



Preferences of urban dwellers on urban forest recreational services in South Korea

Koo Ja-Choon^a, Park Mi Sun^{b,*}, Youn Yeo-Chang^{a,b}

^a Department of Forest Sciences, Seoul National University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-921, Republic of Korea

^b Research Institute for Agriculture and Life Sciences, Seoul National University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-921, Republic of Korea

ARTICLE INFO

Keywords:

Choice experiment
Latent class model
Preference heterogeneity
Recreational service

ABSTRACT

This paper aims to investigate the preferences of urban dwellers for various attributes of urban forests, with an emphasis on forest recreational services. A choice experiment was conducted using face-to-face interviews with 823 urban dwellers in 2010. Urban forest attributes such as trails, slope, biodiversity, environmental education programs and entrance fees were found to influence Korean citizens' preferences regarding urban forests. Among the six urban forest attributes, biodiversity was the most influential among Korean urban dwellers in their choice of urban forest recreation. Three latent groups with relatively homogeneous preferences over various urban forest attributes were identified. Residential area, family composition and the purpose of their visit determined group membership. It was notable that the preferences of urban forest recreationists differ from the general preferences of visitors to forests located in remote areas. Urban forest planning and management should consider the attributes of urban forests and the preferences of citizens visiting urban forests to improve urban dwellers' welfare.

© 2013 Elsevier GmbH. All rights reserved.

Introduction

Urban populations worldwide continue to increase as societies urbanize. According to a report by the United Nations (2010), between 1950 and 2009, the global urban population grew at an average rate of 2.6% per year and increased nearly fivefold over that period, increasing from 0.73 billion to 3.42 billion. By the middle of 2009, the number of people living in urban areas (3.42 billion) had surpassed the number of people living in rural areas (3.41 billion). Thus, the world has become more urban than rural. Consistent with this trend, the Korean urban population increased from 4 million in 1950 to 38.7 million in 2005, and the percentage of the population residing in Korean urban areas increased nearly fourfold over that period, from 21% to 81% (United Nations, 2010). This increase in urban population has made urban policies a major focus of central and local governments. Urban areas are confronted with various physical, economic and social problems. The environmental quality of urban spaces is considered a significant issue in urban policies. Environmental policies in urban areas include policies pertaining to urban forests, which provide residents various ecological and social benefits.

To increase citizens' satisfaction with urban forests, these forests must be designed in a manner that responds to and incorporates the

current needs of the citizens as users of urban forests (Bell et al., 2005). There are many demands on urban forests such as social activities, solitude, peace and quiet, security, esthetics and biodiversity (Bell et al., 2005; Tyrväinen et al., 2005). According to a national survey on the preferences of Korean citizens regarding forest use, a majority of respondents (48.3%) stated that recreation was the most important use of a forest (Gallup Korea, 2006). Thus, it is necessary for Korean policy makers to understand citizens' preferences regarding the recreational services of urban forests. Detailed information on urban forest preferences is useful in establishing and implementing urban forest policies. Our research question is: what is the most preferred type of urban forests as a recreational site? To provide policy makers with detailed information on preferences regarding urban forests, various attributes of urban forests should be examined; forest preferences can be influenced by the following forest conditions: (1) size, type and quality of trees, (2) forest structure and density, (3) management practices such as thinning, harvest method, and plantation, and (4) infrastructure such as trails and accessibility (Ribe, 1989; Gundersen and Frivold, 2008). Gundersen and Frivold (2008) showed that people's preferences for a forest are increased by increasing tree size and advancing the stage of forest stand development in a review of 53 studies on forest landscape preferences. The studies on forest preferences primarily focused on attributes regarding the scenic or esthetic benefits of a forest at the landscape level. Relatively a few studies have investigated the recreational values of urban forests. Axelsson-Lindgren and Sorte (1987) showed that trails with

* Corresponding author. Tel.: +82 2 880 4942; fax: +82 2 875 4763.
E-mail address: mpark@snu.ac.kr (M.S. Park).

numerous visual forest stands provide a variety of open-air activities. Tyrväinen et al. (2005) described that most visitors appreciate perceiving urban forests as natural and sought experiences related to enjoying peace and quiet.

Regarding forest recreational services, most preference studies have attempted to determine their monetary value by allowing respondents to reveal or state their preferences. The travel cost method (TCM) has been used widely to estimate the value of forest recreational services. However, the TCM is problematic for urban settings because there are generally no or only small costs involved in traveling to the site (Tyrväinen et al., 2005). Thus, the hedonic pricing method (HPM) and the contingent valuation method (CVM) have frequently been used in evaluating the recreational value of urban forests. However, HPM and CVM have some methodological limitations with respect to various attributes of urban forests. In the case of HPM, it can only be used in situations where citizens have already paid for the value of urban forests as a premium on the prices of houses and buildings. It is therefore impossible to apply HPM in hypothetical situations that consider the various attributes affecting the respondents' utilities. In the case of CVM, it can assume hypothetical situations with various attributes, but it is difficult to consider the various attributes independently. Consequently, it is difficult to determine how sensitive respondents are to a particular attribute. However, a choice experiment (CE) can estimate the values of the various attributes that compose an environmental good (Hanley et al., 1998), regardless of the correlation among attributes and trade-offs between them; thus CE is more suitable for investigating an urban dweller's preferences related to using urban forests as a recreation site with multiple attributes than HPM and CVM.

