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Comparison of social capital indicators from position generators and name generators in predicting activity selection

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ABSTRACT

Existing research on social capital and activity behavior has generally used name generators to analyze core networks to understand more intimate connections. But using name generators and interpreters in surveys increase respondent burden and survey length. The position generator is a technique used in the social science to study social capital and allows for measuring access to networked resources via occupational diversity of network contacts. The influence of these social capital measures is mostly unknown in the context of activity and travel. Since few activity-travel studies have used the position generator previously, a case study using the Pew Internet Personal Networks and Community survey was performed to explore the role of social network occupational diversity in activity participation. The name generator and position generator indicators were compared for predicting activity participation. Social capital was correlated with activity participation for all of the activity types analyzed. Network diversity as measured from the position generator was found to be a reasonable predictive variable for activity participation. The network diversity indicator was found to hold more explanatory and predictive power than core network indicators from a name generator. Additionally, due to the limited use of position generators in travel behavior analysis, the robustness of the social network occupational diversity measure was analyzed. On the measures of predictive accuracy, model fit, and bias and variability of parameter estimates, social network occupational diversity was found to be robust to varying position generator lengths.

1. Introduction

In the activity-travel perspective, travel is a derived demand due to activities (Ortuźar and Willumsen, 2011). Individuals connect the activities in their lives by travel because activities bring value to people's lives. This is because activities "satisfy a particular need or requirement" (Ortuźar and Willumsen, 2011, p. 473). The varying requirements and needs of activities may serve to bring individuals together. Work activities bring colleagues together to collectively accomplish tasks. Leisure travel often connects individuals who are friends, family, and acquaintances to share experiences and connect socially. But some activities are often done alone, such as routine shopping and fast-food eating out.

This mixture of social networks and activity generation motivates a social capital perspective. For example, Carrasco and Cid-Aguayo (2012) explicitly mention the importance of social capital and connect social network analysis with this by emphasize the importance of "network capital" in travel behavior. Social capital is based on the premise that social networks bring value; investments in establishing and maintaining social contacts can lead to individual returns such as comfort, support, and resources

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(Kadushin, 2012). As Lin (2001) describes:

> *Therefore, social capital can be defined as resources embedded in a social structure which are accessed and/or mobilized in purposive actions. By this definition, the notion of social capital contains three ingredients: resources embedded in a social structure; accessibility to such social resources by individuals; and use or mobilization of such social resources by individuals in purposive actions. Thus conceived, social capital contains three elements intersecting structure and action: the structural (embeddedness), opportunity (accessibility) and action-oriented (use) aspects.* (p. 12)

In this paper, Lin's (2001) focus on social embeddedness and measurement techniques will be emphasized[1] which fits in best with Carrasco and Cid-Aguayo's (2012) focus. In the social sciences, the two most common approaches to measuring individual-level social capital are name generators and position generators (Kadushin, 2012; Lin et al., 2001).

The name generator confronts a respondent "with a specific relation and [asks] 'with whom' he or she is related in this particular way" (Hennig et al., 2012, p. 85). Lin et al. (2001) explains that the name generator is often used as an indicator of social capital in one of three ways:

1. Network configuration characteristics that may indicate density, structural holes.
2. Alter characteristics to indicate access to resources.
3. Alter characteristics to indicate the best resources available to an individual.

Name generators can be interpersonal or global. Interpersonal name generators use a context or stimulus to probe respondents about specific social contacts – these contacts are explicitly identified uniquely. An example of an interpersonal name generator is the question: "Who are the people with whom you discussed important personal matters?" (Burt, 1984). In contrast, global name generators "avoid the identification of [alters]" and questions are asked which generalize an individual's social space (Hennig et al., 2012, p. 86). The following question is an example of a global name generator: "How many different friends have you had lunch or dinner with in the last six months?"

The position generator corresponds with the theory that job prestige is linked to social resource access (Lin, 1982). Thus, measuring individuals' ties with individuals in various occupations can be used to determine resource access. Lin and Dumin (1986) studied the diversity of social networks in Buffalo, NY by asking respondents if they personally knew people (at the acquaintance level or higher) who had specific occupations of varying prestige. By measuring individual's access to different occupations, the position generator allows for indicators of:

1. "range of accessibility to different hierarchical positions in the society",
2. "extensity or heterogeneity of accessibility to different positions",
3. "upper reachability of accessed social capital" (Lin et al., 2001, p. 63).

The position generator technique is useful in measuring the diversity and reachability of an individual's social network and resource access.

In empirical work from the travel-activity literature, the predominant approaches have been global name generators and interpersonal name generators. Global name generators are more typically used in activity diaries since it entails just adding a question about the types of contacts the respondent shared an activity with (e.g. alone, with friends, with family). Interpersonal name generators are used to gain an understanding of the characteristics of respondent's social contacts and to then link this to activity content. An example of this would be to use gender homophily and age homophily among an individual's close contacts as covariates in a regression of recreational activity generation.

The position generator has seen limited usage in activity-travel studies. Position generators are effective in learning about the characteristics of individuals' weak ties. Weak ties provide brokerage between different social groups which increases the diversity of perspectives and information a person may obtain. This could lead the individual to learn about more activities and activity locations (Maness, 2017). Due to a lack of research in this area, there is a gap in knowledge on the useful of social capital indicators from position generators in predicting activity selection. The purposes of this study are to:

1. determine if network diversity as measured by a position generator correlates with activity type selection,
2. determine if network diversity aids in the predictive accuracy of models of activity type selection,
3. analyze differences in prediction between models of activity type selection that use name generator and interpreter data as compared to position generator data,
4. explore the sensitivity of activity type selection models to the size of a position generator.

The Pew Internet *Personal Networks and Community* survey is used to accomplish these purposes. This survey includes both a name generator and position generator, plus it asks respondents about their frequency of visits to eight different location types. Results showed that, in relation to models that use name generator measures of core network size, homophily, and alter characteristics, models using the position generator to measure social network occupational diversity tend to have greater explanatory and predictive

[1] The three traditionally prominent views of social capital come from Bourdieu, Coleman, and Putnam (Field, 2003).