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# Second-homeowners' Intention to Move: an Integrated Ordered Logit Model with Latent Variable

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## Abstract

Second-homes represent a very peculiar reality for the tourism market, particularly in Switzerland in which this segment has a long tradition and represents an important share in the accommodation sector.

Very few studies took into account the intention of second-home owners to permanently move to the place (typically representing the destination of leisure trips) where they own their dwelling. The purpose of the research is to investigate how the intention to relocate is determined by a set of factors; among these, we include socio-economic covariates characterizing the second-home owners and the extent and habits of usage of the second-home. We apply an ordered logit model in which the dependent variable is the self-assessed probability to relocate; we extend the classical framework of ordered logit models including a latent variable, described by a series of indicators such as the attraction of the owners towards the region of relocation, the desire to spend time at destination and owners' relationship with neighbors.

The rationale behind the use of unobservable factors is the idea that the decision to permanently relocate in the second-home destination is not only affected by observable variables but also by different attitudinal and psychological aspects which are not directly observable.

Data used to pursue the research objectives refer to a structured survey submitted to individuals owning a second-home in the Lake Maggiore region in Canton Ticino (Switzerland) and the subsample of Swiss respondents was analyzed.

About one fifth of the eligible sample declared a very high probability to relocate in a permanent way in the vacation home while more or less 40% declared a very low likelihood. Results indicate that the attitudinal and psychological traits expressed by the second-home owners represent a fundamental source of explanation of their intention to permanently relocate.

**Keywords:** second-home destinations, Swiss second-homeowners, intention to move, latent variables, destination engagement, ordered variables modeling

## 1. Introduction

Second-homes are typically used for leisure purposes by their owners. Scientific literature dealing with such a topic extensively highlighted many different aspects that characterize the second-home phenomenon spanning from the reasons for owning a vacation dwelling (Chaplin (1999); Jaakson (1986)), to the activities commonly pursued at destination by owners (Kaltenborn (1998); Sievänen et al (2007)), focusing on the interconnections between households' and second-home destinations' lifecycles (Godbey and Bevins (1987); Truly (2002)) and studying how second-home ownership impacts on the socio-economic texture of the places interested by the phenomenon (Clendenning and Field (2005); Girard and Gartner (1993)).

Another aspect characterizing the second-home world is the link to retirement migration. It is common sense to see second-home owners as potential 'migrants' in their later, post-working life. Rodriguez (2001) points out that 'an important issue for many mobile elderly people is the choice between visiting and settling in an area, in other words, between being tourists or residents' (p. 53). More generally, scientific literature conceptualized the relationship between tourism and retirement migration, analyzing the complementarity and ties between them (Truly (2002); Williams and Zelinsky (1970)). This complementarity relationship is even more 'obvious' when a second-home is involved (Müller (2002) and Wolfe (1970) as cited in Müller (2002)).

Usually, household location choice and migration themes are treated in economic literature as topics related to job market (Borjas (1995); Friedberg (2001)), fiscal policies (Conway and Houtenville (2001)), racial segregation (Gabriel and Painter (2008); Helderma et al (2005); Painter et al (2001)) and affine issues. The framework of the present research relates to the phenomenon of second-home owning when considered in a tourism setting and our interest in explaining the propensity to settle at destination is considered from this point of view.

The present work fits in the stream of literature that links seasonal and permanent migration and follows the path trod by several other authors (Godbey and Bevins (1987); Martin et al (1987); McHugh (1990); Oigenblick and Kirschebaum (2002); Sullivan and Stevens (1982)) whose works explicitly regard individuals' consideration of future permanent move (not necessarily second-home related) contextualized in a tourist framework.

Our purpose with the present work is to enter the discussion and enrich the literature streams regarding second-home tourism and permanent migration. We focus on the particular aspect of the influence of second-home owners' attitudes and psychological traits on the intentions to settle in the holiday dwelling (Oigenblick and Kirschenbaum (2002)). Despite tourism literature on second-homes and retirement migration is rich, the peculiar aspect we are interested in has never been considered to the best of our knowledge.

To examine the influence of psychological and place-attachment factors we propose an empirical model based on survey data collected from a sample of Swiss second-home owners. We exploit ordered response modeling (Greene and Hensher (2010)) and expand the classical framework by considering the inclusion of a latent variable. The latent variable approach, grounded on structural equation modeling (Jöreskog and Sörbom (1979)), has been used in several recent works in a range of research fields (Koppelman and Pas (1980); Morikawa et al (2002); Walker (2001)).

The inclusion of the latent variable representing the psychological traits helps explaining the phenomenon under observation: preliminary results reinforce the idea that the intention to move to the destination in which people usually spend holidays for several periods during the year is influenced by feelings for and attachment to the destination itself. These aspects have to be accounted for along the different observable variables used to explain the phenomenon.

The remainder of this paper is organized as follows: section 2 reviews the literature concerning themes as second-homes and permanent migration in a tourism perspective. In section 3 the behavioral framework of the research is introduced. Section 4 covers data and modeling framework of the model presented in this work while section 5 reports the analysis undertaken followed by results discussion. We close with some preliminary conclusions and an outlook of future research.

