678691	0.51726	2.76335	1.68856
13	1344889	1912815	4.8	696307	0.51774	2.74708	1.67653
14	1378511	1950948	5.2	714398	0.51824	2.73090	1.66450
15	1412974	1989878	5.6	732975	0.51875	2.71480	1.65247
16	1448298	2029623	6.0	752052	0.51927	2.69878	1.64044
17	1484506	2070203	6.4	771643	0.51980	2.68285	1.62842
18	1521618	2111637	6.8	791761	0.52034	2.66701	1.61639
19	1559659	2153945	7.2	812422	0.52090	2.65126	1.60436
20	1598650	2197148	7.6	833639	0.52146	2.63561	1.59233
21	1638616	2241267	8.0	855429	0.52204	2.62005	1.58030
22	1679582	2286323	8.4	877807	0.52263	2.60458	1.56828
23	1721571	2332340	8.8	900789	0.52324	2.58922	1.55625
24	1764611	2379340	9.2	924392	0.52385	2.57395	1.54422
25	1808726	2427347	9.6	948631	0.52447	2.55879	1.53219
26	1853944	2476385	10.0	973526	0.52511	2.54373	1.52016

Variable	Label	Minimum	Maximum
POP	20-64 POPULATION	1000000.00	1853944.00
POPTOT	0-64 POPULATION	1511235.00	2476385.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	512794.00	973526.00
PHDRATE	HEADSHIP RATE	0.5127942	0.5251109
HHSIZE	HOUSEHOLD SIZE	2.5437272	2.9470600
DKIDS	NO. KIDS UNDER 20	1.5201646	1.8208646

OBS	PFAM	PCPL	PSPM	PSPW	PNFAMM	PNFAMW
1	696592	648109	7878	40604	103879	83529
2	711688	662913	7926	40849	107325	87087
3	727082	678016	7973	41093	110894	90777
4	742779	693424	8020	41335	114590	94602
5	758786	709141	8067	41577	118417	98568
6	775106	725174	8114	41818	122380	102679
7	791745	741526	8161	42058	126485	106939
8	808708	758204	8207	42297	130735	111356
9	826000	775213	8253	42535	135135	115933
10	843627	792557	8299	42771	139692	120675
11	861595	810243	8345	43007	144410	125590
12	879907	828276	8390	43241	149295	130682
13	898571	846661	8435	43474	154353	135958
14	917591	865404	8480	43706	159589	141424
15	936973	884511	8525	43937	165010	147086
16	956722	903987	8569	44166	170623	152951
17	976845	923838	8614	44393	176433	159025
18	997347	944070	8658	44620	182447	165316
19	1018234	964689	8701	44845	188673	171831
20	1039512	985700	8745	45068	195117	178578
21	1061186	1007109	8788	45290	201787	185564
22	1083263	1028923	8830	45510	208690	192797
23	1105748	1051147	8873	45728	215835	200286
24	1128648	1073788	8915	45945	223230	208038
25	1151969	1096852	8956	46160	230882	216063
26	1175716	1120344	8998	46374	238801	224369

Variable	Label	Minimum	Maximum
PFAM	PROJECTED FAMILIES	696592.00	1175716.00
PCPL	PROCECTED COULPES	648109.00	1120344.00
PSPM	PROJECTED SINGLE FATHERS	7878.00	8998.00
PSPW	PROJECTED SINGLE MOTHERS	40604.00	46374.00
PNFAMM	PROJECTED NON-FAM MEN	103879.00	238801.00
PNFAMW	PROJECTED NON-FAM WOMEN	83529.00	224369.00

PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH
ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0
20:42 Sunday, September 3, 1995

OBS	POP	Y	PHH	PHHO	PHHF	PHHC	PHHR
1	1000000	0.0	512794	302887	263602	39285	209907
2	1025000	0.4	525963	311101	270518	40583	214862
3	1050625	0.8	539484	319532	277606	41926	219952
4	1076891	1.2	553366	328185	284868	43317	225181
5	1103813	1.6	567620	337067	292309	44758	230553
6	1131408	2.0	582256	346183	299933	46249	236073
7	1159693	2.4	597284	355540	307745	47794	241744
8	1188686	2.8	612714	365143	315749	49394	247571
9	1218403	3.2	628559	375000	323950	51051	253559
10	1248863	3.6	644829	385117	332351	52767	259711
11	1280085	4.0	661535	395501	340957	54544	266034
12	1312087	4.4	678691	406159	349774	56385	272531
13	1344889	4.8	696307	417099	358806	58292	279209
14	1378511	5.2	714398	428326	368058	60268	286071
15	1412974	5.6	732975	439851	377535	62315	293124
16	1448298	6.0	752052	451679	387243	64436	300373
17	1484506	6.4	771643	463819	397186	66634	307823
18	1521618	6.8	791761	476280	407370	68911	315481
19	1559659	7.2	812422	489070	417800	71270	323352
20	1598650	7.6	833639	502197	428482	73715	331442
21	1638616	8.0	855429	515671	439422	76249	339758
22	1679582	8.4	877807	529501	450626	78875	348306
23	1721571	8.8	900789	543696	462100	81597	357093
24	1764611	9.2	924392	558266	473849	84418	366125
25	1808726	9.6	948631	573221	485879	87342	375410
26	1853944	10.0	973526	588571	498199	90372	384955

Variable	Label	Minimum	Maximum
POP	20-64 POPULATION	1000000.00	1853944.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	512794.00	973526.00
PHHO	HOMEOWNERS	302887.00	588571.00
PHHF	FREEHOLD	263602.00	498199.00
PHHC	PROJECTED CONDOMINIUMS	39285.00	90372.00
PHHR	PROCECTED HOUSEHOLDS RENTAL	209907.00	384955.00

OBS	PHHR	PHCHILDR	PHNCHR	PHSPMR	PHSPWR	PHNFMSR	PHNFMGR	PHNFWSR	PHNFWGR
1	209907	52059	36112	3549	23658	40115	12488	33752	8172
2	214862	52611	37125	3570	23639	41446	12903	35081	8487
3	219952	53163	38161	3592	23617	42824	13332	36453	8811
4	225181	53714	39220	3613	23593	44252	13776	37869	9145
5	230553	54263	40304	3634	23565	45730	14236	39332	9490
6	236073	54812	41413	3655	23534	47260	14713	40841	9845
7	241744	55359	42546	3676	23500	48845	15206	42399	10212
8	247571	55905	43705	3697	23464	50486	15717	44008	10590
9	253559	56449	44889	3718	23424	52186	16246	45667	10980
10	259711	56991	46099	3738	23382	53945	16794	47380	11382
11	266034	57531	47336	3759	23336	55767	17361	49147	11796
12	272531	58069	48600	3779	23288	57654	17948	50970	12223
13	279209	58605	49890	3800	23236	59607	18556	52851	12663
14	286071	59138	51208	3820	23182	61629	19186	54791	13117
15	293124	59668	52554	3840	23125	63723	19838	56792	13584
16	300373	60195	53928	3860	23065	65890	20512	58856	14066
17	307823	60719	55331	3880	23002	68134	21211	60984	14562
18	315481	61240	56762	3900	22937	70456	21934	63178	15073
19	323352	61758	58222	3920	22868	72860	22682	65441	15600
20	331442	62272	59712	3939	22797	75349	23457	67773	16142
21	339758	62782	61232	3958	22723	77925	24259	70177	16701
22	348306	63288	62782	3978	22647	80591	25089	72655	17276
23	357093	63790	64363	3997	22567	83350	25948	75210	17869
24	366125	64288	65974	4016	22485	86205	26837	77842	18479
25	375410	64781	67617	4035	22401	89160	27757	80554	19107
26	384955	65269	69290	4053	22313	92219	28709	83349	19753

Variable	Label	Minimum	Maximum
PHHR	PROCECTED HOUSEHOLDS RENTAL	209907.00	384955.00
PHCHILDR	PROJECTED CPLS WITH KIDS	52059.00	65269.00
PHNCHR	PROJECTED CPLS NO KIDS	36112.00	69290.00
PHSPMR	PROJECTED SPARENT MEN RENT	3549.00	4053.00
PHSPWR	PROJECTED SPARENT WOMEN RENT	22313.00	23658.00
PHNFMSR	PROJ. NON-FAM MEN SINGL RENT	40115.00	92219.00
PHNFMGR	PROJ. NON-FAM MEN GROUP RENT	12488.00	28709.00
PHNFWSR	PROJ. NON-FAM WOMEN SNGL RENT	33752.00	83349.00
PHNFWGR	PROJ. NON-FAM WOMEN GRP RENT	8172.00	19753.00

OBS	DR	DHCHILDR	DHNCHR	DHSPMR	DHSPWR	DHNFMSR	DHNFMGR	DHNFWSR	DHNFWGR
1	.	.	.	.	.	.	.	.	.
2	4955	552	1012	21	-19	1331	414	1329	314
3	5090	552	1036	21	-22	1378	429	1372	324
4	5229	551	1060	21	-25	1427	444	1416	334
5	5372	550	1084	21	-28	1478	460	1462	345
6	5520	549	1108	21	-31	1531	476	1510	356
7	5671	547	1133	21	-34	1585	493	1558	367
8	5827	546	1159	21	-37	1641	511	1608	378
9	5988	544	1184	21	-40	1699	529	1660	390
10	6153	542	1210	21	-43	1760	548	1713	402
11	6323	540	1237	21	-45	1822	567	1767	414
12	6497	538	1263	20	-48	1886	587	1823	427
13	6677	536	1291	20	-51	1953	608	1881	440
14	6862	533	1318	20	-54	2022	630	1940	454
15	7053	530	1346	20	-57	2094	652	2001	467
16	7249	527	1374	20	-60	2167	675	2064	482
17	7450	524	1402	20	-63	2244	698	2128	496
18	7658	521	1431	20	-66	2323	723	2194	511
19	7871	518	1461	20	-68	2404	748	2262	527
20	8090	514	1490	20	-71	2489	775	2332	542
21	8316	510	1520	19	-74	2576	802	2404	559
22	8548	506	1550	19	-77	2666	830	2478	575
23	8787	502	1581	19	-79	2759	859	2554	592
24	9032	498	1611	19	-82	2856	889	2632	610
25	9285	493	1642	19	-85	2955	920	2712	628
26	9545	488	1674	19	-87	3058	952	2795	646

Variable	Label	Minimum	Maximum
DR	DIFFERENCE RENTAL UNITS	4955.00	9545.00
DHCHILDR	DIFFERENCE CPLS WITH KIDS	488.0000000	552.0000000
DHNCHR	DIFFERENCE CPLS NO KIDS	1012.00	1674.00
DHSPMR	DIFFERENCE S PARENT MEN RENT	19.0000000	21.0000000
DHSPWR	DIFFERENCE S PARENT WOMEN RENT	-87.0000000	-19.0000000
DHNFMSR	DIFFERENCE NON-FAM MEN SINGL RENT	1331.00	3058.00
DHNFMGR	DIFFERENCE NON-FAM MEN GROUP RENT	414.0000000	952.0000000
DHNFWSR	DIFFERENCE NON-FAM WOMEN SNGL RENT	1329.00	2795.00
DHNFWGR	DIFFERENCE NON-FAM WOMEN GRP RENT	314.0000000	646.0000000

OBS	PHHO	PHCHILDO	PHNCHO	PHSPMO	PHSPWO	PHNFMSO	PHNFMGO	PHNFWSO	PHNFWGO
1	302887	172721	55660	4075	15635	22939	5108	23407	3343
2	311101	176290	57790	4100	15890	23700	5278	24550	3503
3	319532	179911	59993	4124	16148	24488	5453	25743	3670
4	328185	183584	62273	4148	16408	25304	5635	26988	3844
5	337067	187309	64631	4173	16670	26150	5823	28286	4026
6	346183	191085	67069	4197	16933	27025	6018	29640	4215
7	355540	194914	69591	4221	17199	27931	6220	31052	4411
8	365143	198794	72197	4245	17467	28870	6429	32525	4617
9	375000	202726	74892	4269	17737	29841	6645	34060	4830
10	385117	206710	77676	4293	18008	30848	6869	35660	5053
11	395501	210746	80554	4316	18282	31890	7101	37328	5285
12	406159	214833	83527	4340	18557	32968	7342	39066	5526
13	417099	218972	86599	4363	18834	34085	7590	40878	5777
14	428326	223163	89771	4386	19112	35242	7848	42766	6039
15	439851	227404	93047	4409	19392	36439	8115	44733	6311
16	451679	231697	96430	4432	19674	37678	8391	46782	6595
17	463819	236041	99923	4455	19957	38961	8676	48916	6890
18	476280	240436	103528	4478	20242	40289	8972	51139	7197
19	489070	244881	107248	4501	20528	41664	9278	53455	7516
20	502197	249376	111087	4523	20815	43087	9595	55866	7849
21	515671	253921	115049	4545	21103	44560	9923	58376	8194
22	529501	258515	119135	4567	21393	46084	10263	60990	8554
23	543696	263158	123350	4589	21684	47662	10614	63711	8928
24	558266	267850	127696	4611	21976	49295	10977	66543	9317
25	573221	272591	132177	4633	22269	50985	11354	69491	9722
26	588571	277379	136797	4654	22563	52734	11743	72559	10143

Variable	Label	Minimum	Maximum
PHHO	HOMEOWNERS	302887.00	588571.00
PHCHILDO	PROJECTED CPLS WITH KIDS OWN	172721.00	277379.00
PHNCHO	PROJECTED CPLS NO KIDS	55660.00	136797.00
PHSPMO	PROJECTED SPRT WONMEN OWN	4075.00	4654.00
PHSPWO	PROJECTED SPRT WNWOMEN OWN	15635.00	22563.00
PHNFMSO	PROJ. NON-FAM MEN SINGL OWN	22939.00	52734.00
PHNFMGO	PROJ. NON-FAM MEN GROUP OWN	5108.00	11743.00
PHNFWSO	PROJ. NON-FAM WOMEN SNGL OWN	23407.00	72559.00
PHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	3343.00	10143.00

