

When I'm 65: The Retirement Housing Preferences of the Rural Elderly

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Housing represents an attractive focus for the consideration of the socio-demographic implications of population aging, not only because of its intrinsic importance as shelter and point of access to the external environment (Joseph and Fuller 1991), but also because of its role in determining the evolving geography of aging. It is axiomatic that housing and locational change are inextricably linked. For example, even in instances of long-distance migration where housing-related issues are not instrumental in decision-making, a housing change occurs *de facto*. On the other hand, some relocation decisions, particularly those involving moves to housing environments offering on-site social or health care services, may be motivated exclusively by shelter-specific considerations (Wiseman and Roseman 1979; Wiseman 1980). Our interest is in voluntary movement that lies between these two extremes, in which housing- and location-specific preferences are intermingled.

Although the majority of older adults will undoubtedly continue to "age-in-place" unless forced by declining ability or changing circumstances to make a housing adjustment, a significant minority will opt for a voluntary move on

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or near retirement (Northcott 1988). It is this voluntary movement that constitutes the most volatile determinant of local and regional population structures (Joseph and Cloutier 1991). In Canada, complex patterns of age-specific in-and out-migration have been seen to produce radically divergent (from national) levels of relative elderly concentration in rural villages and small towns, ranging up to 30% or more (Hodge 1987; Joseph and Fuller 1991). The differential availability of housing undoubtedly plays some part in determining the attractiveness of specific communities to older adult in-migrants. It also affects the ability of communities to cope with the evolving shelter and service needs of in-migrants (Joseph and Cloutier 1991; Joseph 1992a). We are particularly interested in this rural dimension of residential and locational choice.

Although urban-to-rural migration undoubtedly plays an important part in promoting regional concentrations of elderly population, there is strong and consistent evidence that rural-to-rural migration is a primary determinant of local levels of aging (Dahms 1987; Hodge 1987). Using data from Grey County, Joseph and Cloutier (1991) have shown that, even in periods of negligible net in-migration for the county, nucleated rural settlements (large villages and small towns) gained elderly residents while dispersed settlements (townships) lost them. This flow has been attributed largely to the concentration of services and housing in villages and towns; very much a "supply-side" argument. Might it also be that township residents prefer to move to villages and towns as they get older? This "demand-side" question is an interesting one in itself, and has policy ramifications in terms of future demands for health and social services, especially for those delivered to the home (Joseph 1992b). For instance, the expansion of in-home services to township residents is not likely to affect significantly the pattern of relocation from country to town if this migration is underpinned by strong housing preferences.

This paper presents an integrative and prospective case study of the residential and locational components of the retirement housing preferences of rural residents. The primary objective is to identify the salient features of the residential and locational preferences of rural residents, emphasizing those areas in which the retirement preferences of country and village/town residents differ. Consistent with a desire to cast the interpretation of results in a policy framework, the focus is on the coming generation of seniors, the "pre-elderly" population aged 55 to 64. Two secondary objectives should also be acknowledged: one relating to the usefulness of conjoint analysis as a way of identifying housing preferences; and, the other to the attractiveness of planned retirement communities as a housing option for rural seniors. Interest in conjoint analysis is spurred by previous work by one of the authors (Joseph et al. 1989). Curiosity about the appeal of planned retirement communities stems from their rapid expansion through rural Ontario (Ministry of Municipal Affairs 1986; 1989) and from the fact that only inconclusive

evidence on preferences for retirement community living has emerged from previous studies (for example, see Gutman et al. 1987; Beesley 1989; Kuntz 1989; N. Barry Lyon Consultants Ltd. 1990).

Housing Preferences and Their Identification

Given the complexity of housing as an economic and social good, it is not surprising that literature on the housing preferences of the elderly is rich in perspective and methodology. The aim here is not to review exhaustively such literature, but to address two interrelated questions: what are the attributes of housing considered salient by older adults; and, how should the relative importance of attributes to the decision-making process be ascertained?