## **2. Literature review**

Decision to move to the place of seasonal vacation (from residential tourism to permanent migration – McHugh (1990)) is obviously influenced by a lot of factors (Rodriguez (2001)) and can be considered as something related to family lifecycle (Godbey and Bevins (1987) analyzed the ownership and disposal of and eventual retirement to second-homes from this perspective). The retirement of non-residents to areas with tourism propensity as well as actual and potential socio-economic impacts of such phenomenon on the same areas are topics that have been addressed in tourism-related literature. For example, from the social point of view, Truly (2002) examines the case of Lake Chapala Riviera (Mexico) and proposes a segmentation of retired migrants on the basis of the acceptance/rejection of the Mexican lifestyle, focusing on the impact of such mindset on foreign migrants themselves. Economic-wise, Rodriguez et al (1998) and Rodriguez (2001), examining the case of Costa del Sol (Spain), list and discuss some of the implications of retirement of foreign citizens on tourism areas: the pressure on the housing and real estate markets, the process of urbanization, the potential of political influence, the situations that arise in dealing with retirees becoming very old and dependent, the strains on health and welfare services.

In literature, disparate factors are taken into account to analyze the phenomenon of retirement migration: for example, in a logic of push and pull factors, Clark et al (1996) explain the interstate retiree migration in the USA adopting as explanatory variables personal characteristics, location-specific amenities and fiscal-related data. In the same line are the works of Duncombe et al (2001, 2003). Moreover, as noted by Kim et al. (2005) 'the primary motivations to trigger a household to become active in the housing market may be characterized as dissatisfaction with the current housing, disequilibrium of housing consumption due to changes of household characteristic, attractiveness of alternative properties and market and institutional factors' (p. 1628 - also, Wong (2002)). The reader will notice that in our framework we explore situations in which the examined individuals already went through this phase evaluating a long series of factors and, for different motivations, decided to buy a second-home. In our case we are modeling the intention to permanently move to vacation-homes in the future and we are specifically interested in understanding how feelings impact on such decision. Despite the amount of literature explaining the retiree migration behavior, there is little relevant literature regarding the role of psychological factors in the decision to move and this regards the second-home framework as well. The inclusion of lifestyle-related aspects can be found in Simpson and Siguaaw (2013): the authors analyze the lifestyle and satisfaction of senior winter migrants (annually traveling from northern regions to southern ones) in the USA with the purpose (among others) to understand how demographic variables affect satisfaction with activities and life situations while at the seasonal residence. In a different framework, Walker and Li (2007) model household location decisions and simultaneously capture different lifestyles influencing the choice decision itself (the same article presents an exhaustive literature review on the topic of quantification and segmentation of lifestyles in the context of spatial location choice). Both works, in different contexts, end up creating different attitudinal profiles of individuals under examination. This said, as far as the impact on individuals' decision to move of constructs like place-attachment or place-engagement, to our best knowledge related literature lacks of consideration and conceptualization. At this regard, psychological aspects in a second-home setting are examined in

Stedman (2002) who explores concepts such as 'place attachment' and 'place satisfaction' starting from the conceptualization of sense of place and linking it to protective measures towards the destination adopted by seasonal homeowners. A particular interest regarding the natural setting of the second-home destinations is found in Jorgensen and Stedman (2001), Jorgensen and Stedman (2006) (in which authors relate individuals' characteristics to place dimensions constructs such as identity, attachment and dependence) and Kaltenborn (1997).

### 3. Behavioral framework

In our approach, we link the individuals' intended behavior to 'environmental' factors (in our specific case, the vacation-home related characteristics), individuals' own observable characteristics (e.g. gender, age, etc) and 'intervening factors' (Morikawa et al (2002)) such as perceptions and attitudes (psychometric data). The mix of all these sets of factors is supposed to be essential part of individuals' choice and behavior and are therefore intended to explain the phenomenon under observation: the intention to move of second-home owners. The psychometric data are used to identify unobservable factors: following the literature on the topic, we will define such psychometric variables as 'indicators' and these will be seen as manifestations of a latent construct that we define as 'destination engagement'. On the other hand, the latter will be represented as a cause-and-effect relationship using observable variables. Figure 1 schematically reports the integrated model we set up. Ovals represent unobservable variables while rectangular boxes refer to observable constructs. Observable explanatory variables connect to the individual's 'destination engagement' latent variable and intention to move (which is a latent construct itself) through solid arrows, representing so-called structural equations (cause-effect relationships); at the same time dashed arrows both link the 'destination engagement' latent variable to the indicators and express intention to move by self-assessed probability to relocate to vacation-home destination (dashed arrows represent so-called measurement equations, i.e. manifestations of the latent constructs). In Section 4 the different relationships and concepts introduced in the schematic representation are transposed in formal terms. Moreover, from the econometric point of view the graphical scheme lacks of idiosyncratic terms characterizing the different constructs: formal explanation and further characterization of such aspects of the behavioral framework are also presented in the next section.