OBS	DHHO	DHCHILDO	DHNCHO	DHSPMO	DHSPWO	DHNFMSO	DHNFMGO	DHNFWSO	DHNFWGO
1	.	.	.	.	.	.	.	.	.
2	8214	3570	2130	25	256	761	169	1144	160
3	8431	3621	2204	24	258	788	176	1193	167
4	8653	3673	2280	24	260	816	182	1245	174
5	8882	3725	2358	24	262	845	188	1298	181
6	9116	3776	2438	24	264	875	195	1354	189
7	9357	3828	2521	24	266	906	202	1412	197
8	9604	3880	2607	24	268	938	209	1472	205
9	9857	3932	2694	24	270	972	216	1535	214
10	10117	3984	2785	24	272	1006	224	1600	223
11	10384	4036	2878	24	273	1042	232	1668	232
12	10658	4087	2973	24	275	1079	240	1738	241
13	10939	4139	3071	23	277	1117	249	1812	251
14	11228	4191	3172	23	278	1156	258	1888	262
15	11524	4242	3276	23	280	1197	267	1967	272
16	11828	4293	3383	23	282	1239	276	2049	283
17	12140	4344	3492	23	283	1283	286	2134	295
18	12461	4395	3605	23	285	1328	296	2223	307
19	12790	4445	3721	23	286	1375	306	2315	319
20	13127	4495	3839	22	287	1423	317	2411	332
21	13474	4545	3961	22	289	1473	328	2510	346
22	13830	4594	4086	22	290	1524	339	2614	360
23	14195	4643	4215	22	291	1578	351	2721	374
24	14570	4692	4346	22	292	1633	364	2832	389
25	14955	4740	4481	22	293	1690	376	2948	405
26	15350	4788	4620	21	294	1749	389	3068	421

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	8214.00	15350.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	3570.00	4788.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	2130.00	4620.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	21.0000000	25.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	256.0000000	294.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	761.0000000	1749.00
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	169.0000000	389.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	1144.00	3068.00
DHNFWGO		160.0000000	421.0000000

TABLE P.6A INCREASES IN WOMEN S INCOME AND 2.5% GROWTH
PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS
OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%
20:42 Sunday, September 3, 1995

OBS	PHH	PPHHO	PHHO	PCRAT	PHHC	DHHC
1	512794	0.59066	302887	0.12970	39285	.
2	525963	0.59149	311101	0.13045	40583	1298
3	539484	0.59229	319532	0.13121	41926	1344
4	553366	0.59307	328185	0.13199	43317	1391
5	567620	0.59382	337067	0.13279	44758	1440
6	582256	0.59455	346183	0.13360	46249	1492
7	597284	0.59526	355540	0.13443	47794	1545
8	612714	0.59594	365143	0.13527	49394	1600
9	628559	0.59660	375000	0.13613	51051	1657
10	644829	0.59724	385117	0.13701	52767	1716
11	661535	0.59785	395501	0.13791	54544	1777
12	678691	0.59845	406159	0.13882	56385	1841
13	696307	0.59902	417099	0.13976	58292	1907
14	714398	0.59956	428326	0.14071	60268	1976
15	732975	0.60009	439851	0.14167	62315	2047
16	752052	0.60060	451679	0.14266	64436	2121
17	771643	0.60108	463819	0.14366	66634	2197
18	791761	0.60155	476280	0.14468	68911	2277
19	812422	0.60199	489070	0.14573	71270	2359
20	833639	0.60242	502197	0.14679	73715	2445
21	855429	0.60282	515671	0.14786	76249	2534
22	877807	0.60321	529501	0.14896	78875	2626
23	900789	0.60358	543696	0.15008	81597	2722
24	924392	0.60393	558266	0.15121	84418	2821
25	948631	0.60426	573221	0.15237	87342	2924
26	973526	0.60458	588571	0.15355	90372	3031

Variable	Label	Minimum	Maximum
PHH	PROJECTED HOUSEHOLDS	512794.00	973526.00
PPHHO		0.5906604	0.6045765
PHHO	HOMEOWNERS	302887.00	588571.00
PCRAT		0.1297012	0.1535454
PHHC	PROJECTED CONDOMINIUMS	39285.00	90372.00
DHHC	DIFFERENCE CONDOMINIUM	1298.00	3031.00

TABLE P.6B INCREASES IN WOMEN S INCOME
PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION
OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%
20:42 Sunday, September 3, 1995

OBS	PHHC	PCCHILD	PCNCH	PCSPM	PCSPW	PCNFAM
1	39285	11652	10514	593	3133	13392
2	40583	11874	10916	596	3184	14011
3	41926	12099	11333	600	3236	14659
4	43317	12326	11763	604	3288	15336
5	44758	12556	12209	607	3341	16046
6	46249	12788	12669	611	3393	16788
7	47794	13024	13146	614	3447	17564
8	49394	13262	13638	618	3500	18376
9	51051	13502	14147	621	3554	19226
10	52767	13746	14673	625	3609	20114
11	54544	13992	15217	628	3664	21044
12	56385	14240	15778	631	3719	22016
13	58292	14491	16358	635	3774	23034
14	60268	14745	16958	638	3830	24097
15	62315	15001	17577	642	3886	25210
16	64436	15260	18216	645	3943	26373
17	66634	15521	18875	648	3999	27590
18	68911	15785	19556	652	4056	28862
19	71270	16051	20259	655	4114	30192
20	73715	16319	20984	658	4171	31582
21	76249	16590	21733	661	4229	33036
22	78875	16863	22505	665	4287	34556
23	81597	17138	23301	668	4345	36144
24	84418	17416	24122	671	4404	37805
25	87342	17696	24968	674	4463	39541
26	90372	17978	25841	677	4522	41355

Variable	Label	Minimum	Maximum
PHHC	PROJECTED CONDOMINIUMS	39285.00	90372.00
PCCHILD	CONDOS WITH CHILDREN	11652.00	17978.00
PCNCH	CONDOS COUPLES NO-KIDS	10514.00	25841.00
PCSPM	CONDOS SPARENTS MEN	593.0000000	677.0000000
PCSPW	CONDOS SPARENTS WOMEN	3133.00	4522.00
PCNFAM	CONDAS NON FAMILY	13392.00	41355.00

A2

PROJECTIONS USING 2.25 MILLION 20-64 YEAR OLDS AS THE BASE POPULATION

TABLE P.1
PROJECTION OF POPULATION AND HOUSEHOLD CHARACTERISTICS
OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE
20:58 Sunday, September 3, 1995

OBS	POP	POPTOT	Y	PHH	PHDRATE	HHSIZE	DKIDS
1	2250000	3400279	0	1153787	0.51279	2.94706	1.82086
2	2250000	3357029	1	1155758	0.51367	2.90461	1.79079
3	2250000	3314587	2	1157916	0.51463	2.86255	1.76072
4	2250000	3272964	3	1160257	0.51567	2.82090	1.73065
5	2250000	3232171	4	1162778	0.51679	2.77970	1.70058
6	2250000	3192218	5	1165476	0.51799	2.73898	1.67051
7	2250000	3153116	6	1168348	0.51927	2.69878	1.64044
8	2250000	3114875	7	1171390	0.52062	2.65913	1.61037
9	2250000	3077505	8	1174598	0.52204	2.62005	1.58030
10	2250000	3041014	9	1177969	0.52354	2.58157	1.55023
11	2250000	3005413	10	1181500	0.52511	2.54373	1.52016

Variable	Label	Minimum	Maximum
POP	POP. BETWEEN 20-64	2250000.00	2250000.00
POPTOT	POP. BETWEEN 0-64	3005413.00	3400279.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	1153787.00	1181500.00
PHDRATE	HEADSHIP RATE	0.5127942	0.5251109
HHSIZE	HOUSEHOLD SIZE	2.5437272	2.9470600
DKIDS	NO. KIDS UNDER 20	1.5201646	1.8208646

TABLE P.2

PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH
2.25 MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0

20:58 Sunday, September 3, 1995

OBS	PFAM	PCPL	PSPM	PSPW	PNFAMM	PNFAMW
1	1567332	1458246	17727	91360	233728	187940
2	1554521	1450425	16916	87180	238449	196030
3	1541431	1442133	16136	83163	243375	204194
4	1528065	1433376	15387	79302	248502	212433
5	1514422	1424161	14667	75593	253829	220749
6	1500504	1414496	13976	72032	259353	229143
7	1486313	1404387	13313	68613	265071	237616
8	1471853	1393843	12677	65334	270979	246168
9	1457125	1382871	12066	62188	277075	254800
10	1442134	1371481	11481	59171	283355	263511
11	1426883	1359682	10920	56281	289816	272301

Variable	Label	Minimum	Maximum
PFAM	PROJECTED FAMILY	1426883.00	1567332.00
PCPL	PROJECTED COUPLES	1359682.00	1458246.00
PSPM	PROJ. SINGLE FATHERS	10920.00	17727.00
PSPW	PROJ. SINGLE MOTHERS	56281.00	91360.00
PNFAMM	PROJ. NON-FAM MEN	233728.00	289816.00
PNFAMW	PROJ. NON-FAM WOMEN	187940.00	272301.00

TABLE P.3

PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH
2.25 MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0

20:58 Sunday, September 3, 1995

OBS	POP	Y	PHH	PHHO	PHHF	PHHC	PHHR
1	2250000	0	1153787	681496	593105	88391	472291
2	2250000	1	1155758	684999	594854	90145	470759
3	2250000	2	1157916	688444	596469	91975	469472
4	2250000	3	1160257	691834	597951	93883	468423
5	2250000	4	1162778	695171	599300	95872	467607
6	2250000	5	1165476	698460	600516	97945	467016
7	2250000	6	1168348	701705	601600	100104	466643
8	2250000	7	1171390	704908	602553	102355	466482
9	2250000	8	1174598	708073	603375	104698	466525
10	2250000	9	1177969	711205	604067	107138	466764
11	2250000	10	1181500	714307	604628	109679	467193

Variable	Label	Minimum	Maximum
POP	POP. BETWEEN 20-64	2250000.00	2250000.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	1153787.00	1181500.00
PHHO	HOMEOWNERS	681496.00	714307.00
PHHF	FREEHOLD	593105.00	604628.00
PHHC	CONDOMINIUM	88391.00	109679.00
PHHR	PROCECTED RENTING HOUSEHOLDS	466482.00	472291.00

TABLE P.4A

PROJECTION OF RENTERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	PHHR	PHCHILDR	PHNCHR	PHSPMR	PHSPWR	PHNFMSR	PHNFMGR	PHNFWSR	PHNFWGR
1	472291	117133	81253	7985	53231	90259	28099	75943	18388
2	470759	113038	81836	7620	49933	92083	28667	78595	18988
3	469472	109003	82356	7269	46802	93985	29259	81220	19579
4	468423	105030	82812	6931	43832	95965	29875	83817	20161
5	467607	101122	83203	6607	41018	98022	30516	86386	20734
6	467016	97283	83526	6296	38353	100155	31180	88926	21298
7	466643	93516	83780	5997	35833	102363	31867	91435	21852
8	466482	89823	83965	5710	33451	104645	32577	93914	22397
9	466525	86206	84079	5435	31202	106999	33310	96361	22932
10	466764	82669	84122	5172	29080	109424	34065	98775	23458
11	467193	79212	84093	4919	27080	111919	34842	101154	23973

Variable	Label	Minimum	Maximum
PHHR	PROCECTED RENTING HOUSEHOLDS	466482.00	472291.00
PHCHILDR	PROJECTED CPLS WITH KIDS	79212.00	117133.00
PHNCHR	PROJECTED CPLS NO CHILDREN	81253.00	84122.00
PHSPMR	PROJECTED SPARENT MEN RENT	4919.00	7985.00
PHSPWR	PROJECTED SPARENT WOMEN RENT	27080.00	53231.00
PHNFMSR	PROJ. NON-FAM MEN SINGL RENT	90259.00	111919.00
PHNFMGR	PROJ. NON-FAM MEN GROUP RENT	28099.00	34842.00
PHNFWSR	PROJ. NON-FAM WOMEN SNGL RENT	75943.00	101154.00
PHNFWGR	PROJ. NON-FAM WOMEN GRP RENT	18388.00	23973.00

TABLE P.4B

PROJECTION OF ANNUAL CHANGES IN THE RENTAL STOCK FOR A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	DR	DHCHILDR	DHNCHR	DHSPMR	DHSPWR	DHNFMSR	DHNFMGR	DHNFWSR	DHNFWGR
1	.	.	.	.	.	.	.	.	.
2	-1532	-4094	583	-365	-3298	1823	568	2652	600
3	-1287	-4035	520	-351	-3131	1902	592	2625	591
4	-1048	-3973	456	-337	-2970	1980	616	2597	582
5	-816	-3908	390	-324	-2814	2057	640	2569	573
6	-591	-3839	323	-311	-2664	2133	664	2540	564
7	-373	-3767	254	-299	-2520	2208	687	2510	554
8	-161	-3693	185	-287	-2382	2282	710	2479	545
9	43	-3616	114	-275	-2249	2354	733	2447	535
10	239	-3538	43	-264	-2122	2425	755	2414	525
11	428	-3457	-29	-253	-2000	2495	777	2380	515

Variable	Label	Minimum	Maximum
DR	DIFFERENCE RENTAL UNITS	-1532.00	428.0000000
DHCHILDR	DIFFERENCE CPLS WITH KIDS	-4094.00	-3457.00
DHNCHR	DIFFERENCE CPLS NO CHILDREN	-29.0000000	583.0000000
DHSPMR	DIFFERENCE S PARENT MEN RENT	-365.0000000	-253.0000000
DHSPWR	DIFFERENCE S PARENT WOMEN RENT	-3298.00	-2000.00
DHNFMSR	DIFFERENCE NON-FAM MEN SINGL RENT	1823.00	2495.00
DHNFMGR	DIFFERENCE NON-FAM MEN GROUP RENT	568.0000000	777.0000000
DHNFWSR	DIFFERENCE NON-FAM WOMEN SNGL RENT	2380.00	2652.00
DHNFWGR	DIFFERENCE NON-FAM WOMEN GRP RENT	515.0000000	600.0000000

TABLE P.4C INCREASES IN WOMEN S INCOME
PROJECTION OF TOTAL CHANGES IN THE RENTAL STOCK FOR A POPULATION
OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE
20:58 Sunday, September 3, 1995

OBS	RR	RHCHILDR	RHNCHR	RHSPMR	RHSPWR	RHNFMSR	RHNFMGR	RHNFWSR	RHNFWGR
1	0	0	0	0	0	0	0	0	0
2	-1532	-4094	583	-365	-3298	1823	568	2652	600
3	-2819	-8130	1104	-716	-6429	3725	1160	5277	1191
4	-3867	-12103	1560	-1054	-9399	5706	1776	7874	1773
5	-4684	-16010	1950	-1378	-12213	7763	2417	10443	2346
6	-5275	-19849	2273	-1689	-14878	9896	3081	12983	2910
7	-5647	-23617	2527	-1988	-17398	12104	3768	15493	3464
8	-5809	-27310	2712	-2275	-19780	14386	4478	17971	4009
9	-5766	-30926	2826	-2550	-22029	16740	5211	20418	4544
10	-5526	-34464	2869	-2813	-24151	19165	5966	22832	5070
11	-5098	-37920	2840	-3066	-26151	21660	6743	25212	5585