Studies of housing preferences can be divided into two categories, based on whether they view housing from the supply or demand perspective, that is, what the target population consumes in terms of housing as opposed to what it would like to consume. Our interest is primarily in the demand perspective, but it is appropriate to begin with supply because intuitive understanding of housing choice is based largely on observed behaviour in the marketplace.

The Supply Perspective

Information on the housing preferences of older adults has variously been obtained through observation of present living situations, purchasing behaviours, or the nature of housing supply in the marketplace. Whatever the particular orientation, these studies of "revealed behaviour" are all subject to past and present supply conditions (Boag and Sarkar 1984), so it is not surprising that they almost always suggest strong and consistent preferences for the same forms of housing (owned, single detached) as younger members of the population. This could be taken as symptomatic of a desire to "age-in-place", although it may also be indicative of a rationing of alternatives. Support for the latter interpretation is provided by a more critical view of supply-side studies. Sequential studies carried out in the same jurisdiction (say a province) invariably demonstrate an ability on the part of consumers to "absorb" innovative housing products. In Ontario, this has been particularly evident in connection with planned retirement communities.

Planned retirement communities based on the American model began to appear in Ontario in the mid-1970s (Ministry of Municipal Affairs 1986), and they have now become an established feature of the housing landscape (Ministry of Municipal Affairs 1989). To date, all communities appear to be successful, regardless of their location, service profile, etc., at least in terms of having low vacancy rates (N. Barry Lyon Consultants 1990). This leads us

back to the overriding limitation of supply-side studies. The fact that older adults have purchased retirement homes in planned communities located primarily in rural areas does not necessarily mean that such locations are preferred, it may just be that the desired housing products are unavailable elsewhere. This question could, of course, be put in connection with any attribute of housing. Indeed, the major contribution of supply-side studies to the investigation of preferences may well be to generate such introspection concerning the current harmony of supply and demand.

The Demand Perspective

The demand perspective on housing choice has been closely associated with the use of preference surveys (for example, see Carroll and Gray 1985; Polich et al. 1986). Preference surveys offer great flexibility to researchers, but often at the cost of comparability between studies. Furthermore, present circumstances (including the availability of particular housing options), which probably vary over both time and space, may affect (demand) preference surveys in very much the same way as they affect supply studies.

The influence of present circumstances on the stated preference of respondents is evident in some recent surveys of planned retirement communities in Ontario (see Beesley 1989; Kuntz 1989; N. Barry Lyon Consultants Ltd. 1990). These studies utilize a questionnaire, the standard tool of the preference survey, to elicit residents' views on various aspects of planned retirement community housing and location. Not surprisingly, they reveal a high degree of satisfaction with the chosen community and with the planned retirement community lifestyle generally. However, these studies, although sometimes interpreted as yielding preference data, really tap "residential satisfaction". As such, they need to be contrasted with community surveys (for example, see Gutman et al. 1987) that investigate the prospective housing and locational choices of older adults.

The flexibility intrinsic to preference surveys permits results to be reported singly or conjointly for specific sub-groups identified in terms of one or more characteristics. Particularly relevant here is the possibility of investigating the nature and correlates of age-specific housing preferences (for example, see Gutman et al. 1987). As noted earlier, our interest is in persons aged 55 to 64, whose preferences have hitherto received only limited attention. The advantages of focusing on this age group are twofold: first, very few members of this pre-elderly cohort would already have undertaken a retirement move; and second, information on the preferences of the pre-elderly provides a window on future housing demands.

Constrained Choice Survey Methods

Studies of housing supply and demand indicate that features such as tenure and house size are important in the decision-making process. However, it is hard to rule conclusively on desired features (for example, the type of tenure or number of bedrooms), and even more difficult to determine the nature of trade-offs between them (for example, are potential home-buyers willing to trade-off a preferred tenure option for a larger home, or are they only willing to do so if a lower price is offered?). Indeed, existing research on residential choice reveals that the attainment of desired housing features is invariably subject to constraints like income. In our opinion, it is this juxtaposition of preference and constraint that is central to the assessment of methodological options. In light of this, and following Boag and Sarkar (1984) and Joseph et al. (1989), we believe that constrained choice survey methods may provide a more realistic approach to the investigation of residential choice than the more conventional supply and demand studies outlined above.