Two central aspects are noteworthy here: first, we specified the central object of our model, the intention to move, as a latent construct simply because it is something that cannot be concretely assessed. In fact, what we observe is a self-assessed propensity to move as reported by individuals. We are treating this as a homeowners' manifestation that in a certain way resembles the intention to relocate and can be taken as an approximation. Secondly, we do not directly link psychometric variables to the phenomenon under investigation, rather we use them as manifestations of the 'destination engagement' construct. This because formally representing the psychometric indicators as ways in which latent variable can 'express' itself greatly helps econometrically identifying the model.

*(Figure 1 about here)*

## 4. Data and modeling

### *Data and sample description*

The present work builds on a recent study performed by Tourism Observatory (O-Tur) of Canton Ticino in Switzerland. The study was dedicated to the secondary home phenomenon in the Lake Maggiore region in Switzerland, an area in which the hotel sector is particularly important for the tourism market but also characterized by a strong presence of vacation homes (the total number of second-home owners in the region is estimated being around 15'000). The primary objective for such a study was to better understand and give a shape to the second-homes phenomenon in this Swiss region.

Data considered in the present work come from a structured survey sent on February 2013 to almost 12'000 individuals owning a second-home in the Lake Maggiore region. Respondents had the opportunity to fill in a paper version of the survey and send it back or answering to an online version. By the end of May 2013, 1'291 questionnaires were returned. For the purpose of our study 635 of these were kept. This high amount of discarded observations has two causes: in a first instance, given the low numbers representing non-Swiss participants (only 15% of the total sample of respondents are resident outside Switzerland) we decided to model the Swiss second-home owners data exclusively; secondly, a high number of questionnaires were returned presenting missing data for the relevant variables. The proportion of considered questionnaires is 59.4% paper and 40.6% online.

The questionnaire touched different aspects of the second-home phenomenon in the region; the questions proposed were chosen following specific interests and based following guidelines and examples found on the literature regarding experience of spending time in a second-home destination. For the purposes of the present work we considered only a part of all the questions presented in the survey.

*Sample of respondents and second-home descriptives.* Table 1 collects descriptive statistics regarding the sample of 635 individuals considered in the present work and table 2 reports summary statistics regarding the respective second-homes:

*(Table 1 about here)*

*(Table 2 about here)*

As it is evident from tables, second-home is mostly seen as a vacation property: leisure motivations and appeal of the destination were the main reasons that led the individuals to buy the dwelling (71.0%). The original survey included among the possible ownership reasons the intention to spend the old age at destination; we removed such observations from our estimation sample to avoid endogeneity issues in the estimation process (the percentage of such observations in the total number of collected questionnaires is around 6%). The majority of dwellings is represented by flats (46.9%) followed by single houses (40.8%) and country cottages (12.3% - the latter are commonly called *rustici* and represent typical dwellings in the region, generally stone-built and located in the valleys). The main represented municipalities in the sample are Locarno, Ascona, Gambarogno, Brissago and Minusio which can be considered the leading touristic areas in the region.

## Model specification

We illustrate the two components of our final model: the first element is a regression model (in the form of an ordered logit) adopted to explain the self-assessed probability of settling in a stable way in the second-home (our dependent variable) while the second component is a latent variable model, used to take the attitudinal covariates into account. We present the detailed specification of the two components along with the list of variables included in the final version. We subsequently present the integration of both elements in one single model and the loglikelihood function specified to obtain model estimates.

*Ordered logit model.* The ordered logit model is typically adopted to deal with variables expressed in an ordered fashion, i.e. in a sense of ranking. For the ordered logit model the starting point is an underlying, latent phenomenon or measure thought to be represented in a continuous way on the real line. In our specific case we can think that the unobservable measure is the propensity of the owners to permanently move to their vacation property. This propensity is described by an underlying latent regression model:

$$y_i^* = \beta'x_i + \varepsilon_i$$

in which  $i = 1, \dots, n$  is the indicator of observed individuals (the same notation will be used in what follows),  $y_i^*$  represents the latent phenomenon we are interested in and  $x_i$  is the set of variables (excluding a constant term) that are put in relation with it. The vector of unknown (to be estimated) parameters is represented by  $\beta$  and  $\varepsilon_i$  is an iid logistic distributed error term with mean 0 and scale parameter 1, strictly independent of the vector  $x_i$ . Since we are not observing it, we translate the latent object into a discrete, observed indicator – an ordered outcome (our observed dependent variable)  $y_i$ , which represents the individual's choice and thought to be a close representation of his/her propensity to move. In our setting this is represented by a 7-point Likert scale variable we put in relation with the unobserved counterpart in the following way:

$$\begin{aligned} y_i = 1 & \quad \text{if} \quad \mu_0 < y_i^* < \mu_1 \\ & \quad \dots \\ y_i = 7 & \quad \text{if} \quad \mu_6 < y_i^* < \mu_7 \end{aligned}$$

