Measuring the monetary value of social relations: A hedonic approach☆

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A R T I C L E   I N F O

A B S T R A C T

This paper presents an application of the hedonic approach to measure the monetary price of social relations. We use micro data for housing and labor markets in the 103 Italian province capitals to estimate the price of relational amenities and construct monetary indices of quality of relational life. We focus on time spent with friends, active participation in associations and frequency of going out for leisure activities as relational amenities, while controlling for standard amenities such as weather, environment, services, and socio-demographic characteristics. We find that individuals are willing to pay a positive and significant monetary price to live in cities where people spend more time with their friends. A one standard deviation increase in the share of those who meet their friends most frequently is worth an extra € 1150 per year in terms of higher housing costs and foregone wages.

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1. Introduction

Traditionally, economists have adopted a rather narrow view of social interactions. Relevant interactions among agents would take place within markets, and were therefore viewed as fundamentally instrumental and anonymous. Non-market interactions were largely not of interest. This generally resulted in an *under-socialized* conception of economic action (Granovetter, 1985). More recently, however, the focus of the discipline has changed dramatically, as economists have become increasingly interested in the nature, causes and effects of social interactions (see e.g. Manski, 2000; Gui and Sugden, 2005; Durlauf and Ioannides, 2010).

Two main strands can be identified within the recent economic literature on social interactions. The first has viewed social interactions as a way of facilitating coordinated action, within the broader notion of social capital (Bourdieu, 1986; Coleman, 1990; Putnam, 1993). This strand of the literature has thus focused on social *connections*, in their role as *capital* goods.[1] The second, relatively smaller, group of studies has focused on relational goods, defined as interpersonal relations that are characterized by being personalized and non-instrumental (Uhlaner, 1989; Gui and Sugden, 2005).[2] This strand of the literature has therefore focused on social *relations*, in their role as *consumption* goods.

At the empirical level, a large number of studies have investigated social connections, focusing on rather heterogeneous phenomena that can be broadly grouped into the three main

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[1] Putnam (1993, p. 167) defines social capital as "[. . .] features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions".
[2] Gui and Sugden (2005, p. 3) define relational goods as "the affective components of interpersonal relations [that] are usually perceived as having value through their sincerity or genuineness".

dimensions of networks, norms, and trust (Bjørnskov, 2006). Despite the difficulty of clearly defining these concepts, providing an appropriate measurement, and identifying causal effects (Paldam, 2001; Durlauf, 2002; Blume et al., 2011), we do have by now a substantial body of empirical evidence on the economic value of social connections viewed as capital goods (Knack and Keefer, 1997; Moretti, 2004).[3] Conversely, relatively little is known empirically about the economic value of social *relations*. It is this second aspect, the monetary price of relationships with others viewed as consumption goods, that we focus on in this paper.

Some recent studies have attempted to measure the value of social relations in terms of subjective well-being. Using a large sample of individuals from the World Values Survey, Bruni and Stanca (2008) showed that relational goods have a significant and quantitatively relevant effect on life satisfaction. This effect was indeed found to be stronger for social relations that are personalized and non-instrumental, such as active involvement in charities, church- and art-related volunteering activities, as opposed to unions, parties and environmental organizations. Stanca (2009) used implicit valuations estimated from micro-econometric life satisfaction equations to construct composite indicators of quality of relational life worldwide. Following similar approaches, other authors have used subjective well-being as the metric to estimate the value of social relations, while extending the analysis to different samples and data sets (e.g. Becchetti et al., 2008, 2012; Ateca-Amestoy et al., 2013). Overall, these studies suggest that the *relational treadmill* can provide an additional explanation of the income-happiness paradox: the positive effect on happiness of better economic conditions may be offset by lower consumption of relational goods (Diwan, 2000).