Conjoint analysis is a constrained choice survey methodology that is firmly grounded in consumer behaviour theory. It has been widely applied in consumer choice research, as demonstrated by the more than 1,000 applications recorded by the early 1980s (Cattin and Wittink 1982). Typical applications include new product/concept identification, pricing, market segmentation, advertising, and distribution. Although most applications have focused on consumer goods, conjoint analysis has also been applied in other sectors such as industrial goods, transportation, financial services, and government services (Cattin and Wittink 1982).

Conjoint analysis assumes that any good possesses a finite number of features or "attributes". It is those attributes, rather than the good itself, that the potential consumer evaluates. In the evaluation of a potential residence, for instance, the homebuyer determines the level of each feature or characteristic (such as lot size, number of rooms, etc.) that (s)he believes is present. Overall preferences for particular homes are produced when homebuyers compare these perceived characteristics with desired levels for each attribute. In practical terms, the measurement of preferences within a conjoint analysis framework begins with information collected experimentally via respondent evaluation of hypothetical choice alternatives. This preference information is then subjected to a series of transformations to yield interval scale estimates of the relative utilities that each respondent attaches to particular housing features. These measurement methods are elaborated upon in the case study portion of the paper. Here, we emphasize the broader, conceptual aspects of the conjoint analysis approach.

The fundamental decision to be made initially by any user of conjoint analysis concerns the model of preference formation to be adopted. Green and Srinivasan (1978) identify four types of multi-attribute preference models: the vector model, the ideal point model, the mixed model, and the part-worth

model. Of these, the additive version of the part-worth model is the most commonly used, most easily interpreted (Timmermans 1984) and has been shown to produce robust results in research on residential preferences (Phipps and Carter 1984, 1985; Joseph et al. 1989).

Taking $U(x)$ as the utility derived from good x , the additive part-worth-model assumes that:

$$U(x) = \sum_k f_k(x_k) \quad (1)$$

where f_k is a function representing the part-worth of the different levels of each attribute (x_k) used in the evaluation of a particular multi-attribute alternative, good x . The attributes selected to characterize alternatives should be deemed instrumental in the evaluations of most respondents. However, as the number of attributes increases, so does the number of judgments required from each respondent, which may result in a loss of interest in the task (Johnson 1974). Conversely, the inclusion of too few attributes may lead to a simplistic and inaccurate gauging of preferences (Green and Srinivasan 1978).

Green and Srinivasan (1978) identify two strategies for presenting combinations of attributes to respondents: the full-profile approach and the pairwise trade-off approach. The full-profile approach uses complete sets of attribute levels arranged into alternative "profiles" of the good being assessed. Respondent rankings of these complete profiles would provide the input data from which the utilities of the various levels of each attribute are imputed. In contrast, the trade-off approach requires respondents to consider only pairwise combinations of attributes. For instance, in the simple case of two attributes each possessing two levels, a respondent would consider a matrix representing the four possible combinations of the two attributes. It is the rankings of the choices in the matrix that provide input data for the calculation of "attribute utilities". Fortunately, the two approaches have been shown to produce similar results (Segal 1982). In this research, we favour the trade-off approach because of a desire to minimize the complexity of the data collection procedure. The trade-off approach has been shown to be easily administered (Joseph et al. 1989), while it has been noted that respondents sometimes find difficulty in differentiating accurately between full profiles (Timmermans 1984).

The Case Study

Conjoint analysis has been used on a number of occasions to estimate preferences for alternative housing environments in Canada. Representative examples focusing on inner-city or suburban housing include Boag and Sarkar (1984) and Phipps and Carter (1984; 1985), while Joseph et al. (1989)

describe a rural application. We are not, however, aware of any applications to research on retirement housing.