Variable	Label	Minimum	Maximum
RR	TOTAL CHG. RENTAL UNITS	-5809.00	0
RHCHILDR	TOTAL CHG. CPLS WITH KIDS	-37920.00	0
RHNCHR	TOTAL CHG. CPLS NO KIDS	0	2869.00
RHSPMR	TOTAL CHG. S PARENT MEN RENT	-3066.00	0
RHSPWR	TOTAL CHG. S PARENT WOMEN RENT	-26151.00	0
RHNFMSR	TOTAL CHG. NON-FAM MEN SINGL RENT	0	21660.00
RHNFMGR	TOTAL CHG. NON-FAM MEN GROUP RENT	0	6743.00
RHNFWSR	TOTAL CHG. NON-FAM WOMEN SNGL RENT	0	25212.00
RHNFWGR	TOTAL CHG. NON-FAM WOMEN GRP RENT	0	5585.00

TABLE P.5A

PROJECTION OF HOMEOWNERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	PHHO	PHCHILDO	PHNCHO	PHSPMO	PHSPWO	PHNFMSO	PHNFMGO	PHNFWSO	PHNFWGO
1	681496	388621	125235	9169	35178	51613	11494	52665	7522
2	684999	384438	129295	8749	34432	52656	11726	55758	7946
3	688444	380006	133379	8346	33675	53744	11968	58945	8381
4	691834	375333	137479	7959	32909	54876	12220	62229	8829
5	695171	370427	141589	7586	32134	56052	12482	65611	9289
6	698460	365297	145702	7229	31352	57272	12754	69094	9761
7	701705	359953	149809	6886	30564	58535	13035	72678	10245
8	704908	354404	153902	6557	29772	59839	13326	76365	10742
9	708073	348661	157974	6241	28977	61186	13625	80157	11252
10	711205	342734	162017	5938	28180	62572	13934	84055	11774
11	714307	336635	166021	5648	27383	63999	14252	88059	12310

Variable	Label	Minimum	Maximum
PHHO	HOMEOWNERS	681496.00	714307.00
PHCHILDO	PROJECTED CPLS WITH KIDS OWN	336635.00	388621.00
PHNCHO	PROJECTED CPLS NO KIDS	125235.00	166021.00
PHSPMO	PROJECTED SPRT WONMEN OWN	5648.00	9169.00
PHSPWO	PROJECTED SPRT WNWOMEN OWN	27383.00	35178.00
PHNFMSO	PROJ. NON-FAM MEN SINGL OWN	51613.00	63999.00
PHNFMGO	PROJ. NON-FAM MEN GROUP OWN	11494.00	14252.00
PHNFWSO	PROJ. NON-FAM WOMEN SNGL OWN	52665.00	88059.00
PHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	7522.00	12310.00

TABLE P.5B

PROJECTION OF ANNUAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	DHHO	DHCHILDO	DHNCHO	DHSPMO	DHSPWO	DHNFMSO	DHNFMGO	DHNFWSO	DHNFWGO
1	.	.	.	.	.	.	.	.	.
2	3503	-4183	4060	-419	-746	1043	232	3093	424
3	3445	-4432	4084	-403	-757	1088	242	3187	436
4	3389	-4673	4100	-387	-766	1132	252	3284	448
5	3338	-4906	4110	-372	-775	1176	262	3382	460
6	3289	-5130	4112	-357	-782	1220	272	3482	472
7	3244	-5344	4107	-343	-788	1263	281	3584	484
8	3203	-5549	4094	-329	-792	1305	291	3687	497
9	3166	-5743	4072	-316	-795	1346	300	3792	510
10	3132	-5927	4042	-303	-797	1387	309	3898	523
11	3102	-6099	4004	-290	-798	1427	318	4005	535

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	3102.00	3503.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	-6099.00	-4183.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	4004.00	4112.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	-419.0000000	-290.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	-798.0000000	-746.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	1043.00	1427.00
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	232.0000000	318.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	3093.00	4005.00
DHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	424.0000000	535.0000000

TABLE P.5C

PROJECTION OF TOTAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	RHHO	RHCHILDO	RHNCHO	RHSPMO	RHSPWO	RHNFMSO	RHNFMGO	RHNFWSO	RHNFWGO
1	-0.00	0	0	0	0	0	0	0	0
2	3503.20	-4183	4060	-419	-746	1043	232	3093	424
3	6947.91	-8616	8144	-823	-1503	2130	474	6280	860
4	10337.36	-13289	12245	-1210	-2269	3263	727	9564	1307
5	13674.94	-18195	16355	-1582	-3044	4439	989	12947	1767
6	16964.12	-23324	20467	-1940	-3826	5659	1260	16429	2239
7	20208.45	-28669	24574	-2283	-4613	6921	1541	20013	2724
8	23411.57	-34217	28668	-2612	-5405	8226	1832	23700	3221
9	26577.15	-39961	32740	-2928	-6201	9572	2132	27492	3730
10	29708.90	-45887	36782	-3230	-6998	10959	2440	31390	4253
11	32810.56	-51987	40786	-3521	-7795	12386	2758	35394	4788

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	3102.00	3503.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	-6099.00	-4183.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	4004.00	4112.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	-419.0000000	-290.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	-798.0000000	-746.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	1043.00	1427.00
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	232.0000000	318.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	3093.00	4005.00
DHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	424.0000000	535.0000000

TABLE P.6A

PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS

20:58 Sunday, September 3, 1995

OBS	PHH	PPHHO	PHHO	PCRAT	PHHC	DHHC
1	1153787	0.59066	681496	0.12970	88391	.
2	1155758	0.59268	684999	0.13160	90145	1754
3	1157916	0.59455	688444	0.13360	91975	1830
4	1160257	0.59628	691834	0.13570	93883	1908
5	1162778	0.59785	695171	0.13791	95872	1989
6	1165476	0.59929	698460	0.14023	97945	2073
7	1168348	0.60060	701705	0.14266	100104	2160
8	1171390	0.60177	704908	0.14520	102355	2250
9	1174598	0.60282	708073	0.14786	104698	2344
10	1177969	0.60376	711205	0.15064	107138	2440
11	1181500	0.60458	714307	0.15355	109679	2540

Variable	Label	Minimum	Maximum
PHH	PROJECTED HOUSEHOLDS	1153787.00	1181500.00
PPHHO	PROPORTION HOMEOWNERS	0.5906604	0.6045765
PHHO	HOMEOWNERS	681496.00	714307.00
PCRAT	PROP. CONDO AMONG OWNERS	0.1297012	0.1535454
PHHC	CONDOMINIUM	88391.00	109679.00
DHHC	DIFFERENCE CONDOMINIUM	1754.00	2540.00

TABLE P.6B

PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE

20:58 Sunday, September 3, 1995

OBS	PHHC	PCCHILD	PCNCH	PCSPM	PCSPW	PCNFAM
1	88391	26218	23657	1334	7050	30132
2	90145	25832	24424	1273	6900	31716
3	91975	25432	25195	1214	6748	33385
4	93883	25019	25970	1158	6595	35141
5	95872	24593	26746	1104	6440	36989
6	97945	24155	27523	1052	6283	38931
7	100104	23707	28299	1002	6125	40972
8	102355	23248	29072	954	5966	43114
9	104698	22780	29841	908	5807	45362
10	107138	22303	30605	864	5647	47719
11	109679	21818	31361	822	5487	50189

Variable	Label	Minimum	Maximum
PHHC	CONDOMINIUM	88391.00	109679.00
PCCHILD	CONDOMINIUM CPLS W KIDS	21818.00	26218.00
PCNCH	CONDOMINIUM CPLS NO KIDS	23657.00	31361.00
PCSPM	CONDOMINIUM SPARENT MEN	822.0000000	1334.00
PCSPW	CONDOMINIUM SPARENT WOMEN	5487.00	7050.00
PCNFAM	NONF-FAM CONDOMINIUMS	30132.00	50189.00

OBS	POP	POPTOT	Y	PHH	PHDRATE	HHSIZE	DKIDS
1	2250000	3400279	0.0	1153787	0.51279	2.94706	1.82086
2	2306250	3467455	0.4	1183417	0.51313	2.93004	1.80884
3	2363906	3535999	0.8	1213839	0.51349	2.91307	1.79681
4	2423004	3605942	1.2	1245074	0.51386	2.89617	1.78478
5	2483579	3677315	1.6	1277145	0.51424	2.87932	1.77275
6	2545668	3750151	2.0	1310076	0.51463	2.86255	1.76072
7	2609310	3824482	2.4	1343888	0.51504	2.84583	1.74870
8	2674543	3900342	2.8	1378607	0.51546	2.82919	1.73667
9	2741407	3977767	3.2	1414257	0.51589	2.81262	1.72464
10	2809942	4056791	3.6	1450864	0.51633	2.79612	1.71261
11	2880190	4137452	4.0	1488454	0.51679	2.77970	1.70058
12	2952195	4219787	4.4	1527054	0.51726	2.76335	1.68856
13	3026000	4303834	4.8	1566692	0.51774	2.74708	1.67653
14	3101650	4389633	5.2	1607395	0.51824	2.73090	1.66450
15	3179191	4477226	5.6	1649193	0.51875	2.71480	1.65247
16	3258671	4566652	6.0	1692116	0.51927	2.69878	1.64044
17	3340138	4657957	6.4	1736196	0.51980	2.68285	1.62842
18	3423641	4751183	6.8	1781462	0.52034	2.66701	1.61639
19	3509232	4846376	7.2	1827949	0.52090	2.65126	1.60436
20	3596963	4943583	7.6	1875689	0.52146	2.63561	1.59233
21	3686887	5042850	8.0	1924716	0.52204	2.62005	1.58030
22	3779059	5144228	8.4	1975066	0.52263	2.60458	1.56828
23	3873536	5247766	8.8	2026776	0.52324	2.58922	1.55625
24	3970374	5353516	9.2	2079881	0.52385	2.57395	1.54422
25	4069633	5461531	9.6	2134421	0.52447	2.55879	1.53219
26	4171374	5571867	10.0	2190434	0.52511	2.54373	1.52016

Variable	Label	Minimum	Maximum
POP	20-64 POPULATION	2250000.00	4171374.00
POPTOT	0-64 POPULATION	3400279.00	5571867.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	1153787.00	2190434.00
PHDRATE	HEADSHIP RATE	0.5127942	0.5251109
HHSIZE	HOUSEHOLD SIZE	2.5437272	2.9470600
DKIDS	NO. KIDS UNDER 20	1.5201646	1.8208646

OBS	PFAM	PCPL	PSPM	PSPW	PNFAMM	PNFAMW
1	1567332	1458246	17727	91360	233728	187940
2	1601297	1491554	17833	91910	241481	195947
3	1635934	1525536	17940	92458	249511	204248
4	1671254	1560203	18046	93005	257827	212855
5	1707268	1595568	18151	93549	266438	221777
6	1743988	1631641	18256	94091	275356	231027
7	1781426	1668434	18361	94631	284591	240614
8	1819593	1705959	18465	95168	294153	250550
9	1858501	1744228	18569	95703	304054	260848
10	1898162	1783253	18673	96236	314307	271520
11	1938588	1823047	18775	96766	324923	282578
12	1979791	1863621	18878	97293	335914	294035
13	2021784	1904987	18979	97817	347294	305906
14	2064579	1947159	19081	98339	359076	318204
15	2108188	1990150	19181	98857	371274	330943
16	2152625	2033971	19281	99373	383901	344139
17	2197902	2078636	19381	99885	396973	357807
18	2244031	2124158	19479	100394	410506	371962
19	2291027	2170549	19578	100900	424513	386621
20	2338902	2217824	19675	101403	439012	401801
21	2387669	2265996	19772	101902	454020	417519
22	2437342	2315077	19868	102397	469553	433794
23	2487934	2365082	19963	102889	485629	450643
24	2539459	2416024	20058	103377	502267	468085
25	2591930	2467917	20152	103861	519485	486142
26	2645361	2520775	20245	104341	537302	504831

Variable	Label	Minimum	Maximum
PFAM	PROJECTED FAMILIES	1567332.00	2645361.00
PCPL	PROCECTED COULPES	1458246.00	2520775.00
PSPM	PROJECTED SINGLE FATHERS	17727.00	20245.00
PSPW	PROJECTED SINGLE MOTHERS	91360.00	104341.00
PNFAMM	PROJECTED NON-FAM MEN	233728.00	537302.00
PNFAMW	PROJECTED NON-FAM WOMEN	187940.00	504831.00

OBS	POP	Y	PHH	PHHO	PHHF	PHHC	PHHR
1	2250000	0.0	1153787	681496	593105	88391	472291
2	2306250	0.4	1183417	699977	608666	91311	483439
3	2363906	0.8	1213839	718946	624612	94334	494892
4	2423004	1.2	1245074	738416	640952	97464	506658
5	2483579	1.6	1277145	758400	657695	100705	518745
6	2545668	2.0	1310076	778911	674850	104061	531164
7	2609310	2.4	1343888	799964	692427	107537	543924
8	2674543	2.8	1378607	821572	710436	111136	557035
9	2741407	3.2	1414257	843750	728887	114864	570507
10	2809942	3.6	1450864	866514	747789	118725	584351
11	2880190	4.0	1488454	889878	767154	122724	598577
12	2952195	4.4	1527054	913858	786992	126866	613196
13	3026000	4.8	1566692	938472	807314	131158	628220
14	3101650	5.2	1607395	963735	828131	135603	643660
15	3179191	5.6	1649193	989664	849455	140209	659529
16	3258671	6.0	1692116	1016278	871296	144981	675839
17	3340138	6.4	1736196	1043594	893668	149925	692602
18	3423641	6.8	1781462	1071631	916582	155049	709832
19	3509232	7.2	1827949	1100408	940050	160358	727541
20	3596963	7.6	1875689	1129944	964085	165859	745744
21	3686887	8.0	1924716	1160261	988701	171560	764455
22	3779059	8.4	1975066	1191378	1013909	177469	783689
23	3873536	8.8	2026776	1223316	1039724	183593	803459
24	3970374	9.2	2079881	1256099	1066159	189940	823782
25	4069633	9.6	2134421	1289747	1093229	196519	844673
26	4171374	10.0	2190434	1324285	1120947	203338	866149

Variable	Label	Minimum	Maximum
POP	20-64 POPULATION	2250000.00	4171374.00
Y	$1000 INCREASE	0	10.0000000
PHH	PROJECTED HOUSEHOLDS	1153787.00	2190434.00
PHHO	HOMEOWNERS	681496.00	1324285.00
PHHF	FREEHOLD	593105.00	1120947.00
PHHC	PROJECTED CONDOMINIUMS	88391.00	203338.00
PHHR	PROCECTED HOUSEHOLDS RENTAL	472291.00	866149.00