A smaller number of studies have measured the monetary value of social relations using the life satisfaction approach (Frey et al., 2010). Clark and Oswald (2002) estimated the monetary value of life events, showing that, relative to being single, marriage is worth about $105,000 a year for a representative individual in the United Kingdom. More recently, Powdthavee (2008) adopted a similar approach to estimate the monetary value of interactions with friends, relatives and neighbours. The findings, based on the British Household Panel Survey, indicate that an increase in the level of social involvement is worth up to £ 85,000 a year in terms of life satisfaction. Studies that use the life satisfaction approach, however, only provide an *indirect* measurement of the monetary value of social relations. They rely on estimates of the effects of both social relations *and* income on life satisfaction. By combining these shadow prices, the monetary value of social relationships can be indirectly estimated.[4]

In this paper we propose an alternative approach, based on hedonic prices, to obtain a *direct* measurement of the monetary value of social relations. Following Colombo et al. (2014), our framework is based on the spatial equilibrium model of Rosen (1979) and Roback (1982). Households and firms compete to locate in areas characterized by different levels of amenities and disamenities. In equilibrium, households are willing to pay higher housing prices and accept lower wages in order to locate in cities characterized by better amenities. Monetary valuations of local amenities can therefore be obtained from the marginal response of housing prices and wages to the presence of amenities or dis-amenities. A large number of studies have used the hedonic

approach to value amenities such as climate, environment, services, and socio-demographic conditions (see Boyle and Kiel, 2001; Palmquist, 1999; Blomquist, 2007, for comprehensive reviews). The present work is, to the best of our knowledge, the first application of the hedonic approach to value relational amenities.

We use micro-level data for housing and labor markets to estimate the monetary price of social relations and construct a monetary index of quality of relational life for the 103 Italian province capitals. We focus on three indicators of relational amenities: time spent with friends, active participation in associations, and frequency of going out for leisure activities. We find that households are willing to pay a positive and significant monetary price to live in cities where people spend more time with their friends. We then use the estimated amenity prices to construct a monetary index of quality of relational life and compare it with other dimensions of overall quality of life. Finally, we examine the relationship between quality of life and subjective well-being, in order to assess the consistency between objective and subjective measures of well-being.

The rest of the paper is structured as follows. Sections 2 and 3 describe the data and methods, respectively. Section 4 presents the results, while their robustness is examined in Appendix A. Section 5 concludes with a discussion of the main findings and implications of the analysis.

2. Data

Our analysis is based on four micro-level data sets covering all 103 Italian provinces, corresponding to NUTS level 3, on an annual basis between 2001 and 2010. We focus on cities defined as the municipalities of province capitals. Two data sets provide information on social relations and local amenities, respectively. Two additional data sets provide information on the housing market (house prices and characteristics) and the labor market (wages and workers-firms characteristics), respectively.

Individual-level information about social relations is obtained from the survey "Aspects of daily life", conducted annually by the Italian Statistical Office (ISTAT, 2010) on a rotating sample of about 19,000 households (50,000 individuals) per year. This survey, which is part of the *Multipurpose* integrated system of social surveys, is designed to be representative of the Italian population at province (NUTS 3) level. The survey provides detailed information on several aspects of the daily life of individuals and families, ranging from family relations to household characteristics, health and lifestyle. We consider six annual waves, from 2005 to 2010, and measure relational amenities by focusing on three domains: frequency of time spent with friends, active participation in associations, and frequency of going out for leisure activities. Table 1 presents descriptive statistics for the relational indicators at individual level.[5]

Regarding time spent with friends we use a single variable derived from the following question in the survey: "How often in your free time do you meet with friends?". The variable takes values from 0 to 5 corresponding to the following categories: never, few times per year, less than 4 times per month, once a week, more than once a week, everyday. In Italian cities, the frequency of seeing friends is generally high. As shown in Table 1, 20% of the individuals in the sample report seeing their friends on a daily basis. When considering also individuals who see their friends more than once a week (29%), the total percentage rises to 49%. Therefore, in order to clearly identify cities where it is easier to meet with friends, and

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[3] See also Helliwell (2006), Bjørnskov (2003), Bjørnskov (2008), and Sarracino (2010), for recent studies on the effects of social capital on well-being.

[4] The life satisfaction approach has been used to measure the economic value of several other non-market goods, such as aircraft noise (Van Praag and Baarsma, 2005), fear of crime (Moore and Shepherd, 2006) and terrorism (Frey et al., 2009).

[5] The sample covers 102 cities, since individual-level indicators of social relations are not available for one of the 103 Italian province capitals.