Implementing Conjoint Measurement

On the basis of their known importance to potential purchasers and/or to existing residents of retirement housing, five attributes (*Price, Dwelling Size, Tenure, Location and Housing/Service Options*) were selected for inclusion in the conjoint analysis (Table 1). Attributes are framed at a general level. Information concerning preferences for specific architectural or environmental features is not sought. Instead, the aim is to assess trade-offs amongst the major features of the home (price, size and tenure) and its setting (location and housing/service options).

In contrast to the choice of attributes, the specification of attribute levels is less easily guided by the literature, and is consequently more idiosyncratic. The three price levels, for instance, span the range of market prices that existed in the study area during the data collection period. Similarly, levels for the attributes tenure and dwelling size were chosen to represent possibilities in a way that would be familiar to respondents. Following Hodge and Qadeer (1983), settlement size was used to identify discrete "breaks" in the rural-urban continuum associated with the ability to support public- and private-service functions. The identification of three rural settlement categories, as opposed to one urban, reflects our research priorities and the nature of the study area. The remaining attribute, housing/service options, is segmented in a manner consistent with conventional classifications of retirement housing in terms of their supportive potential (Gutman and Blackie 1985). Categories are largely self-explanatory, although it should be noted that "conventional homes" were considered to embrace single-detached and various semi-detached and linked housing forms. Attributes and their specified levels are set out in Table 2.

Study Area and Data Collection

The study area is located 100 km. to the west of Toronto, in the County of Wellington. It encompasses a mix of settlement types, ranging from dispersed rural to urban. Two communities, Nichol Township (population 3,591 in 1986) and the Village of Arthur (population 1,842 in 1986), were chosen to represent the rural dispersed and rural nucleated settlement forms respectively.

In each community, the target population (persons between ages 55 and 64) was identified using School Support Lists derived through municipal enumeration. Age-qualified households were drawn randomly and placed on

TABLE 1 Retirement Housing Attributes Identified in the Literature

Attribute	Identifying Authors
Price	Gutman, Milstein and Doyle, 1987
	Polich, Parker and Iversen, 1986
Tenure	Brink, 1985
	Carroll and Gray, 1985
	Gutman, Milstein and Doyle, 1987
	Polich, Parker and Iversen, 1986
Location	Fengler and Jensen, 1982
	Rose and MacDonald, 1984
Dwelling Size	Carroll and Gray, 1985
	Gutman, Milstein and Doyle, 1987
	Polich, Parker and Iversen, 1986
Housing/Service Options	Brink, 1985
	Duffy and Willson, 1984
	Gutman, Milstein and Doyle, 1987
	Minister for Senior Citizens Affairs, 1985
	Ministry of Municipal Affairs, 1986
	Polich, Parker and Iversen, 1986

TABLE 2 Mean Utility Estimates for Each Attribute Level; All Respondents

Attribute and Level	Mean Utility ^a
Price	\$125,000 0.30
	\$170,000 0.08
	\$210,000 -0.38
Tenure	Ownership 0.35
	Private Rental -0.02
	Public Rental -0.33
Housing/Service Options	Conventional Home 0.36
	Apartment/Condominium 0.17
	Limited Services Retirement Village -0.03
	Extended Services Retirement Village -0.13
	Lifecare Community -0.37
Dwelling Size	1 bedroom -0.16 ^b
	2 bedroom 0.26
	3 or more bedrooms -0.10 ^b
Location	Rural Dispersed -0.21 ^c
	Small Rural Community (< 2,500) 0.25
	Large Rural Community (2,500-10,000) 0.16
	Urban (> 10,000) -0.20 ^c

a. Unless Otherwise indicated, all pairings within each attribute are significantly different at the 0.05 level.

b. Mean utility estimates for 1 bedroom and 3 or more bedrooms are not significantly different at the 0.05 level.

c. Rural dispersed and urban preference estimates are not significantly different at the 0.05 level.

a mailing list, with 52 names drawn for Nichol and 38 for Arthur. A letter describing the research was distributed to potential respondents and, following a delay of one-week, a personal interview was requested by telephone. Thirty-nine residents from Nichol agreed to participate (25% refusal rate) and 22 from Arthur (42% refusal rate), for a total of 61 respondents.