OBS	PHHR	PHCHILDR	PHNCHR	PHSPMR	PHSPWR	PHNFMSR	PHNFMGR	PHNFWSR	PHNFWGR
1	472291	117133	81253	7985	53231	90259	28099	75943	18388
2	483439	118375	83531	8033	53188	93254	29031	78932	19095
3	494892	119616	85862	8081	53139	96355	29996	82019	19824
4	506658	120856	88246	8129	53083	99566	30996	85206	20576
5	518745	122093	90685	8177	53021	102891	32031	88496	21352
6	531164	123327	93179	8224	52952	106335	33104	91893	22152
7	543924	124558	95729	8271	52876	109901	34214	95399	22977
8	557035	125786	98336	8318	52793	113594	35363	99017	23828
9	570507	127010	101001	8365	52704	117418	36554	102752	24705
10	584351	128230	103724	8411	52608	121377	37786	106605	25609
11	598577	129445	106506	8458	52506	125477	39062	110581	26541
12	613196	130655	109349	8504	52397	129721	40384	114683	27502
13	628220	131860	112253	8550	52282	134116	41752	118915	28492
14	643660	133059	115219	8595	52160	138666	43168	123280	29513
15	659529	134253	118247	8640	52031	143376	44635	127782	30565
16	675839	135439	121338	8686	51897	148252	46153	132426	31648
17	692602	136619	124494	8730	51755	153301	47724	137214	32765
18	709832	137791	127714	8775	51608	158526	49351	142151	33915
19	727541	138955	131001	8819	51454	163936	51035	147241	35100
20	745744	140112	134353	8863	51294	169535	52778	152489	36320
21	764455	141259	137773	8907	51128	175330	54583	157899	37577
22	783689	142398	141260	8950	50955	181329	56450	163475	38872
23	803459	143527	144816	8993	50777	187537	58383	169222	40205
24	823782	144647	148442	9035	50592	193962	60383	175144	41577
25	844673	145756	152137	9078	50402	200611	62453	181247	42990
26	866149	146855	155903	9120	50205	207492	64595	187535	44445

Variable	Label	Minimum	Maximum
PHHR	PROCECTED HOUSEHOLDS RENTAL	472291.00	866149.00
PHCHILDR	PROJECTED CPLS WITH KIDS	117133.00	146855.00
PHNCHR	PROJECTED CPLS NO KIDS	81253.00	155903.00
PHSPMR	PROJECTED SPARENT MEN RENT	7985.00	9120.00
PHSPWR	PROJECTED SPARENT WOMEN RENT	50205.00	53231.00
PHNFMSR	PROJ. NON-FAM MEN SINGL RENT	90259.00	207492.00
PHNFMGR	PROJ. NON-FAM MEN GROUP RENT	28099.00	64595.00
PHNFWSR	PROJ. NON-FAM WOMEN SNGL RENT	75943.00	187535.00
PHNFWGR	PROJ. NON-FAM WOMEN GRP RENT	18388.00	44445.00

OBS	DR	DHCHILDR	DHNCHR	DHSPMR	DHSPWR	DHNFMSR	DHNFMGR	DHNFWSR	DHNFWGR
1	.	.	.	.	.	.	.	.	.
2	11149	1243	2278	48	-43	2994	932	2989	707
3	11453	1241	2331	48	-49	3101	965	3087	729
4	11766	1239	2384	48	-56	3211	1000	3187	752
5	12088	1237	2439	48	-63	3326	1035	3290	776
6	12419	1234	2494	47	-69	3444	1072	3397	800
7	12760	1231	2550	47	-76	3566	1110	3506	825
8	13111	1228	2607	47	-83	3693	1150	3619	851
9	13472	1224	2665	47	-89	3824	1190	3734	877
10	13844	1220	2723	47	-96	3959	1233	3853	904
11	14226	1215	2783	46	-102	4099	1276	3976	932
12	14619	1210	2843	46	-109	4245	1321	4102	961
13	15024	1205	2904	46	-115	4395	1368	4232	990
14	15440	1199	2966	46	-122	4550	1416	4365	1021
15	15869	1193	3028	45	-128	4710	1466	4502	1052
16	16310	1187	3091	45	-135	4876	1518	4643	1084
17	16763	1180	3156	45	-141	5048	1572	4788	1116
18	17230	1172	3220	45	-148	5226	1627	4937	1150
19	17710	1164	3286	44	-154	5409	1684	5090	1185
20	18203	1156	3353	44	-160	5599	1743	5248	1220
21	18711	1148	3420	44	-166	5795	1804	5410	1257
22	19233	1139	3488	43	-172	5998	1867	5576	1294
23	19770	1129	3556	43	-179	6208	1933	5747	1333
24	20323	1120	3625	43	-185	6425	2000	5922	1372
25	20891	1109	3695	42	-191	6649	2070	6103	1413
26	21476	1099	3766	42	-196	6881	2142	6288	1455

Variable	Label	Minimum	Maximum
DR	DIFFERENCE RENTAL UNITS	11149.00	21476.00
DHCHILDR	DIFFERENCE CPLS WITH KIDS RENT	1099.00	1243.00
DHNCHR	DIFFERENCE CPLS NO KIDS RENT	2278.00	3766.00
DHSPMR	DIFFERENCE S PARENT MEN RENT	42.0000000	48.0000000
DHSPWR	DIFFERENCE S PARENT WOMEN RENT	-196.0000000	-43.0000000
DHNFMSR	DIFFERENCE NON-FAM MEN SINGL RENT	2994.00	6881.00
DHNFMGR	DIFFERENCE NON-FAM MEN GROUP RENT	932.0000000	2142.00
DHNFWSR	DIFFERENCE NON-FAM WOMEN SNGL RENT	2989.00	6288.00
DHNFWGR	DIFFERENCE NON-FAM WOMEN GRP RENT	707.0000000	1455.00

OBS	PHHO	PHCHILDO	PHNCHO	PHSPMO	PHSPWO	PHNFMSO	PHNFMGO	PHNFWSO	PHNFWGO
1	681496	388621	125235	9169	35178	51613	11494	52665	7522
2	699977	396653	130027	9224	35753	53326	11875	55238	7882
3	718946	404801	134985	9279	36333	55099	12270	57923	8258
4	738416	413064	140114	9334	36917	56935	12679	60723	8649
5	758400	421445	145420	9388	37507	58837	13102	63644	9057
6	778911	429942	150906	9443	38100	60806	13541	66691	9483
7	799964	438556	156579	9497	38698	62845	13995	69868	9926
8	821572	447286	162444	9551	39301	64957	14465	73181	10387
9	843750	456133	168506	9605	39908	67143	14952	76635	10868
10	866514	465097	174772	9658	40519	69407	15456	80235	11369
11	889878	474178	181246	9711	41134	71752	15978	83988	11890
12	913858	483374	187936	9764	41753	74179	16519	87900	12433
13	938472	492687	194847	9817	42376	76692	17078	91976	12999
14	963735	502116	201985	9869	43003	79294	17658	96223	13588
15	989664	511660	209356	9921	43633	81987	18258	100649	14200
16	1016278	521319	216968	9973	44266	84776	18879	105259	14838
17	1043594	531093	224826	10024	44903	87662	19521	110062	15502
18	1071631	540981	232937	10075	45544	90651	20187	115064	16193
19	1100408	550982	241308	10126	46187	93744	20876	120273	16912
20	1129944	561096	249947	10177	46833	96946	21589	125698	17659
21	1160261	571322	258860	10227	47483	100260	22327	131346	18438
22	1191378	581659	268054	10276	48134	103690	23091	137227	19247
23	1223316	592106	277537	10326	48789	107240	23881	143349	20089
24	1256099	602664	287316	10375	49446	110914	24699	149722	20964
25	1289747	613329	297399	10423	50105	114716	25546	156354	21875
26	1324285	624102	307794	10472	50766	118651	26422	163257	22822

Variable	Label	Minimum	Maximum
PHHO	HOMEOWNERS	681496.00	1324285.00
PHCHILDO	PROJECTED CPLS WITH KIDS OWN	388621.00	624102.00
PHNCHO	PROJECTED CPLS NO KIDS	125235.00	307794.00
PHSPMO	PROJECTED SPRT WONMEN OWN	9169.00	10472.00
PHSPWO	PROJECTED SPRT WNWOMEN OWN	35178.00	50766.00
PHNFMSO	PROJ. NON-FAM MEN SINGL OWN	51613.00	118651.00
PHNFMGO	PROJ. NON-FAM MEN GROUP OWN	11494.00	26422.00
PHNFWSO	PROJ. NON-FAM WOMEN SNGL OWN	52665.00	163257.00
PHNFWGO	DIFFERENCE NON-FAM WOMEN GRP OWN	7522.00	22822.00

OBS	DHHO	DHCHILDO	DHNCHO	DHSPMO	DHSPWO	DHNFMSO	DHNFMGO	DHNFWSO	DHNFWGO
1	.	.	.	.	.	.	.	.	.
2	18481	8031	4792	55	575	1712	381	2573	360
3	18969	8148	4958	55	580	1773	395	2685	376
4	19470	8264	5129	55	585	1836	409	2801	392
5	19984	8380	5305	55	589	1902	423	2921	408
6	20511	8497	5486	54	594	1969	439	3047	425
7	21053	8614	5673	54	598	2039	454	3177	443
8	21608	8731	5865	54	603	2112	470	3313	462
9	22178	8847	6062	54	607	2187	487	3454	481
10	22763	8964	6266	53	611	2264	504	3601	501
11	23364	9080	6475	53	615	2344	522	3753	522
12	23981	9197	6690	53	619	2427	541	3912	543
13	24613	9313	6911	53	623	2513	560	4076	565
14	25263	9429	7138	52	627	2602	579	4247	589
15	25929	9544	7371	52	630	2694	600	4425	613
16	26614	9659	7611	52	634	2789	621	4610	638
17	27316	9774	7858	51	637	2887	643	4802	664
18	28037	9888	8111	51	640	2988	665	5002	691
19	28777	10001	8371	51	643	3093	689	5209	719
20	29537	10114	8638	50	646	3202	713	5425	748
21	30316	10226	8913	50	649	3314	738	5648	778
22	31117	10337	9194	50	652	3430	764	5881	809
23	31939	10448	9483	49	654	3550	791	6122	842
24	32782	10557	9779	49	657	3674	818	6373	876
25	33648	10666	10083	49	659	3802	847	6633	911
26	34538	10773	10395	48	661	3935	876	6903	947

Variable	Label	Minimum	Maximum
DHHO	DIFFERENCE IN OWNERSHIP UNITS	18481.00	34538.00
DHCHILDO	DIFFERENCE CPLS WITH KIDS OWN	8031.00	10773.00
DHNCHO	DIFFERENCE CPLS NO KIDS OWN	4792.00	10395.00
DHSPMO	DIFFERENCE SDAOWNMEN OWN	48.0000000	55.0000000
DHSPWO	DIFFERENCE SDAOWNWOMEN OWN	575.0000000	661.0000000
DHNFMSO	DIFFERENCE NON-FAM MEN SINGL OWN	1712.00	3935.00
DHNFMGO	DIFFERENCE NON-FAM MEN GROUP OWN	381.0000000	876.0000000
DHNFWSO	DIFFERENCE NON-FAM WOMEN SNGL OWN	2573.00	6903.00
DHNFWGO		360.0000000	947.0000000

TABLE P.6A INCREASES IN WOMEN S INCOME AND 2.5% GROWTH
PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS
OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%
20:58 Sunday, September 3, 1995

OBS	PHH	PPHHO	PHHO	PCRAT	PHHC	DHHC
1	1153787	0.59066	681496	0.12970	88391	.
2	1183417	0.59149	699977	0.13045	91311	2920
3	1213839	0.59229	718946	0.13121	94334	3023
4	1245074	0.59307	738416	0.13199	97464	3130
5	1277145	0.59382	758400	0.13279	100705	3241
6	1310076	0.59455	778911	0.13360	104061	3356
7	1343888	0.59526	799964	0.13443	107537	3475
8	1378607	0.59594	821572	0.13527	111136	3599
9	1414257	0.59660	843750	0.13613	114864	3728
10	1450864	0.59724	866514	0.13701	118725	3861
11	1488454	0.59785	889878	0.13791	122724	3999
12	1527054	0.59845	913858	0.13882	126866	4143
13	1566692	0.59902	938472	0.13976	131158	4291
14	1607395	0.59956	963735	0.14071	135603	4446
15	1649193	0.60009	989664	0.14167	140209	4606
16	1692116	0.60060	1016278	0.14266	144981	4772
17	1736196	0.60108	1043594	0.14366	149925	4944
18	1781462	0.60155	1071631	0.14468	155049	5123
19	1827949	0.60199	1100408	0.14573	160358	5309
20	1875689	0.60242	1129944	0.14679	165859	5501
21	1924716	0.60282	1160261	0.14786	171560	5701
22	1975066	0.60321	1191378	0.14896	177469	5909
23	2026776	0.60358	1223316	0.15008	183593	6124
24	2079881	0.60393	1256099	0.15121	189940	6347
25	2134421	0.60426	1289747	0.15237	196519	6579
26	2190434	0.60458	1324285	0.15355	203338	6819

Variable	Label	Minimum	Maximum
PHH	PROJECTED HOUSEHOLDS	1153787.00	2190434.00
PPHHO		0.5906604	0.6045765
PHHO	HOMEOWNERS	681496.00	1324285.00
PCRAT		0.1297012	0.1535454
PHHC	PROJECTED CONDOMINIUMS	88391.00	203338.00
DHHC	DIFFERENCE CONDOMINIUM	2920.00	6819.00

PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION
OF 2.25 MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%
20:58 Sunday, September 3, 1995

OBS	PHHC	PCCHILD	PCNCH	PCSPM	PCSPW	PCNFAM
1	88391	26218	23657	1334	7050	30132
2	91311	26717	24562	1342	7165	31525
3	94334	27222	25499	1350	7281	32982
4	97464	27733	26468	1358	7398	34507
5	100705	28250	27470	1366	7516	36103
6	104061	28774	28506	1374	7635	37772
7	107537	29303	29578	1382	7755	39519
8	111136	29839	30686	1390	7876	41346
9	114864	30380	31831	1397	7998	43258
10	118725	30928	33014	1405	8120	45257
11	122724	31481	34237	1413	8243	47349
12	126866	32040	35501	1421	8367	49537
13	131158	32605	36807	1428	8492	51825
14	135603	33176	38155	1436	8618	54219
15	140209	33752	39547	1444	8744	56722
16	144981	34334	40985	1451	8871	59339
17	149925	34922	42470	1459	8999	62077
18	155049	35515	44002	1466	9127	64939
19	160358	36114	45583	1473	9256	67931
20	165859	36718	47215	1481	9385	71060
21	171560	37327	48899	1488	9516	74331
22	177469	37942	50635	1495	9646	77750
23	183593	38561	52427	1502	9777	81325
24	189940	39186	54274	1510	9909	85061
25	196519	39816	56179	1517	10041	88967
26	203338	40450	58142	1524	10173	93048