the  $J + 1$   $\mu_j$  are commonly defined thresholds. These have to be estimated along with  $\beta$  parameters. Given the model formulation presented so far and the cumulative function of the logistic distribution

$$\Lambda(\varepsilon_i | x_i) = \Lambda(\varepsilon_i)$$

the probabilities associated with the observed outcomes are:

$$\begin{aligned} \text{Prob}[y_i = j | x_i] &= \text{Prob}[\mu_{j-1} < y_i^* < \mu_j] = \text{Prob}[\mu_{j-1} < \beta'x_i + \varepsilon_i < \mu_j] \\ &= \text{Prob}[\varepsilon_i < \mu_j - \beta'x_i] - \text{Prob}[\varepsilon_i < \mu_{j-1} - \beta'x_i] \\ &= \Lambda[\mu_j - \beta'x_i] - \Lambda[\mu_{j-1} - \beta'x_i], \quad j = 0, 1, \dots, J \end{aligned}$$

For identification purposes, we have that  $\mu_{j-1} < \mu_j$ ,  $\mu_0 = -\infty$  and  $\mu_7 = +\infty$ . In our specific case, the explicit indicator representing the unobservable construct is represented by the following (dependent) variable, included as a question in the survey:

- $y = \text{How likely is it that you permanently shift your residence to your house in Ticino in the future? (1 = very unlikely - 7 = very likely).}$

A general and wide treatment of ordered variables modeling is presented in Greene and Hensher (2010).

*Latent variable model.* The latent variable model is built up of two sets of equations representing the structural part and the measurement part of the model. The *structural part* puts in relation the latent variable ('destination engagement') with the covariates thought to explain it. The equation

$$X_i^* = \delta' z_i + \omega_i$$

expresses the latent variable  $X_n^*$  as function of a set of covariates  $z_i$  (not including a constant for identification purposes),  $\delta$  is the vector of parameters to be estimated and  $\omega_i$  is an iid normal error term with zero mean and  $\sigma_\omega$  standard deviation (to be estimated).

The measurement part of the model puts in relation the latent variable  $X_i^*$  with a set of indicators represented by survey questions. The equation

$$I_{ri} = \lambda_r X_i^* + \nu_{ri}$$

expresses the observed indicators  $I_{ri}$  (with  $r=1,\dots,5$  in our specific case) as function of  $X_i^*$ ,  $\lambda_r$  is the indicator-specific parameter to be estimated (one of the  $\lambda$ s has to be fixed to 1 for identification purposes) and  $\nu_{ri}$  is an iid logistic error term with zero mean and scale parameter equal to one. Given the ordered nature of the indicators (as explained in the following paragraph) the treatment of the different  $I_r$  resembles the structure already explained for the variable  $y$ :

$$Prob[I_{ri} = k | X_i^*] = \Lambda[\eta_{rk} - \lambda_r X_i^*] - \Lambda[\eta_{r,k-1} - \lambda_r X_i^*]$$

where  $\eta$ s are the thresholds. As indicators for our latent variable model we have included the following variables, all of which were represented by questions in the survey. All these constructs were originally measured with a 7-point Likert scale:

- $I_1 = \text{How much do you feel attached to the region of Lago Maggiore e Valli? (1 = not at all - 7 = very much);}$
- $I_2 = \text{How much do you like the region of Lago Maggiore e Valli as a destination? (1 = not at all - 7 = very much);}$
- $I_3 = \text{When you visit Lago Maggiore and Valli region do you feel like a tourist? (1 = definitely no - 7 = definitely yes);}$
- $I_4 = \text{How satisfied are you to have a home in the region of Lago Maggiore e Valli? (1 = not at all - 7 = very much);}$
- $I_5 = \text{How is your relationship with your neighbours? (1 = very bad - 7 = very good).}$

The rationale to relate such indicators to a unique latent construct is the following: even if we can consider  $I_3$  (feeling tourist) and  $I_4$  (neighbours relationship) conceptually different from the other aspects, all the considered indicators show a certain degree of correlation with the others. Moreover, all these are strictly grounded in the concept of region (Lago Maggiore e Valli) and relate to the experience(s) lived by second-home owners in their role of non-residents in the region itself.

Despite the 7-point range presented in the questionnaire, in the model specification we present these points were collapsed to 3 (aggregating 1-2 / 3-4-5 / 6-7): this is because of the low number of



observations for specific points (typically intermediate points between the extremes and the central value) in certain indicators. A general and wide treatment of latent variable modeling is presented in Walker (2001).

*Variables included in the model.* With regard to the covariates vectors included in the model, after a process of non-significant variable elimination we obtained the best model specification in terms of fit measure. The following independent covariates (a mix of owners' personal characteristics and second-home specific variables) are included in the  $x$  vector concerning the core part of the model and adopted to explain our dependent variable, the self-assessed intention to move:

- type of dwelling: categorical variable;
- vacation-home municipality: categorical variable;
- motivation of purchase/property: categorical variable;
- gender of the respondent: dummy variable;
- age of the respondent: continuous variable, specified in a piecewise fashion;
- geographical region of residence of the respondent: categorical variable;
- number of days spent at destination per year: continuous variable;
- the 'destination engagement' latent variable.