A survey instrument made up of two major components was personally administered to the 61 respondents in the summer of 1988. The first part of the instrument elicited information on, amongst other things, present and past housing situations and socio-economic characteristics. The second part of the instrument presented ten trade-off matrices for ranking, with respondents being read standard definitions for each attribute level prior to filling out the matrices. Respondents were asked to rank the choices presented in the matrices to reflect their preferences for (various attributes of) housing on retirement. Interview duration ranged from thirty minutes to two and one-half hours, with an average of about forty-five minutes.

Estimating Attribute Utilities

Given five attributes, a maximum of 10 paired-attribute matrices is possible, all of which were used in the analysis. Figure 1 displays an example of one matrix, with hypothetical preference rankings as they might be assigned by a respondent. In this instance, the respondent has indicated that ownership of a two-bedroom dwelling is the most preferred option out of a possible nine combinations. The next preferred combination is ownership of a three-or-more-bedroom dwelling; the third choice is a private rental two-bedroom home; and so on. During the survey, each respondent was encouraged to fill out every matrix completely. However, should a respondent not have any preferences beyond the first two or three choices for instance, the remaining cells were assigned the average value of unassigned rankings.

The calculation of the utility estimates associated with specific attribute levels was carried out using a heuristic algorithm developed by Nehls et al. (1975). Readers are referred to that source for program details and to Joseph et al. (1989) for a less technical discussion of the algorithm. The utility estimation procedure is described in the Appendix using a simple example based on the hypothetical data presented in Figure 1.

Results

Table 2 presents the mean utility estimates for the specified levels of each retirement housing attribute. Note that utility estimates do not have a true zero, consequently negative utility values do not necessarily reflect a negative

TENURE	DWELLING SIZE			Sum of Ranks
	1 bedroom	2 bedroom	≥3 bedroom	
Ownership	6	1	2	9
Private Rental	5	3	4	12
Public Rental	9	7	8	24
Sum of Ranks	20	11	14	45

FIGURE 1 A Trade-off Matrix for the Attributes Dwelling Size and Tenure for a Single Respondent

preference. Across the 61 respondents, the preferred "package" of attribute levels is an owned conventional, two-bedroom home, located in a small rural community and priced at \$125,000. Preferences for price and tenure are consistent with those reported elsewhere for the general population (for example, see Joseph et al. 1989) and need not be considered further. In contrast, the preference for a two-bedroom home is quite distinctive from those of the general population, and reflective of a known desire among older adults to "down-size" homes (for example, see N. Barry Lyon Consultants 1990).

Table 2 indicates that the mean utility for the various housing/ service options declines monotonically with the amount of service potentially available on-site. This is consistent with the known preferences of healthy, active older adults for independent living (for example, see Gutman et al. 1987). Indeed, during the course of their interview, many respondents expressed the view that retirement villages were best suited to the sickly or frail, despite the fact that the definitions of housing/ service options presented to them made a clear distinction between the active lifestyle orientation of retirement villages and the lifestyle/ personal health and security orientation of lifecare communities.

The mean utility estimates for the attribute location indicate a preference, on average, for the small rural community option, followed by the large rural community option, with the rural dispersed option and the urban option almost tied as a distant third choice. These preferences are consistent with strong evidence in support of the importance of small towns in the migration universe of rural Canadians (for example, see Dahms 1987; Joseph and Cloutier 1991). It is also notable that these older adults contemplating retirement seem to have a far less positive view of (dispersed) country living than do younger households (for example, see Joseph et al. 1989).

Trade-Off Patterns

Given the number of levels specified (ranging from three to five per

attribute), there are 540 possible combinations of the five attributes presented to respondents. Each represents a distinct trade-off combination, with a corresponding total utility score (which is simply the addition of the appropriate mean utilities from Table 2). It needs to be noted, of course, that these scores may not reflect the actual trade-offs that might be made by an individual respondent. They are instead indicative of overall relationships between attributes across all respondents.