Variable	Label	Minimum	Maximum
PHHC	PROJECTED CONDOMINIUMS	88391.00	203338.00
PCCHILD	CONDOS WITH CHILDREN	26218.00	40450.00
PCNCH	CONDOS COUPLES NO-KIDS	23657.00	58142.00
PCSPM	CONDOS SPARENTS MEN	1334.00	1524.00
PCSPW	CONDOS SPARENTS WOMEN	7050.00	10173.00
PCNFAM	CONDAS NON FAMILY	30132.00	93048.00

A3

KEY EQUATIONS

OF

PROJECTION PROGRAM

```
DATA PP     ;
*INITIALIZING TO GET SEQUENCE;
POP  =  . ;
POPTOT  = . ;
pHH  = . ;
pfam  =  . ;
Pcpl  = . ;
pspm  = . ;
pspw  =  . ;
pnfamm  =  . ;
pnfamw   = .;
phhr   = .;
phchildr   = .;
phnchr   = .;
phspmr   = .;
phspwr   = .;
phnfmsr   = .;
phnfmgr   = .;
phnfwsr   = .;
phnfwgr   = .;
dr   = .;
dhchildr   = .;
dhnchr   = .;
dhspmr   = .;
dhspwr   = .;
dhnfmsr   = .;
dhnfmgr   = .;
dhnfwsr   = .;
dhnfwgr   = .;
Rr   = .;
Rhchildr   = .;
Rhnchr   = .;
Rhspmr   = .;
Rhspwr   = .;
Rhnfmsr   = .;
Rhnfmgr   = .;
Rhnfwsr   = .;
Rhnfwgr   = .;
phho   = .;
phchildo   = .;
phncho   = .;
phspmo   = .;
phspwo   = .;
phnfmso   = .;
phnfmgo   = .;
phnfwso   = .;
phnfwgo   = .;
dhho   = .;
dhchildo   = .;
dhncho   = .;
dhspmo   = .;
dhspwo   = .;
dhnfmso   = .;
dhnfmgo   = .;
```

```
dhnfwso   = .;
dhnfwgo   = .;
RHHO   = .;
RhchildO   = .;
RhnchO   = .;
RhspmO   = .;
RhspwO   = .;
RhnfmsO   = .;
RhnfmgO   = .;
RhnfwsO   = .;
RhnfwgO   = .;
phhc   = .;
pcchild   = .;
pcnch   = .;
pcspm   = .;
pcspw   = .;
pcnfam   = .;
PHH   = .;
phho   = .;
phhf   = .;
phhc   = .;
dhhc    = .;
PCRAT= .;
PPHHO= . ;


PPHHO =.;
PCRAT= .;
y =  .;
DKIDS =   .;
HHSIZE =  .;
PHDRATE =  .;
PPHHO =  .;
PCRAT=  .;
y =   .;
DKIDS =  .;
HHSIZE =  .;
PHDRATE =  .;
 phhc=.;
 pcchild=.;
 pcnch =.;
 pcspm =.;
 pcspw  =.;
  pcnfam =.;

LABEL
POP  = ' 20-64 POPULATION'
POPTOT  = '0-64 POPULATION'
pHH  = 'PROJECTED HOUSEHOLDS'
pfam  = 'PROJECTED FAMILIES'
Pcpl  = 'PROCECTED COULPES'
pspm  = 'PROJECTED SINGLE FATHERS'
pspw  = 'PROJECTED SINGLE MOTHERS'
pnfamm  = 'PROJECTED NON-FAM MEN'
pnfamw  = 'PROJECTED NON-FAM WOMEN'
```

```
phhr  = 'PROCECTED HOUSEHOLDS RENTAL'
phchildr  = 'PROJECTED CPLS WITH KIDS'
phnchr  = 'PROJECTED CPLS NO KIDS'
phspmr  = 'PROJECTED SPARENT MEN RENT'
phspwr  = 'PROJECTED SPARENT WOMEN RENT'
phnfmsr  = 'PROJ. NON-FAM MEN SINGL RENT'
phnfmgr  = 'PROJ. NON-FAM MEN GROUP RENT'
phnfwsr  = 'PROJ. NON-FAM WOMEN SNGL RENT'
Phnfwgr  = 'PROJ. NON-FAM WOMEN GRP RENT'

Dr  = 'DIFFERENCE RENTAL UNITS'
dhchildr  = 'DIFFERENCE CPLS WITH KIDS RENT'
dhnchr  = 'DIFFERENCE CPLS NO KIDS RENT'
dhspmr  = 'DIFFERENCE S PARENT MEN RENT'
dhspwr  = 'DIFFERENCE S PARENT WOMEN RENT'
dhnfmsr  = 'DIFFERENCE NON-FAM MEN SINGL RENT'
dhnfmgr  = 'DIFFERENCE NON-FAM MEN GROUP RENT'
dhnfwsr  = 'DIFFERENCE NON-FAM WOMEN SNGL RENT'
Dhnfwgr  = 'DIFFERENCE NON-FAM WOMEN GRP RENT'

rr  = 'TOTAL CHG. RENTAL UNITS'
rhchildr  = 'TOTAL CHG. CPLS WITH KIDS'
rhnchr  = 'TOTAL CHG. CPLS NO KIDS'
rhspmr  = 'TOTAL CHG. S PARENT MEN RENT'
rhspwr  = 'TOTAL CHG. S PARENT WOMEN RENT'
rhnfmsr  = 'TOTAL CHG. NON-FAM MEN SINGL RENT'
rhnfmgr  = 'TOTAL CHG. NON-FAM MEN GROUP RENT'
rhnfwsr  = 'TOTAL CHG. NON-FAM WOMEN SNGL RENT'
rhnfwgr  = 'TOTAL CHG. NON-FAM WOMEN GRP RENT '

phho  = 'PROCECTED HOUSEHOLDS OWN'
phchildo  = 'PROJECTED CPLS WITH KIDS OWN'
phncho  = 'PROJECTED CPLS NO KIDS'
phspmo  = 'PROJECTED SPRT WONMEN OWN'
phspwo  = 'PROJECTED SPRT WNWOMEN OWN'
phnfmso  = 'PROJ. NON-FAM MEN SINGL OWN'
phnfmgo  = 'PROJ. NON-FAM MEN GROUP OWN'
phnfwso  = 'PROJ. NON-FAM WOMEN SNGL OWN'
phnfwgo  = 'PROJ. NON-FAM WOMEN GRP OWN'

DHHo  = 'DIFFERENCE IN OWNERSHIP UNITS'
dhchildo  = 'DIFFERENCE CPLS WITH KIDS OWN'
dhncho  = 'DIFFERENCE CPLS NO KIDS OWN'
dhspmo  = 'DIFFERENCE SDAOWNMEN OWN'
dhspwo  = 'DIFFERENCE SDAOWNWOMEN OWN'
dhnfmso  = 'DIFFERENCE NON-FAM MEN SINGL OWN'
dhnfmgo  = 'DIFFERENCE NON-FAM MEN GROUP OWN '
dhnfwso  = 'DIFFERENCE NON-FAM WOMEN SNGL OWN'
phnfwgo  = 'DIFFERENCE NON-FAM WOMEN GRP OWN '

ro  = 'TOTAL CHG. OWNERSHIP UNITS'
rhchildo  = 'TOTAL CHG. CPLS WITH KIDS OWN'
rhncho  = 'TOTAL CHG. CPLS NO KIDS OWN'
rhspmo  = 'TOTAL CHG. SDAOWNMEN OWN'
```

```
rhspwo  = 'TOTAL CHG. SDAOWNWOMEN OWN'
rhnfmso  = 'TOTAL CHG. NON-FAM MEN SINGL OWN '
rhnfmgo  = 'TOTAL CHG. NON-FAM MEN GROUP OWN '
rhnfwso  = 'TOTAL CHG. NON-FAM WOMEN SNGL OWN'
rhnfwgo  = 'TOTAL CHG. NON-FAM WOMEN GRP OWN '

phhc  = 'PROJECTED CONDOMINIUMS'
pcchild  = 'CONDOMINIUM CPLS W KIDS'
pcnch  = 'CONDOMINIUM CPLS NO KIDS'
pcspm  = 'CONDOMINIUM SPARENT MEN'
pcspw  = 'CONDOMINIUM SPARENT WOMEN'
pcnfam  = 'NONF-FAM CONDOMINIUMS'
phho  = 'HOMEOWNERS'
phhf  = 'FREEHOLD'
dhhc   = 'DIFFERENCE CONDOMINIUM'
Y='WOMENS INCREASE IN $1000'
 phhc= 'PROJECTED CONDOMINIUMS'
 pcchild='CONDOS WITH CHILDREN'
 pcnch ='CONDOS COUPLES NO-KIDS'
 pcspm ='CONDOS SPARENTS MEN'
 pcspw  ='CONDOS SPARENTS WOMEN'
  pcnfam ='CONDAS NON FAMILY'
Y ='$1000 INCREASE'
PHDRATE  ='HEADSHIP RATE'
HHSIZE = 'HOUSEHOLD SIZE'
DKIDS = 'NO. KIDS UNDER 20';


* S T A R T   H E R E ;
data program; set PP     ;
 OPTIONS LS = 79;
rfam=.778; pspr = .0696;pc =.71;
 DO  yy = 0 to 10 by 1;
INCOME = YY; LABEL INCOME ='$1000 INCREASE';
y=     yy;
year=  yy;

* ratios used in model THAT CAN BE CHANGED HERE AND IN GROWTH SECTION;
popbase = 1000000; *STARTING POPULATION 20-64 YEAR OLDS;
pop = popbase;  *PROJECTED POPULATION;
grate = .025; *GROWTH RATE FOR 20-64 YEAROLD POP;
male = .493;  *PROP 20-64 YEAROLDS WHO ATRE MEN;
rindep=.884;  * PROP INDEPENDANT OF PARENTS;
rdouble = .0646/2; *HALF PROP. DOUBLED FAMILIES WITH KIDS;
othrel = .0432; *PROP. LIVING WITH OTHER RELATIVES;
rkids = 2.1 -  (1-(rindep *(1- othrel) ) )/ (.778*.71);
rchild=.7168; *RATIO FAMILIES WITH DEP. CHILD AT HOMW;
rsp = .0696; *RATIO FAMILIES WHO ARE SPARENTS;
rspm= .1625; *RATIO SPARENTS WHO ARE MEN;
rchildo= .7684;*COUPLES WITH KIDS HOMEOWNERS;
rnchild=.6065; *RATIO NONCHILD COUPLES AT START;
rspmo=.5345; *RATIO SPARENT MEN HOMEOWNERS;
rspwo=.3979;

rnfamms= .6070; *PROP NON-FAM MEN IN ONE PERSON HH;
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```
rnfamws= .6843;
rnfammso = .3638; *PROP. NON-FAM SINGLE MEN HOMEOWNERS;
rnfammgo = .2821; * PROP. NON-FAM MEN IN GROUPS HOMEOWNERS;
rnfamwso= .4095;
rnfammgo = .2903;
RGM = 2.32; *AVG SIZE OF MEN GROUP;
RGW=2.29; *AVG SIZE WOMEN GROUP;


LABEL
POP  = ' 20-64 POPULATION'
POPTOT  = '0-64 POPULATION'
pHH  = 'PROJECTED HOUSEHOLDS'
pfam  = 'PROJECTED FAMILIES'
Pcpl  = 'PROCECTED COULPES'
pspm  = 'PROJECTED SINGLE FATHERS'
pspw  = 'PROJECTED SINGLE MOTHERS'
pnfamm  = 'PROJECTED NON-FAM MEN'
pnfamw  = 'PROJECTED NON-FAM WOMEN'

phhr  = 'PROCECTED RENTING HOUSEHOLDS'
phchildr  = 'PROJECTED CPLS WITH KIDS'
phnchr  = 'PROJECTED CPLS NO CHILDREN'
phspmr  = 'PROJECTED SPARENT MEN RENT'
phspwr  = 'PROJECTED SPARENT WOMEN RENT'
phnfmsr  = 'PROJ. NON-FAM MEN SINGL RENT'
phnfmgr  = 'PROJ. NON-FAM MEN GROUP RENT'
phnfwsr  = 'PROJ. NON-FAM WOMEN SNGL RENT'
dhnfwgr  = 'PROJ. NON-FAM WOMEN GRP RENT'

Dr  = 'DIFFERENCE RENTAL UNITS'
dhchildr  = 'DIFFERENCE CPLS WITH KIDS'
dhnchr  = 'DIFFERENCE CPLS NO CHILDREN'
dhspmr  = 'DIFFERENCE S PARENT MEN RENT'
dhspwr  = 'DIFFERENCE S PARENT WOMEN RENT'
dhnfmsr  = 'DIFFERENCE NON-FAM MEN SINGL RENT'
dhnfmgr  = 'DIFFERENCE NON-FAM MEN GROUP RENT'
dhnfwsr  = 'DIFFERENCE NON-FAM WOMEN SNGL RENT'
Dhnfwgr  = 'DIFFERENCE NON-FAM WOMEN GRP RENT'

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rhchildr  = 'TOTAL CHG. CPLS WITH KIDS'
rhnchr  = 'TOTAL CHG. CPLS NO KIDS'
rhspmr  = 'TOTAL CHG. S PARENT MEN RENT'
rhspwr  = 'TOTAL CHG. S PARENT WOMEN RENT'
rhnfmsr  = 'TOTAL CHG. NON-FAM MEN SINGL RENT'
rhnfmgr  = 'TOTAL CHG. NON-FAM MEN GROUP RENT'
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rhnfwgr  = 'TOTAL CHG. NON-FAM WOMEN GRP RENT '

phho  = 'PROCECTED HOUSEHOLDS OWN'
phchildo  = 'PROJECTED CPLS WITH KIDS OWN'
phncho  = 'PROJECTED CPLS NO KIDS'
phspmo  = 'PROJECTED SPRT WONMEN OWN'
phspwo  = 'PROJECTED SPRT WNWOMEN OWN'
```

```
phnfmso  = 'PROJ. NON-FAM MEN SINGL OWN'
phnfmgo  = 'PROJ. NON-FAM MEN GROUP OWN'
phnfwso  = 'PROJ. NON-FAM WOMEN SNGL OWN'
dhnfwgo  = 'PROJ. NON-FAM WOMEN GRP OWN'

DHHo  = 'DIFFERENCE IN OWNERSHIP UNITS'
dhchildo  = 'DIFFERENCE CPLS WITH KIDS OWN'
dhncho  = 'DIFFERENCE CPLS NO KIDS OWN'
dhspmo  = 'DIFFERENCE SDAOWNMEN OWN'
dhspwo  = 'DIFFERENCE SDAOWNWOMEN OWN'
dhnfmso  = 'DIFFERENCE NON-FAM MEN SINGL OWN'
dhnfmgo  = 'DIFFERENCE NON-FAM MEN GROUP OWN '
dhnfwso  = 'DIFFERENCE NON-FAM WOMEN SNGL OWN'
Dhnfwgo  = 'DIFFERENCE NON-FAM WOMEN GRP OWN '

ro  = 'TOTAL CHG. OWNERSHIP UNITS'
rhchildo  = 'TOTAL CHG. CPLS WITH KIDS OWN'
rhncho  = 'TOTAL CHG. CPLS NO KIDS OWN'
rhspmo  = 'TOTAL CHG. SDAOWNMEN OWN'
rhspwo  = 'TOTAL CHG. SDAOWNWOMEN OWN'
rhnfmso  = 'TOTAL CHG. NON-FAM MEN SINGL OWN '
rhnfmgo  = 'TOTAL CHG. NON-FAM MEN GROUP OWN '
rhnfwso  = 'TOTAL CHG. NON-FAM WOMEN SNGL OWN'
rhnfwgo  = 'TOTAL CHG. NON-FAM WOMEN GRP OWN '

phhc  = 'PROJECTED CONDOMINIUMS'
pcchild  = 'CONDOMINIUM CPLS W KIDS'
pcnch  = 'CONDOMINIUM CPLS NO KIDS'
pcspm  = 'CONDOMINIUM SPARENT MEN'
pcspw  = 'CONDOMINIUM SPARENT WOMEN'
pcnfam  = 'NONF-FAM CONDOMINIUMS'
phho  = 'HOMEOWNERS'
phhf  = 'FREEHOLD'
phhc  = 'CONDOMINIUM'
dhhc   = 'DIFFERENCE CONDOMINIUM'


PPHHO ='PROPORTION HOMEOWNERS'
PCRAT='PROP. CONDO AMONG OWNERS';




*GET INDEPENDANT POPULATION;
indep = .884 * pop;
*developing the family nonfam ratios;
fam = .788 * indep;

* useing nonfam regression june6 p 29 ey eywmn;
yfam= (.788/(1-.788)) * ((1/(.997 * 1.042))**y);
pf  =yfam/(1+yfam);
pfam = pf *indep;

* SETTING THE COUPLES RATIOS;
```

```
cpl =(1 - rsp )* fam;
sp = rsp * fam;
ysp = (rsp /(1-rsp)) * ((.975* .984)**y);
pspr = ysp/(1+ysp);
psp = pspr * pfam;
pcpl =(1 - pspr) * pfam;


child=rchild * cpl;
nchild =(1 - rchild)* cpl;
ychild = (rchild/(1- .7168)) *(( .962)** y);
pc = ychild/(1+ychild);
pchild = pc * pcpl ;
pnchild = (1 - pc)* pcpl;

*SINGLE PARENTS;
spm =  rspm  * sp;
spw = (1 -  rspm )* sp;
pspm=  rspm  * psp;
pspw =(1 -  rspm ) * psp;

*OWNERSHIP RATES;