Many CE studies have investigated preferences over various forest attributes that can affect recreational benefits (Adamowicz et al., 1998; Hanley et al., 1998; Boxall and Macnab, 2000; Watson et al., 2004; Horne et al., 2005; Scarpa and Thiene, 2005; Christie et al., 2007; Nielsen et al., 2007; Bujosa Bestard and Font, 2009, 2010; Edwards et al., 2012). These studies utilized a variety forest attributes including not only abiotic elements such as topography and hydrology but also biotic elements such as richness, diversity, height structure, age of stand and so on. Anthropogenic elements such as the quality of management, recreational facilities and infrastructure (e.g., trail, information, and parking) were also included as attributes.

Compared to studies on forests in general, relatively few studies have applied CE to urban forests. Arnberger et al. (2010) selected the number of visitors, user type, group size, placement of visitors, the presence of dogs and direction of movement as urban forest trail attributes to investigate heterogeneous preferences. Nordh et al. (2010) selected grass, bushes, trees, flower beds, water features, and the number of other people as urban forest attributes to investigate the relative importance of attributes in urban parks used for relaxation. The selection of attributes in CE is entirely determined by the purposes of the study. However it must be considered very carefully, as the inclusion or exclusion of an attribute can affect choices (Hensher, 2006; Pedersen et al., 2011). The attributes selected in the above studies were limited to visitors' behaviors within urban forests and the landscapes of urban forests, respectively. The studies did not examine preferences regarding facilities and programs in urban forests. They did not consider the costs of the attributes, which is very useful for eliciting preferences with monetary values such as consumer surplus and marginal willingness to pay. We fill the research gap by selecting attributes of urban forests that may represent various characteristics of urban forests in South Korea, including the cost attribute.

Many CE studies have found that there are considerable differences in preferences regarding the environment with respect to demographics (Axelsson-Lindgren and Sorte, 1987; Hanley et al., 1998; Scarpa and Thiene, 2005; Nielsen et al., 2007; Arnberger et al.,

2010; Nordh et al., 2010); thus this study examines the influence of urban dwellers' socio-demographic characteristics such as age, sex, residential area, marriage, education, income, family composition, and occupation. Leisure patterns (e.g., the purposes for and frequency of visits) are also examined, as empirical studies have demonstrated the heterogeneity of forest preferences according to the recreationists' types (Boxall and Macnab, 2000; Christie et al., 2007) and the frequency of visits (Morris et al., 2009).

Following and complementing the previous studies on urban forests, this study is designed with the following three objectives: (1) to investigate the preferences of urban dwellers in South Korea regarding various attributes of urban forests, with a particular emphasis on recreational services, (2) to understand the differences among groups of citizens in their preferences regarding urban forest attributes, and (3) to identify which socio-demographic characteristics of citizens are significant when grouping citizens. This paper begins by describing the Korean context and the CE methodology. In the following sections, the survey results are presented and interpreted. In the last section, the main findings are summarized and areas for further study are recommended.

Korean context

Korean law defines urban forests as not only including street trees, school forests and recreational forests as defined by the Establishment and Management of Forest Resource Act but also urban parks designated according to the Act on Urban Parks and Green Spaces. The total area covered by urban forests in Korea is 1.1 million ha (Korea Forest Service, 2010). Considering the importance of forest services for urban dwellers' health, the FAO (Food and Agriculture Organization) and WHO (World Health Organization) have recommended a minimum urban forest area of 9 m² per capita. The average urban forest area per capita in Korean cities, 7.76 m² (Korea Forest Service, 2010), is below this recommended figure. Central and local governments have established a national target for urban forest areas of 10 m² per capita for metropolitan cities by 2017. The Korean government has designed and managed Green Belts (which are restricted development zones) within urban areas as a component of the national land planning and management system since the 1970s (Bengston and Youn, 2006). Korean society has been active in protecting urban forests and green areas against the urban development plans of governments and enterprises through forest movements since the late 1990s (Park, 2009). According to a national survey on the awareness of Korean citizens regarding forests, 80.4% of respondents expect that demand for urban forests in Korea will increase dramatically (Gallup Korea, 2006). In principle, Article 18 of the Framework Act on Forestry indicates, "central and local governments shall establish and implement policies necessary to systematically manage forests and green zones in urban areas." According to the Creation and Management of Forest Resources Act, the Korea Forest Service (KFS) established a basic plan for urban forests (2008–2017) in 2007. Local governments then established and implemented local plans for the creation and management of urban forests under this basic plan. Following these plans, central and local governments are constructing and managing various types of urban forests including street trees, urban parks and school forests.

Methods

Choice experiment (CE)

A CE, a stated preference method, was applied to investigate the preferences of urban dwellers regarding multiple attributes of urban forests. The CE method originated from conjoint analysis, a

Download English Version:

<https://daneshyari.com/en/article/94127>

Download Persian Version:

<https://daneshyari.com/article/94127>

[Daneshyari.com](https://daneshyari.com)