An impression of critical trade-offs is given by examining the 10 most preferred housing packages (Table 3). These data indicate that location is the attribute most readily traded-off, on average, by respondents trying to maintain the utility of the overall preferred package, although this is only between the small rural community and the large rural community options. In contrast, the preference for a two-bedroom home is less likely to be traded-off, and that for ownership even less so. It is possible to impute prices for trade-offs in cases where the price preference changes along with that for some other attribute. In Table 3, for instance, Housing Packages 3 and 4 have almost the same total utility but vary in terms of housing/ service options and price. From this, it can be inferred that a conventional home is worth at least \$45,000 more on average than an apartment/ condominium, all other things being equal. Comparison of Housing Packages 5 and 6 supports this evaluation.

Interestingly, the data in Table 3 indicate that only the limited service retirement village option makes the "top ten" (Housing Package 9). Respondents are, on average, willing to make do with a larger than preferred home and give up ownership for rental (Housing Package 8) or make do with a smaller than preferred home (Housing Package 10) if it allows them to retain the conventional home. Thus, the most limited of the service-enriched housing options becomes attractive only when desired levels of other attributes (namely, tenure and dwelling size) are not available in combination with a conventional home at an attractive price. The two more intensive housing/ service options, the extended services retirement village and the lifecare community, are apparently attractive to the average respondent only under extreme (and unlikely) market conditions in which more preferred packages are unavailable at any reasonable price.

It is pertinent to note that the average preferences in Tables 2 and 3 are quite similar in several respects to the present situation of respondents. Most significantly, 98% of respondents own their homes and 98% live in conventional homes, which corresponds with the modal preferences underlying the averages presented in Table 2. In terms of the home itself, then, the preference for two bedrooms stands out as an important exception to this status quo, in that 82% of respondents presently own a three-bedroom home.

In closing this discussion of trade-offs, it is appropriate to consider an aspect of present situation, community of residence, highlighted in our introductory discussion. Table 4 reveals that present location, in either Nichol

Table 3 The Ten Most Preferred Housing Packages; All Respondents

	Total Utility	Housing/Service Options	Tenure	Price	Dwelling Size	Location
1.	1.52	CH	OWN	\$125,000	2BR	SRC
2.	1.43	CH	OWN	\$125,000	2BR	LRC
3.	1.33	A/C	OWN	\$125,000	2BR	SRC
4.	1.30	CH	OWN	\$170,000	2BR	SRC
5.	1.24	A/C	OWN	\$125,000	2BR	LRC
6.	1.20	CH	OWN	\$170,000	2BR	LRC
7.	1.16	CH	OWN	\$125,000	3BR	SRC
8.	1.15	CH	PRV	\$125,000	3BR	SRC
9.	1.13	LSRV	OWN	\$125,000	2BR	SRC
10.	1.10	CH	OWN	\$125,000	1BR	SRC

CH: Conventional Home
 A/C: Apartment / Condominium
 LSRV: Limited Services Retirement Village
 OWN: Ownership
 PRV: Private Rental
 2BR: 2 Bedroom Dwelling
 3BR: 3 Bedroom Dwelling
 LRC: Large Rural Community
 SRC: Small Rural Community

Township (a dispersed rural community) or the Village of Arthur (a small nucleated rural community), has only a very limited impact on the retirement housing preferences of respondents. The only significant differences are, perhaps not surprisingly, for the attribute location (Table 4). Nichol Township residents attach a significantly higher utility, on average, to the rural dispersed option than do Village of Arthur residents, while the opposite is true for the small rural community option. In other words, respondents from both communities attach a significantly higher utility to options corresponding to their present location. What is interesting, though, is that Nichol Township residents still prefer a nucleated rural community as a retirement location, although they are indifferent about whether it is a small or large community. In contrast, Village of Arthur residents are in no way ambiguous about their preference for the small community option.