childo = rchildo  * child;
ychildo =( rchildo /(1- .7684))*((1.022*1.003)**y);
pcldo = ychildo/(1+ychildo);
pchildo = pcldo * pchild;

childr = (1 -  rchildo )* child;
pchildr = (1 - pcldo) * pchild;

*COUPLES WITHOUT CHILDREN;
nchildo =  rnchild  * nchild;
ynchildo =( rnchild /(1-.6065))*((1.022*1.003)**y);
pnc = ynchildo/(1+ynchildo);
pnchildo =pnc * pnchild;
nchildr = (1 -  rnchild ) * nchild;
pnchildr = (1 - pnc)* pnchild;

*SINGLE PARENTS;
spmo=  rspmo  * spm;
pspmo = rspmo  * pspm;
spmr = (1 -  rspmo )*  spm;
pspmr = (1 -  rspmo )*pspm;
spwo = rspwo  * spw;
yspwo=(rspwo /(1- .3979))* ((1.025*1.018)**y);
ps = yspwo/(1+yspwo);
pspwo = ps * pspw;
spwr = (1 - rspwo ) * spw;
pspwr = (1 - ps) * pspw;

*NONFAMILY AS A RESIDUAL;
* nonfam = prop.indep. men - half prob. couple - sparent prob;
nfamm=(male*rindep  * pop) - ( cpl/2)  - spm ;
nfamw = (1 - male )*rindep* pop -(cpl/2) - spw;
pnfamm=(male*rindep  * pop) - ( pcpl/2)  - pspm ;
```

```
pnfamw =((1 - male )*rindep* pop)  - (pcp1/2) - pspw;

nfamms= rnfamms * nfamm;
nfammg = (1 - rnfamms) * nfamm;
pnfamms= rnfamms * pnfamm;
pnfammg= (1 - rnfamms) * pnfamm;


nfamws = rnfamws * nfamw;

ynfamws = ( rnfamws/(1 - rnfamws ))*((.995*1.010)**y);
pnf= ynfamws/(1 + ynfamws);
pnfamws= pnf * pnfamw ;

nfamwg = (1 - rnfamws) * nfamw;
pnfamwg = (1 - pnf)* pnfamw;

nfammso =  rnfammso  * nfamms;
pnfammso =  rnfammso  * pnfamms;

nfammsr = (1 -  rnfammso ) * nfamms;
pnfammsr = (1 -  rnfammso ) * pnfamms;
nfammgo=  rnfammgo  * nfammg;
pnfammgo=  rnfammgo  * pnfammg;
nfammgr = (1 -  rnfammgo ) * nfammg;
pnfammgr = (1 -  rnfammgo ) * pnfammg;
nfamwso=  rnfamwso  * nfamws;
ynfamwso = ( rnfamwso /(1 - .4095))*(1.023**y);
pnfw=ynfamwso/(1 +ynfamwso);
pnfamwso = pnfw * pnfamws;

nfamwsr = (1 -  rnfamwso )* nfamws;
pnfamwsr = (1 - pnfw ) * pnfamws;
nfamwgo =  rnfammgo  * nfamwg;
nfamwgr = (1 -  rnfammgo )* nfamwg;
ynfwg=( rnfammgo /(1-.2903))*(1.023**y);
pnfwg= ynfwg/(1 + ynfwg);
pnfamwgo = pnfwg * pnfamwg;
pnfamwgr = (1 - pnfwg)* pnfamwg ;



* constructing households;
hchildo = (childo   *(1 - rdouble)/2);
hchildr = (childr *(1 - rdouble)/2);
hnchildo= (nchildo)/2;
hnchildr = (nchildr )/2;

hspmo= spmo*(1 - rdouble);
  hspmr = spmr*(1 - rdouble);
hspwo = spwo*( 1 - rdouble);
 hspwr = spwr*(1 - rdouble);


hnfammgo=nfammgo/RGM ;  hnfammgr=nfammgr/RGM ;
```

```
hnfamwgo=nfamwgo/RGW ;  hnfamwgr=nfamwgr/RGW ;

hnfammso=nfammso     ;  hnfammsr=nfammsr     ;
hnfamwso=nfamwso     ;  hnfamwsr=nfamwsr     ;

* constructing the predicted households;
phchildo = (pchildo*(1 - rdouble)/2);
phchildr = (pchildr*(1 - rdouble)/2);
phncho= (pnchildo)/2;
 phnchr =( pnchildr)/2;


phspmo= pspmo*(1 - rdouble);
 phspmr = pspmr*(1 - rdouble);
 phspwo = pspwo*(1 - rdouble);
  phspwr = pspwr*(1 - rdouble);


phnfmgo=pnfammgo/RGM ;  phnfmgr=pnfammgr/RGM ;
phnfwgo=pnfamwgo/RGW;  phnfwgr=pnfamwgr/RGW ;

phnfmso=pnfammso     ;  phnfmsr=pnfammsr     ;
phnfwso=pnfamwso     ;  phnfwsr=pnfamwsr     ;

*checking additions;
pp  = pchildo + pnchildo +
 pspmo + pspwo + pnfammso+ pnfammgo + pnfamwso+pnfamwgo +
      pchildr + pnchildr +
 pspmr + pspwr + pnfammsr+ pnfammgr + pnfamwsr+pnfamwgr +(1-rindep)*pop;

hho = hchildo + hnchildo +
 hspmo + hspwo + hnfammso+ hnfammgo + hnfamwso+hnfamwgo;
hhr = hchildr + hnchildr +
 hspmr + hspwr + hnfammsr+ hnfammgr + hnfamwsr+hnfamwgr;
hh= hho + hhr;
 hdrate =  hh/pop;

phspo=phspmo+phspwo;
phspr=phspmr+phspwr;
phnfamo=phnfmso+phnfwso + phnfmgo + phnfwgo;
phnfamr=phnfmsr+phnfwsr + phnfmgr + phnfwgr;

phho =phchildo +phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;

* DEVELOPING ANNUAL DIFFERENCES;
phhr =phchildr + phnchr +
 phspmr +phspwr +phnfmsr+phnfmgr +phnfwsr+phnfwgr;

phho =phchildo + phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;


dhchildr=phchildr-lag(phchildr);
dhnchr=phnchr-lag(phnchr);
```

```
dhspmr=phspmr-lag(phspmr);
dhspwr=phspwr-lag(phspwr);
dhnfmsr=phnfmsr-lag(phnfmsr);
dhnfmgr=phnfmgr-lag(phnfmgr);
dhnfwsr=phnfwsr-lag(phnfwsr);
dhnfwgr=phnfwgr-lag(phnfwgr);
dr=dhchildr+dhnchr+dhspmr+dhspwr+dhnfmsr+dhnfmgr+dhnfwsr+dhnfwgr;


dhchildo=phchildo-lag(phchildo);
dhncho=phncho-lag(phncho);
dhspmo=phspmo-lag(phspmo);
dhspwo=phspwo-lag(phspwo);
dhnfmso=phnfmso-lag(phnfmso);
dhnfmgo=phnfmgo-lag(phnfmgo);
dhnfwso=phnfwso-lag(phnfwso);
dhnfwgo=phnfwgo-lag(phnfwgo);
dhho=dhchildo+dhncho+dhspmo+dhspwo+dhnfmso+dhnfmgo+dhnfwso+dhnfwgo;

Rhchildr=phchildr-hchildr;
Rhnchr=phnchr-hnchildr;
Rhspmr=phspmr-hspmr;
Rhspwr=phspwr-hspwr;
Rhnfmsr=phnfmsr-hnfammsr;
Rhnfmgr=phnfmgr-hnfammgr;
Rhnfwsr=phnfwsr-hnfamwsr;
Rhnfwgr=phnfwgr-hnfamwgr;
Rr=Rhchildr+Rhnchr+Rhspmr+Rhspwr+Rhnfmsr+Rhnfmgr+Rhnfwsr+Rhnfwgr;


Phho =phchildo + phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;
Rhchildo=phchildo-hchildo;
Rhncho=phncho-hnchildo;
Rhspmo=phspmo-hspmo;
Rhspwo=phspwo-hspwo;
Rhnfmso=phnfmso-hnfammso;
Rhnfmgo=phnfmgo-hnfammgo;
Rhnfwso=phnfwso-hnfamwso;
Rhnfwgo=phnfwgo-hnfamwgo;
Ro=Rhchildo+Rhncho+Rhspmo+Rhspwo+Rhnfmso+Rhnfmgo+Rhnfwso+Rhnfwgo;
Rhho=Rhchildo+Rhncho+Rhspmo+Rhspwo+Rhnfmso+Rhnfmgo+Rhnfwso+Rhnfwgo;


*SUMMING AND CHANGES AND RATES;
phh=phho +phhr;
phdrate = phh/pop;
dhh = phh - lag(phh);
 dhhol= phho - lag(phho);
  dhhr = phhr - lag(phhr);
pphho = phho/phh;

*CONDOMINIUMS;
pcc= (.0632/(1-.0632))*(.996**y);
pcchild  = pcc * phchildo;
```

```
pcnch  = .1889 * phncho;
pcspm =.1455 * phspmo;
pcspw  = .2004 * phspwo;
pcnfamm=.2077 * (phnfmso+ phnfmgo);
 cnfamw=.2205 * (phnfwso+ phnfwgo);
pcww=(.2205/(1- .2205))*(1.018**y);
pcnfamw =pcww * (phnfwso + phnfwgo);
PCNFAM=PCNFAMM + PCNFAMW;
phhc= pcchild + pcnch +pcspm + pcspw + pcnfamm + pcnfamw;
PHHF=PHHO-PHHC;
pcrat= phhc/phho;
dhhc= phhc - lag(phhc);
DHHF=DHHO- DHHC;

*POPULATION PROJECTION;
DKIDS= rkids - .03007*Y;
POPTOT= pop     +DKIDS*((pchild/2) + PSPM + PSPW);
HHSIZE= POPTOT/PHH;
summ= cpl/2 + spm + nfamm;
sumw= cpl/2 + spw + nfamw;

sumpop= summ + sumw;
pnfam= pnfamm+pnfamw;
nfam=nfamm+nfamw;

output;end;

data program; set program ;




LABEL
POP='POP. BETWEEN 20-64'
POPTOT='POP. BETWEEN 0-64'
PHH='PROJECTED HOUSEHOLDS'
PFAM='PROJECTED FAMILY'
PCPL='PROJECTED COUPLES'
PSPM='PROJ. SINGLE FATHERS'
PSPW='PROJ. SINGLE MOTHERS'
PNFAMM='PROJ. NON-FAM MEN'
PNFAMW='PROJ. NON-FAM WOMEN'
 ;



array xx(74)
                POP POPTOT   pHH
                  pfam   pcpl pspm pspw pnfamm pnfamw
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr
Rr Rhchildr Rhnchr Rhspmr Rhspwr Rhnfmsr Rhnfmgr Rhnfwsr Rhnfwgr
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo
dhho dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo
```

```
RO RhchildO RhnchO RhspmO RhspwO RhnfmsO RhnfmgO RhnfwsO RhnfwgO
                phhc   pcchild   pcnch  pcspm   pcspw   pcnfam
                     PHH  phho phhf  phhc dhhc;

do i = 1 to 74;
xx(i) = round( xx(i), 1 );
end;


proc print; var POP    POPTOT Y pHH  phdrate HHSIZE DKIDS;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.1';
TITLE2
'PROJECTION OF POPULATION AND HOUSEHOLD CHARACTERISTICS';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
 POP    POPTOT Y pHH  phdrate HHSIZE DKIDS;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var   pfam   pcpl pspm pspw pnfamm pnfamw;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.2';
TITLE2
 'PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH ';
TITLE3
 'ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0';
PROC MEANS MIN MAX; VAR
                  pfam   pcpl pspm pspw pnfamm pnfamw;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var pop  y Phh  Phho PhhF PHHC  Phhr ;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.3';
TITLE2
 'PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH ';
TITLE3
 'ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0';
PROC MEANS MIN MAX; VAR
                pop  y Phh  Phho PhhF PHHC  Phhr ;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.4A';
TITLE2
 'PROJECTION OF RENTERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.4B';
```

```
TITLE2
 'PROJECTION OF ANNUAL CHANGES IN THE RENTAL STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var
Rr Rhchildr Rhnchr Rhspmr Rhspwr Rhnfmsr Rhnfmgr Rhnfwsr Rhnfwgr;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.4C';
    TITLE1 'TABLE P.4C INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF TOTAL CHANGES IN THE RENTAL STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
Rr Rhchildr Rhnchr Rhspmr Rhspwr Rhnfmsr Rhnfmgr Rhnfwsr Rhnfwgr;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.5A';
TITLE2
 'PROJECTION OF HOMEOWNERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var
dHHo dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.5B';
TITLE2
 'PROJECTION OF ANNUAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
dHHo dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';



proc print; var
RHHo Rhchildo Rhncho Rhspmo Rhspwo Rhnfmso Rhnfmgo Rhnfwso Rhnfwgo;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.5C';
TITLE2
 'PROJECTION OF TOTAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
PROC MEANS MIN MAX; VAR
dHHo dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';
```

```
proc print; var  PHH pphho  phho pcrat phhc dhhc;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.6A';
TITLE2'PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS';
PROC MEANS MIN MAX; VAR
                 PHH pphho  phho pcrat phhc dhhc;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';



proc print ; var phhc   pcchild   pcnch  pcspm   pcspw   pcnfam;
TITLE1 J=C H=2 F=TRIPLEX 'TABLE P.6B';
TITLE2
'PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';
proc MEANS MIN MAX;
var phhc   pcchild   pcnch  pcspm   pcspw   pcnfam;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';



*REMOVE NEXT LINE TO PLOT GRAPHS;
/* nnnnnnnnnnnnnnnnnnnnnnn

DATA PROGRAM ; SET PROGRAM;
SYMBOL1 W=22 C= BLACK I=SPLINE L=2;
SYMBOL2 W=22 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=18 C= BLACK I=SPLINE L = 1;