Additionally, the  $z$  vector contains the individual observations for covariates adopted to characterize the 'destination engagement' latent variable:

- motivation of purchase/property: categorical variable;
- gender of the respondent: dummy variable;
- educational level: categorical variable;
- vacation-home municipality: categorical variable;
- number of days spent at destination per year: continuous variable.

*Maximum likelihood estimation of the integrated model.* All the elements collected up to now are used to explicit the object function in the maximum likelihood estimation process. The conditional (on  $X^*$ ) likelihood function is explained as follows:

$$f(y_i, I_i | x_i, z_i, X_i^*; \beta, \delta, \mu, \eta, \lambda, \sigma_\omega) = \prod_{j=1}^7 [\Lambda(\mu_j - \beta' x_i) - \Lambda(\mu_{j-1} - \beta' x_i)]^{m_{ji}} * \prod_{r=1}^5 \prod_{k=1}^3 [\Lambda(\eta_{rk} - \lambda_r X_n^*) - \Lambda(\eta_{rk-1} - \lambda_r X_n^*)]^{m_{rki}} * \frac{1}{\sigma_\omega} \phi \left[ \frac{X_i^* - \delta' z_i}{\sigma_\omega} \right]$$

with  $I_i$ ,  $\mu$ ,  $\eta$ ,  $\lambda$  representing vectors of the respective variables and parameters,  $m_{ji} = 1$  if  $y_i = j$  and 0 otherwise,  $m_{rki} = 1$  if  $I_{ri} = k$  and 0 otherwise,  $\phi$  representing the standard normal distribution.

The unconditional likelihood function is as follows:

$$L(y_i, I_i | x_i, z_i; \beta, \delta, \mu, \eta, \lambda, \sigma_\omega) = \int_{X^*} f(y_i, I_i | x_i, z_i, X_i^*; \beta, \delta, \mu, \eta, \lambda, \sigma_\omega) dX^* .$$

Given its dimension, we rely on simultaneous numerical integration to deal with the integral. Considering the whole sample of respondents and the log transformation, the objective function becomes as follows:

$$LL(y_i, I_i | x_i, z_i; \beta, \delta, \mu, \eta, \lambda, \sigma_\omega) = \sum_i \ln L(y_i, I_i | x_i, z_i; \beta, \delta, \mu, \eta, \lambda, \sigma_\omega).$$

The model estimation process aims at maximizing the log-likelihood function over the unknown parameters. Maximization is done subject to the constraints  $\mu_{j-1} < \mu_j$ ,  $\mu_0 = -\infty$  and  $\mu_7 = +\infty$  and  $\eta_{rk-1} < \eta_{rk}$ ,  $\eta_{r0} = -\infty$  and  $\eta_{r3} = +\infty$ . Model estimation was performed in the Python-coded version of Biogeme (Bierlaire (2003)).

## 5. Results and discussion

The results presented in what follows represent the best model we managed to estimate. Few non-significant parameters were kept because global model fit resulted in being better. All estimated thresholds ( $\mu$ s and  $\eta$ s) turned out to be significantly different from 0 with exception of  $\mu_1$  (results for such parameters are not reported for sake of compactness). Table 3 firstly reports the ordered logit model estimates (including the latent variable coefficient) and, secondly, the latent construct coefficients.

(Table 3 about here)

*Ordered logit part: second-home type.* The inclusion of second-home type variable resulted in positive parameter estimates referred to single house and flat: owning a single house or a flat in the Lake Maggiore region positively impacts on the intention to permanently move if compared to the country cottage case. A possible explanation may be represented either by an implicit aversion towards stable residence in outskirts and valleys (*rustici* are commonly located in the countries and in proximity of woods, outside urban centers) or by a proneness to urban life that, in the case of Lake Maggiore, could be also seen as preference for a residence very close to the lake given the proximity of most urban centers to it. We must also note that inclusion of the second-home type variable in the equation of the ‘destination engagement’ construct (see later discussion) did not result in being significant and therefore this cannot confirm our idea. Through a log-likelihood ratio test we compared the magnitude of the parameter estimates (0.527 and 0.568) which resulted in being not statistically different: we therefore cannot reject the hypothesis that people owning a flat and people owning a single house are equally prone to move. A further parameter was specified and included in the model: the positive parameter capturing the interaction implies that people owning a single house in Locarno (the biggest municipality in the region, directly in front to the Lake) are significantly more prone to move their residence than people owning the same type of dwelling in a different municipality or a different type of house in the same municipality (this is the only significant impact we managed to highlight with regard to the geography of Lake Maggiore region).