Summary and Conclusions

This paper has probed the residential and locational preferences (on retirement) of a sample of older adult residents drawn from two rural communities, the Township of Nichol and the Village of Arthur. We consider the 61 households in the survey to be quite representative of the rural dispersed and small town (under 2,500) populations of southern Ontario. How-

TABLE 4 Variation in Mean Utility of Attribute Levels by Present Location

Attribute	Level	Present Location	
		Nichol n = 39	Arthur n = 22
Price	\$125,000	0.28	0.32
	\$170,000	0.09	0.06
	\$210,000	-0.37	-0.38
Tenure	Ownership	0.37	0.32
	Private Rental	-0.04	0.02
	Public Rental	-0.33	-0.33
Housing/Service Options	Conventional Home	0.36	0.37
	Apartment/ Condominium	0.17	0.17
	Limited Services R.V.	0.00	-0.08
	Extended Services R.V.	-0.13	-0.12
	Lifecare Community	-0.39	-0.32
Dwelling Size	1 Bedroom	-0.17	-0.13
	2 Bedroom	0.29	0.26
	3 or more Bedrooms	-0.10	-0.09
Location	Rural Dispersed	0.12 ^a	-0.36 ^a
	Small Rural Community	0.14 ^a	0.45 ^a
	Large Rural Community	0.15	0.18
	Urban	-0.16	-0.27

a: denotes a significant difference between locations at the 0.05 significance level using a two-tailed t-test.

ever, given the small size of the sample and the absence of residents from larger towns, we regard our analysis as illustrative rather than definitive.

Analysis of utilities produced via conjoint analysis of trade-off matrices revealed an overall preference among respondents for ownership of a conventional, two-bedroom home, located in a small rural community, and priced at \$125,000. Of these results, the preference for a two-bedroom home is the most significant, as it represents a down-sizing for the vast majority (82%) of respondents. An examination of potential trade-offs revealed that the preference for a two-bedroom home is a strong one, and is only traded-off under exceptional circumstances. Similarly, strong attachments to ownership and to a conventional housing form among rural residents are indicated by the trade-off data. In contrast, respondents appeared willing to trade-off location (but only between the small and large rural community options) and, generally, to pay more for desired packages of attributes.

Early in the paper, we registered an interest in: (i) the similarity, or otherwise, of the retirement housing preferences of country and village/ town residents; and, (ii) the attractiveness of planned retirement communities as a housing option for rural seniors. Our findings indicate, respectively, that the retirement housing preferences of country and village/ town residents differ significantly only in connection with location and that planned retirement

communities are an attractive option to rural seniors only under certain, restrictive circumstances.

The results of an analysis of retirement housing preferences by present location revealed that, despite being relatively less enthusiastic about the small community variant than Village of Arthur residents, country residents of Nichol Township prefer retirement to the village/town. This result provides local, demand-side support for the contention that country residents look to the village/town on retirement. This has often been attributed to the attractiveness of town-based services to elderly households seeking to maintain their independence (Joseph and Fuller 1991), but our analysis suggests that this preference may be based as much on housing form as on housing setting considerations. Specifically, we suggest that the preference for a village/town location on retirement may be driven as much by the search for a down-sized home as anything else.

The down-sizing factor also features prominently in our findings concerning the attractiveness of planned retirement communities as a housing option for rural seniors. Consistent with Gutman et al. (1987), our results suggest only a very limited prospective interest in planned communities as a retirement option. Our findings indicate that planned retirement communities would have to offer our respondents a desirable product at a cost advantage in order to be competitive with conventional housing forms (including apartments and condominiums). This proposition, namely that planned communities would be competitive in the retirement marketplace if they allowed older households to obtain a down-sized home at a cost saving, is strongly supported by evidence from a recent retrospective survey of residential choice among residents in six retirement communities in Ontario (N. Barry Lyon Consultants 1990). Another important observation is that, on the whole, respondents have a negative view of retirement communities, considering them primarily as a "dependent" housing option. This may be symptomatic of the general situation and indicative of a need on the part of housing developers to more aggressively disseminate information about housing options.