SYMBOL4 W=12 C= BLACK I=SPLINE L = 1 ;
SYMBOL5 W= 9 C= BLACK I=SPLINE L =  1;
SYMBOL6 W= 6 C= BLACK I=SPLINE L = 2 ;
SYMBOL7 W=5 C= BLACK I=SPLINE L =  2;
SYMBOL8 W=2 C= BLACK I=SPLINE L = 3 ;


AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (   00000 TO  800000 BY  200000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;

       PROC GPLOT DATA=PROGRAM;
plot (  pfam   pcpl pspm pspw
          pnfam  pnfamm pnfamw)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOUSEHOLD PROJECTIONS BY FAMILY TYPE ASSUMING $10,000 INCOME INCREASE';
```

```
TITLE3 J=C H=1 F=TRIPLEX
'FOR WOMEN STARTING WITH ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE';



       PROC GPLOT DATA=PROGRAM;
plot          (      phh   phho   phhr)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOUSEHOLDS, HOMEOWNERS AND RENTERS';

       PROC GPLOT DATA=PROGRAM;
plot (     phhr phchildr phspr phnchr phnfamr )
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'RENTERS BY HOUSEHOLD TYPE';

AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = ( -100000 TO  400000 BY  100000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;

       PROC GPLOT DATA=PROGRAM;
plot (     phho phchildo phspo phncho phnfamo )
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOMEOWNERS BY HOUSEHOLD TYPE';

AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = ( -100000 TO  400000 BY  100000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;


       PROC GPLOT DATA=PROGRAM;
```

```
PLOT (phhc   pcchild   pcnch  pcspm   pcspw   pcnfam)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-1000 TO  70000 BY  20000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'CONDOMINIUMS BY HOUSEHOLD TYPE ';


SYMBOL1 W=18 C= BLACK I=SPLINE L=2;
SYMBOL2 W=16 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=11 C= BLACK I=SPLINE L = 1;
SYMBOL4 W= 7 C= BLACK I=SPLINE L = 1 ;
       PROC GPLOT DATA=PROGRAM;
pLOT (      Dhho dhhF DHHC  dhhr )
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-1000 TO  4000 BY  1000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  1    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'NET ADDITIONS BY TENURE CATEGORY';
       PROC GPLOT DATA=PROGRAM;
plot
(  dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-2000 TO  2000 BY  1000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  1    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
```

```
TITLE2 J=C H=1 F=TRIPLEX
'NET RENTAL ADDITIONS BY HOUSEHOLD TYPE';

       PROC GPLOT DATA=PROGRAM;
plot
(  dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-3000 TO  5000 BY  2000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  1    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'NET HOME-OWNERSHIP ADDITIONS BY HOUSEHOLD TYPE';


       PROC GPLOT DATA=PROGRAM;
plot
 ( Rhchildr Rhnchr Rhspmr Rhspwr Rhnfmsr Rhnfmgr Rhnfwsr Rhnfwgr)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-12000 TO 12000 BY  4000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE        VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'ADDITIONS OF RENTAL UNITS BY HOUSEHOLD TYPE FOR A POPULATION ';
TITLE3 J=C H=1 F=TRIPLEX
 'OF ONE MILLION PEOPLE WHO ARE BETWEEN 20 AND 64 YEARS OF AGE';


SYMBOL1 W=24 C= BLACK I=SPLINE L=1;
SYMBOL2 W=19 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=16 C= BLACK I=SPLINE L = 17;
SYMBOL4 W=13 C= BLACK I=SPLINE L = 15;
SYMBOL5 W= 9 C= BLACK I=SPLINE L =  1;
SYMBOL6 W= 9 C= BLACK I=SPLINE L = 2 ;
SYMBOL7 W=4 C= BLACK I=SPLINE L =  1;
SYMBOL8 W=4 C= BLACK I=SPLINE L = 2 ;
SYMBOL9 W=2 C= BLACK I=SPLINE L =  1;
SYMBOL10 W=1 C= BLACK I=SPLINE L = 1 ;
```

```
SYMBOL12 W=2 C= BLACK I=SPLINE L = 2 ;


       PROC GPLOT DATA=PROGRAM;
plot
(  RhchildO RhnchO RhspmO RhspwO RhnfmsO RhnfmgO RhnfwsO RhnfwgO)
       *income
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (-24000 TO 24000 BY  8000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  10   BY  2
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'ADDITIONS OF HOME-OWNERSHIP UNITS BY HOUSEHOLD TYPE FOR A POPULATION';
TITLE3 J=C H=1 F=TRIPLEX
 'OF ONE MILLION PEOPLE WHO ARE BETWEEN 20 AND 64 YEARS OF AGE';


*REMOVE NEXT LINE TO PLOT GRAPHS;
nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn  */



* S E C O N D   P R O G R A M   T O   G R O W   T H E   P O P ;

DATA PROGRAM; SET PP;

 OPTIONS LS = 79;
 DO  yy = 0 to 25 by 1;
YEAR = YY;
Y = (10/25)*YY;
GRATE=.025;
popbase = 1000000;
POP = POPBASE * ((1 + GRATE)**yy);
* ratios used in model ;
male = .493;
rindep=.884;
rdouble = .0646/2;
othrel = .0432;
rkids = 2.1 -  (1-(rindep *(1- othrel) ))/ (.778*.71);
rchild=.7168;
rsp = .0696;
rspm= .1625;
rchildo= .7684;
rnchild=.6065;
rspmo=.5345;
rSpwo=.3979;
```

```
rnfamms= .6070;
rnfamws= .6843;
rnfammso = .3638;
rnfammgo = .2821;
rnfamwso= .4095;
rnfammgo = .2903;
RGM = 2.32; *AVG SIZE OF MEN GROUP;
RGW=2.29;


indep = .884 * pop;
*developing the family nonfam ratios;
fam = .788 * indep;

* useing nonfam regression june6 p 29 ey eywmn;
yfam= (.788/(1-.788)) * ((1/(.997 * 1.042))**y);
pf  =yfam/(1+yfam);
pfam = pf *indep;

* SETTING THE COUPLES RATIOS;
cpl =(1 - rsp )* fam;
sp = rsp * fam;
ysp = (rsp /(1-rsp)) * ((.975* .984)**y);
pspr = ysp/(1+ysp);
psp = pspr * pfam;
pcpl =(1 - pspr) * pfam;


child=rchild * cpl;
nchild =(1 - rchild)* cpl;
ychild = (rchild/(1- .7168)) *(( .962)** y);
pc = ychild/(1+ychild);
pchild = pc * pcpl ;
pnchild = (1 - pc)* pcpl;

*SINGLE PARENTS;
spm =  rspm  * sp;
spw = (1 -  rspm )* sp;
pspm=  rspm  * psp;
pspw =(1 -  rspm ) * psp;

*OWNERSHIP RATES;
childo = rchildo  * child;
ychildo =( rchildo /(1- .7684))*((1.022*1.003)**y);
pcldo = ychildo/(1+ychildo);
pchildo = pcldo * pchild;

childr = (1 -  rchildo )* child;
pchildr = (1 - pcldo) * pchild;

*COUPLES WITHOUT CHILDREN;
nchildo =  rnchild  * nchild;
ynchildo =( rnchild /(1-.6065))*((1.022*1.003)**y);
pnc = ynchildo/(1+ynchildo);
```

```
pnchildo =pnc * pnchild;
nchildr = (1 -  rnchild ) * nchild;
pnchildr = (1 - pnc)* pnchild;

*SINGLE PARENTS;
spmo=  rspmo  * spm;
pspmo = rspmo  * pspm;
spmr = (1 -  rspmo )*  spm;
pspmr = (1 -  rspmo )*pspm;
spwo = rspwo  * spw;
yspwo=(rspwo /(1- .3979))* ((1.025*1.018)**y);
ps = yspwo/(1+yspwo);
pspwo = ps * pspw;
spwr = (1 - rspwo ) * spw;
pspwr = (1 - ps) * pspw;

*NONFAMILY AS A RESIDUAL;
* nonfam = prop.indep. men - half prob. couple - sparent prob;
nfamm=(male*rindep  * pop) - ( cpl/2)  - spm ;
nfamw = (1 - male )*rindep* pop -(cpl/2) - spw;
pnfamm=(male*rindep  * pop) - ( pcpl/2)  - pspm ;
pnfamw =((1 - male )*rindep* pop)  - (pcpl/2) - pspw;

nfamms= rnfamms * nfamm;
nfammg = (1 - rnfamms) * nfamm;
pnfamms= rnfamms * pnfamm;
pnfammg= (1 - rnfamms) * pnfamm;


nfamws = rnfamws * nfamw;

ynfamws = ( rnfamws/(1 - rnfamws ))*((.995*1.010)**y);
pnf= ynfamws/(1 + ynfamws);
pnfamws= pnf * pnfamw ;

nfamwg = (1 - rnfamws) * nfamw;
pnfamwg = (1 - pnf)* pnfamw;

nfammso =  rnfammso  * nfamms;
pnfammso =  rnfammso  * pnfamms;

nfammsr = (1 -  rnfammso ) * nfamms;
pnfammsr = (1 -  rnfammso ) * pnfamms;
nfammgo=  rnfammgo  * nfammg;
pnfammgo=  rnfammgo  * pnfammg;
nfammgr = (1 -  rnfammgo ) * nfammg;
pnfammgr = (1 -  rnfammgo ) * pnfammg;
nfamwso=  rnfamwso  * nfamws;
ynfamwso = ( rnfamwso /(1 - .4095))*(1.023**y);
pnfw=ynfamwso/(1 +ynfamwso);
pnfamwso = pnfw * pnfamws;

nfamwsr = (1 -  rnfamwso )* nfamws;
pnfamwsr = (1 - pnfw ) * pnfamws;
nfamwgo =  rnfammgo  * nfamwg;
```

```
nfamwgr = (1 -  rnfammgo )* nfamwg;
ynfwg=( rnfammgo /(1-.2903))*(1.023**y);
pnfwg= ynfwg/(1 + ynfwg);
pnfamwgo = pnfwg * pnfamwg;
pnfamwgr = (1 - pnfwg)* pnfamwg ;



* constructing households;
hchildo = (childo   *(1 - rdouble)/2);
hchildr = (childr *(1 - rdouble)/2);
hnchildo= (nchildo)/2;
hnchildr = (nchildr )/2;

hspmo= spmo*(1 - rdouble);
  hspmr = spmr*(1 - rdouble);
hspwo = spwo*( 1 - rdouble);
 hspwr = spwr*(1 - rdouble);


hnfammgo=nfammgo/RGM ;  hnfammgr=nfammgr/RGM ;
hnfamwgo=nfamwgo/RGW ;  hnfamwgr=nfamwgr/RGW ;

hnfammso=nfammso     ;  hnfammsr=nfammsr     ;
hnfamwso=nfamwso     ;  hnfamwsr=nfamwsr     ;

* constructing the predicted households;
phchildo = (pchildo*(1 - rdouble)/2);
phchildr = (pchildr*(1 - rdouble)/2);
phncho= (pnchildo)/2;
 phnchr =( pnchildr)/2;


phspmo= pspmo*(1 - rdouble);
 phspmr = pspmr*(1 - rdouble);
 phspwo = pspwo*(1 - rdouble);
  phspwr = pspwr*(1 - rdouble);


phnfmgo=pnfammgo/RGM ;  phnfmgr=pnfammgr/RGM ;
phnfwgo=pnfamwgo/RGW ;  phnfwgr=pnfamwgr/RGW ;

phnfmso=pnfammso     ;  phnfmsr=pnfammsr     ;
phnfwso=pnfamwso     ;  phnfwsr=pnfamwsr     ;

*checking additions;
pp  = pchildo + pnchildo +
 pspmo + pspwo + pnfammso+ pnfammgo + pnfamwso+pnfamwgo +
      pchildr + pnchildr +
 pspmr + pspwr + pnfammsr+ pnfammgr + pnfamwsr+pnfamwgr +(1-rindep)*pop;

hho = hchildo + hnchildo +
 hspmo + hspwo + hnfammso+ hnfammgo + hnfamwso+hnfamwgo;
hhr = hchildr + hnchildr +
 hspmr + hspwr + hnfammsr+ hnfammgr + hnfamwsr+hnfamwgr;
```

```
hh= hho + hhr;
 hdrate =  hh/pop;

phspo=phspmo+phspwo;
phspr=phspmr+phspwr;
phnfamo=phnfmso+phnfwso + phnfmgo + phnfwgo;
phnfamr=phnfmsr+phnfwsr + phnfmgr + phnfwgr;

phho =phchildo +phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;

* DEVELOPING ANNUAL DIFFERENCES;
phhr =phchildr + phnchr +
 phspmr +phspwr +phnfmsr+phnfmgr +phnfwsr+phnfwgr;

phho =phchildo + phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;


dhchildr=phchildr-lag(phchildr);
dhnchr=phnchr-lag(phnchr);
dhspmr=phspmr-lag(phspmr);
dhspwr=phspwr-lag(phspwr);
dhnfmsr=phnfmsr-lag(phnfmsr);
dhnfmgr=phnfmgr-lag(phnfmgr);
dhnfwsr=phnfwsr-lag(phnfwsr);
dhnfwgr=phnfwgr-lag(phnfwgr);
dr=dhchildr+dhnchr+dhspmr+dhspwr+dhnfmsr+dhnfmgr+dhnfwsr+dhnfwgr;


dhchildo=phchildo-lag(phchildo);
dhncho=phncho-lag(phncho);
dhspmo=phspmo-lag(phspmo);
dhspwo=phspwo-lag(phspwo);
dhnfmso=phnfmso-lag(phnfmso);
dhnfmgo=phnfmgo-lag(phnfmgo);
dhnfwso=phnfwso-lag(phnfwso);
dhnfwgo=phnfwgo-lag(phnfwgo);