*Ordered logit part: second-home ownership motivation.* Only for a couple of ownership reasons the model reported significant parameters: people who inherited the house show a significantly lower propensity (-0.802) towards permanently moving than those who indicated other motivations. Owners having friends and relatives at destination show higher propensity to move (1.03) rather than others. It is interesting to note that the ‘appeal’ motivation did not result in significantly affecting the propensity to move if compared to other motivations: for instance, the ‘family and friends’ is a stronger pull for second-homeowners. One might

think that leisure aspects are more effective than others in shaping the propensity to move to the vacation region: for example, Rodriguez et al (1998) showed that the 'leisure' and 'experience' aspects are particularly important in delineating the retirement phenomenon, more than the 'family and friends' aspect. On the opposite, McHugh (1990) analyzes how the 'depreciation' of bonds to home (e.g. children and friends moving away) is a push factor towards migration '...particularly if [homeowners] have family members or close friends living in the seasonal residence' (p. 243).

*Ordered logit part: days spent at destination.* The longer the stay during the year at destination the higher the intention to move in later life. Our results resemble evidence reported in literature (for example in McHugh (1990)) that the greater the experience at destination the greater the propensity to move.

*Ordered logit part: socio-demographic variables.* Among the socio-demographic variables, we successfully managed to include gender, age and place of residence. The positive and significant parameter (0.682) for the gender variable highlights that, ceteris paribus, male owners show a higher propensity to move than women do. We tried to interact gender with marital status of people but this failed in uncovering significant evidences. Concerning age, we aggregated the sample of respondents in three different classes and included the variable in a non-linear fashion, adopting a piecewise-type specification. The first two parameters (explaining the impact of age up to 64 on the propensity to move) are not significant (these were retained because of an overall better fit) indicating that there is no overall age-effect on the propensity to move for younger owners. Conversely, we have a statistically significant impact of age from 65 y.o.: the negative sign is coherent with common sense, suggesting that people close to retirement age or who recently retired already have decided about their later life residence and the older they get the weaker their intention to move to a new place. We managed to interact the age variable with the marital status of respondents: the mean age impact on the dependent variable from 45 to 64 y.o. is not statistically different from zero but this becomes significant and negative when we consider married second-home owners. Moreover, we observe that the magnitude of the effect (-0.0469) interesting married people aged 45 to 64 is lower (in absolute terms) than that affecting people aged 65 and older (-0.166): this implies that intention to move tends to decline in a non-linear fashion the older the people get and confirms what we previously observed. Finally, we can also notice that marital status positively influences the propensity to move of older people: the positive sign of the interaction between age from 64 y.o. and marital status (0.109) sums up to the mean effect, reducing the negative impact on the dependent variable for married homeowners and this implies that couples are more prone to consider relocation rather than unmarried people. Concerning the region of residence of second-home owners, we isolated the observations regarding respondents from north-eastern Switzerland and the positive coefficient (0.304) implies that owners coming from this region show a higher intention to relocate than owners residing in the rest of Switzerland do. The geographical separation we propose is basically driven by the model fit and it is difficult to explain the reasons for such a distinction between north-eastern Switzerland and the rest of the country. Probably the geographical separation hides some unobserved peculiarities that lead people from the north-eastern part of the country to be more prone towards future residence in the Lake Maggiore region than others.

Finally, we report the attempts to include several other variables characterizing our sample of respondents but these did not turned out in being significant; in particular, we tried to specify second-home owners' income, occupation and level of instruction. The lack of evidence contrasts with the results in McHugh (1990) who found that income significantly and positively impacts on the intention to relocate.

*Ordered logit part: place engagement latent variable.* Inclusion of such a variable appears particularly significant and the sign of the parameter stands for a positive effect of place engagement on the propensity to relocate at destination. This confirms that latent constructs characterizing people's behavior and feelings

have a significant impact on the intention to move and need to be taken into consideration. We tried to specify several interactions between the latent variable and other covariates but none of these resulted in being significant, indicating that the role of feelings cannot be differently characterized for diverse subsamples of homeowners.

*Latent variable part: second-home ownership motivation.* As for the previous case, we did not manage to specify all the cases pertaining the variable. We obtained significant and positive estimates only for the inheritance case (1.16). It is interesting to note the differences with the previous result concerning the same construct: inheritance of the second-home negatively affected (with respect to other ownership motivations) the propensity to move although, it has a positive impact on the place attachment feeling.

*Latent variable part: second-home municipality.* The model estimates show significant results for two of the main municipalities of the region, Brissago and Gambarogno. The negative signs (-0.629 and -0.957, respectively) imply a negative impact on the latent variable. This result is interesting considering that these two municipalities are among the closest to the lake and most preferred in terms of ownership of a vacation-home: home owners living in such places show a lower attachment feeling to the region than people owning a dwelling in Locarno and Ascona (the two main localities of the region) but this is also true for municipalities which are less popular than Brissago and Gambarogno and closer to valleys and mountains.

*Latent variable part: days spent at destination.* The longer the stay during the year, the higher the feelings of attachment to the region.