In closing, we would like to argue for more research that integrates the locational and residential dimensions of retirement housing choice. Our results indicate that, for many older adults contemplating their retirement, the setting of housing as well as its tenure, size and price characteristics is simultaneously important. In terms of "setting", our findings support the inclusion of the housing/service dimension as well as the more orthodox, locational one. We feel that conjoint analysis is a particularly appropriate method for addressing this wider view of housing choice.

Conjoint analysis is more difficult to implement than conventional (unconstrained) survey methodologies and it is limited in the amount of information (attributes and attribute levels) it can handle. However, we feel that this is more than offset by its ability, as a multi-dimensional scaling

procedure, to yield interval-level estimates of utility from ordinal (preference ranking) data. By allowing the simultaneous consideration of the variety of attribute characteristics which comprise a commodity, conjoint analysis provides a means with which to gain further insight into the retirement housing choices of older adults.

Appendix: Steps in the estimation of attribute utilities

The front end heuristic:	1.	Sum ranks by rows and columns.
	2.	Normalize row/column totals by dividing through by the "average score" for the attribute.
	3.	Subtract from unity.
	4.	For each attribute level, calculate the mean utility across matrices in which the attribute appears.
The iterative procedure:	5.	Calculate predicted utility of each attribute combination in all matrices.
	6.	Compare predicted rankings (from "5") with original rankings.
	7.	Adjust utility estimates to maximize "fit" with the original rankings.
The product:	8.	Estimates of the utility associated with each attribute level for each respondent.

The procedure outlined above is derived from Joseph et al. (1989) and provides a simple description of the process by which utility estimates are calculated from the preference rankings in Figure 1. As indicated, the first step is to sum the rankings across/down each row/column in the trade-off matrix. Next, row and column totals are normalized to remove the effect of differing numbers of attribute levels (for instance, tenure has three levels while housing/service options has five) by dividing through by the average of the row/column totals ($45/3 = 15$, in the case of tenure). The resulting normalized utility estimates for tenure are:

$$\begin{array}{ll} \text{ownership} & 9/15 = 0.60, \\ \text{private rental} & 12/15 = 0.80, \\ \text{public rental} & 24/15 = 1.60. \end{array}$$

A third step, subtraction from unity, is carried out to give the more preferred attribute levels a higher score (which is intuitively desirable) and to allow the scores for all levels of a particular attribute to sum to zero. Again, using the

tenure example, the utility estimates are now:

- ownership 1 - 0.60 = 0.40,
- private rental 1 - 0.80 = 0.20,
- public rental 1 - 1.60 = -0.60.

Finally, as the attribute tenure appears in four matrices (thereby producing four sets of utility estimates using the above procedure), estimates are averaged to produce a single "front-end" utility estimate. This is carried out for each and every attribute level for each respondent in turn.

The next part of the utility estimation process (Steps 5 through 7 above) involves an iterative procedure which compares predicted attribute level rankings (derived from the front-end utility estimates) with the respondent's original rankings in each matrix, and is illustrated in the figure below using hypothetical data. Note, for example, that the predicted utility of a two-bedroom owned home is the sum of the two front-end utility estimates (namely, 0.95 + 0.56). Ideally, the order of the predicted and actual rankings in each and every matrix should be the same, but often they are not. The algorithm attempts to reduce any deviations between predicted and actual rankings by altering the utility estimates and recalculating predicted utilities for each cell. Completely eliminating error is usually not possible, as it can arise from respondent inconsistencies in preference indication.

APPENDIX TABLE, Dwelling Size

TENURE	1 Bedroom	2 Bedroom	≥ 3 Bedrooms	Front-end Utility Estimate
Ownership	-0.11 ^a (5) ^b 6 ^c	1.51 (1) 1	0.28 (3) 2	0.56
Private Rental	-0.55 (7) 5	1.07 (2) 3	-0.16 (6) 4	0.12
Public Rental	-1.35 (9) 9	0.27 (4) 7	-0.96 (8) 8	-0.68
Front-end Utility Estimate	-0.67	0.95	-0.28	

a. Predicted Utility
 b. Predicted Ranking
 c. Original Ranking by Respondent

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