dhho=dhchildo+dhncho+dhspmo+dhspwo+dhnfmso+dhnfmgo+dhnfwso+dhnfwgo;

Rhchildr=phchildr-hchildr;
Rhnchr=phnchr-hnchildr;
Rhspmr=phspmr-hspmr;
Rhspwr=phspwr-hspwr;
Rhnfmsr=phnfmsr-hnfammsr;
Rhnfmgr=phnfmgr-hnfammgr;
Rhnfwsr=phnfwsr-hnfamwsr;
Rhnfwgr=phnfwgr-hnfamwgr;
Rr=Rhchildr+Rhnchr+Rhspmr+Rhspwr+Rhnfmsr+Rhnfmgr+Rhnfwsr+Rhnfwgr;


Phho =phchildo + phncho +
 phspmo +phspwo +phnfmso+phnfmgo +phnfwso+phnfwgo;
Rhchildo=phchildo-hchildo;
Rhncho=phncho-hnchildo;
```

```
Rhspmo=phspmo-hspmo;
Rhspwo=phspwo-hspwo;
Rhnfmso=phnfmso-hnfammso;
Rhnfmgo=phnfmgo-hnfammgo;
Rhnfwso=phnfwso-hnfamwso;
Rhnfwgo=phnfwgo-hnfamwgo;
RHHo=Rhchildo+Rhncho+Rhspmo+Rhspwo+Rhnfmso+Rhnfmgo+Rhnfwso+Rhnfwgo;


*SUMMING AND CHANGES AND RATES;
phh=phho +phhr;
phdrate = phh/pop;
dhh = phh - lag(phh);
 dhhol= phho - lag(phho);
  dhhr = phhr - lag(phhr);
pphho = phho/phh;

*CONDOMINIUMS;
pcc= (.0632/(1-.0632))*(.996**y);
pcchild  = pcc * phchildo;
pcnch  = .1889 * phncho;
pcspm =.1455 * phspmo;
pcspw  = .2004 * phspwo;
pcnfamm=.2077 * (phnfmso+ phnfmgo);
pcnfamw=.2205 * (phnfwso+ phnfwgo);
pcw = (.2205/(1- .2205))*(1.018**y);
pcnfamw = pcw * (phnfwso + phnfwgo);
PCNFAM=PCNFAMM + PCNFAMW;
phhc= pcchild + pcnch +pcspm + pcspw + pcnfam;
PHHF=PHHO-PHHC;
pcrat= phhc/phho;
dhhc= phhc - lag(phhc);
DHHF=DHHO- DHHC;

*POPULATION PROJECTION;
DKIDS= rkids - .03007*Y;
POPTOT= pop     +DKIDS*((pchild/2) + PSPM + PSPW);
HHSIZE= POPTOT/PHH;
summ= cpl/2 + spm + nfamm;
sumw= cpl/2 + spw + nfamw;

sumpop= summ + sumw;
pnfam= pnfamm+pnfamw;
nfam=nfamm+nfamw;

output;end;

data program; set program ;
```

```
array xx(74)
                POP POPTOT   pHH
                  pfam   pcpl pspm pspw pnfamm pnfamw
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr
Rr Rhchildr Rhnchr Rhspmr Rhspwr Rhnfmsr Rhnfmgr Rhnfwsr Rhnfwgr
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo
dhho dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo
RO RhchildO RhnchO RhspmO RhspwO RhnfmsO RhnfmgO RhnfwsO RhnfwgO
                phhc   pcchild   pcnch  pcspm   pcspw   pcnfam
                     PHH  phho phhf  phhc dhhc;

do i = 1 to 74;
xx(i) = round( xx(i), 1 );
end;



proc print; var POP    POPTOT Y pHH  phdrate HHSIZE DKIDS;
        TITLE1 'TABLE P.1   INCREASES IN WOMEN S INCOME';
TITLE2
'PROJECTION OF POPULATION AND HOUSEHOLD CHARACTERISTICS';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
                POP    POPTOT Y pHH  phdrate HHSIZE DKIDS;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var   pfam   pcpl pspm pspw pnfamm pnfamw;
    TITLE1 'TABLE P.2 INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH ';
TITLE3
 'ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0';
PROC MEANS MIN MAX; VAR
                  pfam   pcpl pspm pspw pnfamm pnfamw;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var pop  y Phh  Phho PhhF PHHC  Phhr ;
    TITLE1 'TABLE P.3 INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF HOUSEHOLDS BY TENURE CATEGORY STARTING WITH ';
TITLE3
 'ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE IN YEAR 0';
PROC MEANS MIN MAX; VAR
                pop  y Phh  Phho PhhF PHHC  Phhr ;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr;
    TITLE1 'TABLE P.4A INCREASES IN WOMEN S INCOME ';
```

```
TITLE2
 'PROJECTION OF RENTERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
TITLE1'';TITLE1'';TITLE3'';TITLE4'';
PROC MEANS MIN MAX; VAR
phhr phchildr phnchr phspmr phspwr phnfmsr phnfmgr phnfwsr phnfwgr;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr;
    TITLE1 'TABLE P.4B INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF ANNUAL CHANGES IN THE RENTAL STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
dr dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


proc print; var
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo;
    TITLE1 'TABLE P.5A INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF HOMEOWNERS BY HOUSEHOLD CATEGORY WITHIN A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
phho phchildo phncho phspmo phspwo phnfmso phnfmgo phnfwso phnfwgo;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';

proc print; var
dHHo dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo;
    TITLE1 'TABLE P.5B INCREASES IN WOMEN S INCOME ';
TITLE2
 'PROJECTION OF ANNUAL CHANGES IN THE OWNERSHIP STOCK FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
dHHo dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';



proc print; var  PHH pphho  phho pcrat phhc dhhc;
    TITLE1 'TABLE P.6A INCREASES IN WOMEN S INCOME AND 2.5% GROWTH';
TITLE2'PROJECTED CONDOMINIUM OCCUPANCY BY HOMEOWNERS';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
                PHH pphho  phho pcrat phhc dhhc;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';
```

```
proc print ; var phhc   pcchild   pcnch  pcspm   pcspw   pcnfam;
    TITLE1 'TABLE P.6B INCREASES IN WOMEN S INCOME ';
TITLE2
'PROJECTION OF CONDOMINIUM OWNERS BY HOUSEHOLD TYPE FOR A POPULATION';
TITLE3
 'OF ONE MILLION BETWEEN 20 AND 64 YEARS OF AGE AND GROWING AT 2.5%';
PROC MEANS MIN MAX; VAR
                phhc   pcchild   pcnch  pcspm   pcspw   pcnfam;
TITLE1'';TITLE1'';TITLE3'';TITLE4'';


*REMOVE NEXT LINE TO PLOT GRAPHS;
/* nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn

SYMBOL1 W=22 C= BLACK I=SPLINE L=2;
SYMBOL2 W=22 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=18 C= BLACK I=SPLINE L = 1;
SYMBOL4 W=12 C= BLACK I=SPLINE L = 1 ;
SYMBOL5 W= 9 C= BLACK I=SPLINE L =  1;
SYMBOL6 W= 6 C= BLACK I=SPLINE L = 2 ;
SYMBOL7 W=5 C= BLACK I=SPLINE L =  2;
SYMBOL8 W=2 C= BLACK I=SPLINE L = 2 ;

AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (   00000 TO 1200000 BY  200000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;

       PROC GPLOT DATA=PROGRAM;
plot (  pfam   pcpl pspm pspw
          pnfam  pnfamm pnfamw)
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOUSEHOLD PROJECTIONS BY FAMILY TYPE ASSUMING $10,000 INCOME INCREASE';
TITLE3 J=C H=1 F=TRIPLEX
'FOR WOMEN OVER 25 YEARS AND A 2.5 PERCENT ANNUAL POPULATION GROWTH';
TITLE4 J=C H=1 F=TRIPLEX
  'STARTING WITH ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE ';


       PROC GPLOT DATA=PROGRAM;
plot          (      phh   phho   phhr)
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
```

```
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOUSEHOLDS, HOMEOWNERS AND RENTERS';
TITLE3 J=C H=1 F=TRIPLEX
'FOR WOMEN OVER 25 YEARS AND A 2.5 PERCENT ANNUAL POPULATION GROWTH';
TITLE4 J=C H=1 F=TRIPLEX
  'STARTING WITH ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE ';

       PROC GPLOT DATA=PROGRAM;
plot (     phhr phchildr phspr phnchr phnfamr )
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'RENTERS BY HOUSEHOLD TYPE';
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (   00000 TO  600000 BY  200000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;

       PROC GPLOT DATA=PROGRAM;
plot (     phho phchildo phspo phncho phnfamo )
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'HOMEOWNERS BY HOUSEHOLD TYPE';
TITLE3 J=C H=1 F=TRIPLEX
'FOR WOMEN OVER 25 YEARS AND A 2.5 PERCENT ANNUAL POPULATION GROWTH';
TITLE4 J=C H=1 F=TRIPLEX
  'STARTING WITH ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE ';

AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (   00000 TO  500000 BY  200000.)
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;


       PROC GPLOT DATA=PROGRAM;
PLOT (phhc   pcchild   pcnch  pcspm   pcspw   pcnfam)
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
```

```
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = ( 0000 TO 100000 BY  20000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'CONDOMINIUMS BY HOUSEHOLD TYPE ';

SYMBOL1 W=15 C= BLACK I=SPLINE L=2;
SYMBOL2 W=15 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=10 C= BLACK I=SPLINE L = 1;
SYMBOL4 W= 6 C= BLACK I=SPLINE L = 1 ;
SYMBOL5 W= 4 C= BLACK I=SPLINE L =  1;
       PROC GPLOT DATA=PROGRAM;
pLOT (      Dhho dhhF DHHC  dhhr )
       *year
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (0 TO 16000 BY  2000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  1    TO  25   BY  5
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'NET ADDITIONS BY TENURE CATEGORY';


       PROC GPLOT DATA=PROGRAM;
plot
  (dhchildr dhnchr dhspmr dhspwr dhnfmsr dhnfmgr dhnfwsr dhnfwgr)
       *YEAR
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = ( - 1000 TO  5000 BY  1000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
```

```
'ADDITIONS OF RENTAL UNITS BY HOUSEHOLD TYPE FOR A POPULATION';
TITLE3 J=C H=1 F=TRIPLEX
'OF ONE MILLION PEOPLE 20-64 YEARS OF AGE GROWING AT 2.5% A YEAR';
'FOR WOMEN OVER 25 YEARS AND A 2.5 PERCENT ANNUAL POPULATION GROWTH';

SYMBOL1 W=24 C= BLACK I=SPLINE L=1;
SYMBOL2 W=19 C= BLACK I=SPLINE L = 1 ;
SYMBOL3 W=16 C= BLACK I=SPLINE L = 17;
SYMBOL4 W=13 C= BLACK I=SPLINE L = 15;
SYMBOL5 W= 9 C= BLACK I=SPLINE L =  1;
SYMBOL6 W= 9 C= BLACK I=SPLINE L = 2 ;
SYMBOL7 W=4 C= BLACK I=SPLINE L =  1;
SYMBOL8 W=4 C= BLACK I=SPLINE L = 2 ;
SYMBOL9 W=2 C= BLACK I=SPLINE L =  1;
SYMBOL10 W=1 C= BLACK I=SPLINE L = 1 ;
SYMBOL12 W=2 C= BLACK I=SPLINE L = 2 ;


       PROC GPLOT DATA=PROGRAM;
plot
  (dhchildo dhncho dhspmo dhspwo dhnfmso dhnfmgo dhnfwso dhnfwgo)
       *YEAR
      / OVERLAY FRAME AREAS = 0  LEGEND
      VAXIS=AXIS1 HAXIS =AXIS2
       HMINOR=0 VMINOR=0;
AXIS1 VALUE=(F=SWISS H=2)
      LABEL=none
      ORDER = (     00 TO  6000 BY  1000 )
      MINOR = none   ;

AXIS2 VALUE=(F=SWISS H=2)
      ORDER =  0    TO  25   BY  5
      MINOR = NONE   ;
TITLE1 J=C H=2 F=TRIPLEX 'FIGURE       VANCOUVER  ';
TITLE2 J=C H=1 F=TRIPLEX
'ADDITIONS OF HOME-OWNERSHIP UNITS BY HOUSEHOLD TYPE FOR A POPULATION';
TITLE3 J=C H=1 F=TRIPLEX
'OF ONE MILLION PEOPLE 20-64 YEARS OF AGE GROWING AT 2.5% A YEAR';
  'STARTING WITH ONE MILLION PEOPLE BETWEEN 20 AND 64 YEARS OF AGE ';
```