*Latent variable part: socio-demographic variables.* Our latent variable is significantly affected by gender and education of second-home owners. We found that women show a higher place attachment than men (the male gender coefficient is -0.561) and that highly educated homeowners have better feelings towards the destination (0.469). As in the previous case, specification of further variables did not turn out being significant. Our results are coherent with those in Simpson and Siguaw (2013) who, in a slightly different framework, report how female and more educated people seem to be more satisfied with some aspects of their stays in a winter-home destination. Moreover, the authors note how income has no significant effect on winter-home life satisfaction and that is our case as well. The last consideration regards the estimation of the standard error for latent variable's distribution that turned out being significant, meaning that there is a part of heterogeneity in the sample's responses that the variables we included could not account for. Further analysis on this aspect should be pursued.

*Latent variable part: place engagement indicators.* The final set of estimated coefficients refer to the 5 indicators we used to allow the identification of the latent variable. As already mentioned, one of the coefficient has to be fixed to one while the remaining are freely estimable. All the signs of the coefficients are coherent with the behavioral framework and the parameter estimates are statistically significant, showing that the indicators we considered enter in a meaningful way in our model: our latent construct positively reflects on homeowners' perceived place appeal, ownership satisfaction and neighbours relationship. On the other hand, from the emotional point of view the closer one is to the place the less one feels like a tourist when spending time at destination.

## 6. Conclusions and future advances

The present study aimed at shedding light on the profile of Swiss second-home owners in the Lake Maggiore region (Switzerland) who expressed the intention to permanently move there in the future. Based on observations collected via a structured survey, in order to study the connection between vacation-home ownership and later life migration propensity we specified an ordered logit model integrated with a latent variable capturing unobservable individuals' traits that, along with other explanatory variables, resulted in being important to explain the intention to move.

Our work is exploratory in nature since the purpose of the original research was not to investigate the specific topic of second-home ownership and retirement. Moreover, we cannot claim to be representative of the entire population of second-home owners in the region since there are no official statistics about it. Despite this, we think that, both methodologically and conceptually, our approach to the topic may represent an interesting feature of future research regarding the issue. With the present work our intention is to fill the gap represented by the lack of consideration of behavioral and attitudinal aspects in the framework connecting second-home ownership and retirement migration.

For this paper we specifically decided to concentrate on Swiss second-home owners because the limited number of observations obtained from non-Swiss respondents did not allow a wider investigation. Obviously, for a more comprehensive study it would be important to integrate data coming from foreign individuals in order to disentangle eventual behavioral differences between subsamples of homeowners.

Concerning policy interventions, for tourism destinations interested in stimulating or managing such phenomenon the approach we proposed may be helpful to better understand the intentions of second-home owners and could help shaping and integrating policies that attract people (Rowles and Watkins (1993) and Truly (2002) - individuals' point of view on the issue was considered in Godbey and Bevins (1987)). Given the change of status (in the second-home owner's eyes) of the place from 'tourism destination' to 'permanent residence', city management policies would be appropriate to attract and encourage people to move; moreover, considering the influence of individuals' psychological traits in the decision (place attachment, neighbours relationship, not feeling a tourist), these policies should aim at involving the future citizens in the destination life and sociality and make them feel well accepted.

The reader will certainly recognize that our work was not aimed at explaining the effective decision to move taken by second-home owners but, rather, the interest was primarily to understand how these shape their stated intention to eventually move and this difference must be clearly acknowledged. An interesting extension of the research would certainly be to see whether actual behavior of second homeowners is coherent with their stated intention.

In our work we focused on homeowners' individual level, investigating how the profile of individuals and vacation-home related characteristics help explaining the intentions to move of second-home owners. Clearly, there are several other aspects that we did not consider but that have to be kept into account for a more precise picture of the subject: we are referring to economic aspects concerning, for example, fiscal policies and quality of services as well as social factors like cultural differences and language barriers. From this point of view, we must observe that Italian is the spoken language at destination while most of second-home owners are German speaking even though both are official languages in Switzerland. Moreover the reader should notice that our work, unlike others (Rodriguez (2001), Rodriguez (1998), Truly (2002)), conceptualize the phenomenon focusing on natives (Swiss homeowners) moving from one region to another. Therefore, with the consideration of retirement to a different place in the same country the dimension of cultural difference is (at least partially) attenuated. The lack of information regarding both homeowners' lifestyles and the social context in which they currently live (Simpson and Siguaw (2013)), the home community related ties (McHugh (1990)) and the attitude towards health in later life (Pope and Kang (2010))

represent some limits of our research. All these aspects may help to better contextualize homeowners' attitude towards retirement in a destination both socially and environmentally different from their current place of residence.

Concerning both the subject discussed and the methodology adopted in this paper, several advances may be proposed. From a methodological point of view, the implementation of advanced modeling may be helpful to disentangle new evidences considering the variables the present work focused on. For example, recent developments in ordered response modeling may allow, on the one hand, to explain heterogeneous respondents' indications in the self-assessed probabilities to permanently move to the vacation property - both deterministically, via explicit specification of individual variables, and in a stochastic manner, relying on probabilistic tools (mixed models). On the other hand, a form of generalized ordered model may allow the specification of thresholds as direct function of explanatory variables - this latter approach may result in interesting findings if we consider that certain variables would impact differently on the different Likert scale points chosen by respondents to represent the latent propensity to permanently move to their second-home. From a conceptual point of view, several new aspects may be considered in the modeling of the phenomenon in order to obtain new evidences. Along with the already cited economic and social factors, we are referring to the consideration of tourism related aspects that may have an impact on both individuals' attitudes and behavior. Among these we can consider the activities regularly pursued at destination (Godbey and Bevins (1987), Simpson and Siguaw (2013)) and push and pull factors concerning the decision to spend time where the vacation-home is located (Rodriguez et al (1998)). All these aspects and the widening and diversification of the study sample may represent a starting point for future research.

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## Tables list

Table 1 - Individual related descriptives

<b>Gender</b>		
male	401	63.10%
female	234	36.90%

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<b>Age</b>		
average		63
st. dev.		10.4

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<b>Region of residence</b>		
Zurich	219	34.50%
Central CH	86	13.50%
North-west CH	134	21.10%
Mittelland	73	11.50%
East CH	108	17.00%
Lake of Geneva	15	2.40%

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<b>Marital status</b>		
unmarried	34	5.40%
married	512	80.60%
divorced	49	7.70%
widowed	37	5.80%
n.a.	3	0.50%

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<b>Education</b>		
primary school	48	7.60%
middle school	78	12.30%
secondary school	120	18.90%
degree	371	58.40%
n.a.	18	2.80%

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<b>Monthly household income (CHF)</b>		
6000 or lower	104	16.40%
6001 - 12000	256	40.30%
12001 - 18000	117	18.40%
18001 or higher	70	11.00%
n.a.	88	13.90%

Table 2 - Second-home related descriptives

<b>Ownership motivation</b>		
inheritance	103	16.20%
investement	18	2.80%
family tradition	34	5.40%
place appeal	451	71.00%
friends/relatives	23	3.60%
business	6	0.90%
<b>House type</b>		
single house	259	40.80%
flat	298	46.90%
country cottage	78	12.30%
<b>House location</b>		
Locarno	69	10.90%
Ascona	79	12.40%
Gambarogno	79	12.40%
Brissago	63	9.90%
Minusio	54	8.50%
other municipalities	291	45.80%
<b>N. of days spent at destination per year</b>		
average	68.6	
st. dev.	42.3	

Table 3 - Integrated model results

<b>Ordered logit model parameters</b>		
<b>Parameter</b>	<b>Value</b>	<b>p-value</b>
Second-home type: single house	0.527	0.03
Second-home type: flat	0.568	0.02
Second-home type: country cottage (reference case)	0 (fixed)	
Single house and municipality Locarno (interaction)	0.804	0.00
Second-home ownership motivation: inheritance	-0.802	0.00
Second-home ownership motivation: family and friends	1.03	0.02
Second-home ownership motivation: others (reference case)	0 (fixed)	
Days spent at destination per year	0.00659	0.00
Gender: male	0.682	0.00
Gender: female (reference case)	0 (fixed)	
Age (up to 45 y.o.)	0.0476	0.4
Age (45-64 y.o.)	0.0236	0.29
Age (45-64 y.o.) and married (interaction)	-0.0469	0.01
Age (older than 64 y.o.)	-0.166	0.00
Age (older than 64 y.o.) and married (interaction)	0.109	0.02
Swiss region of residence: north-eastern CH	0.304	0.05
Swiss region of residence: others (reference case)	0 (fixed)	
'Destination engagement' latent variable	0.221	0.01
<b><i>Latent variable model parameters</i></b>		
<b>Parameter</b>	<b>Value</b>	<b>p-value</b>
<b><i>Latent variable structural equation</i></b>		
Second-home ownership motivation: inheritance	1.16	0.01
Second-home ownership motivation: family and friends	0.472	0.49
Second-home ownership motivation: others (reference case)	0 (fixed)	
Second-home municipality: Brissago	-0.629	0.12
Second-home municipality: Gambarogno	-0.957	0.01
Second-home municipality: others (reference case)	0 (fixed)	
Days spent at destination per year	0.0112	0.00
Gender: male	-0.561	0.05
Gender: female (reference case)	0 (fixed)	
Education: degree	0.469	0.06
Education: lower than degree (reference case)	0 (fixed)	
$\sigma\omega$	1.96	0.00
<b><i>Latent variable measurement equation</i></b>		
$\lambda$ 1: place attachment	1 (fixed)	
$\lambda$ 2: place appeal	0.8	0.00
$\lambda$ 3: feeling tourist	-0.323	0.00
$\lambda$ 4: s-h ownership satisfaction	0.387	0.01
$\lambda$ 5: neighbours relationship	0.33	0.00

**Figures list**

Figure 1 – Graphical representation of the behavioral model

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