

# Statistical Estimation of the Casual Effect of Social Economy on Subjective Well-Being<sup>1</sup>

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**Abstract:** It is well known that measuring the non-economic outcomes produced by social economy organizations is fairly difficult and complex. Usually, social economy organizations feature participatory and democratic decision-making processes that help create social capital and relational goods, and they are interested in social integration; accordingly, they tend to create an organizational culture that encourages their workers to contribute to local communities. Therefore, the hypothesis that increased activities of social economy organizations have a causal effect on the subjective well-being of people living near those organizations is highly plausible. In this paper, we estimate the causal effect and attempt to statistically test the hypothesis using a dataset called the “Seoul Survey,” which provides observations on the level of subjective well-being of 45,496 citizens living in Seoul and the size of social economy organizations. Controlling for variables in district level and the appropriate socio-economic characteristics of each individual in the dataset, it is found that the size of social organizations is highly significant. This empirical result remains with a causality test using a dummy variable regarding recognition on social economy.

**Key Words:** Social economy, Collective externalities effect, Subjective well-being, Happiness

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## **1. Introduction**

Social economy (SE) has been attracting attention from academia, policy makers, and practitioners for the past three decades as an alternative way to resolve increasingly complex socio-economic issues, including unemployment, the polarization of income and wealth, social service provision under the welfare state crisis, and crumbling communities (Defourny and Develtere, 1999; Noya and Clarence, 2007; Borzaga and Defourny, 2010; CIRIEC, 2012; Mook et al., 2015; Salamon and Sokolowski, 2016). In fact, the cooperative, an old idea, has been in the spotlight again in recent years with discussions of creating decent jobs through worker cooperatives, freelancer cooperatives or social cooperatives, delivering relational good-based social services through social cooperatives or community-based cooperatives, and promoting fair trade and environmentally-friendly goods and services by ethical consumer cooperatives or solidarity cooperatives (Borzaga and Spear, 2004; Zamagni, 2012; Jang, 2014). In addition, the social enterprise, a more socially-oriented enterprise than the traditional type of cooperative, has spread across the world by showing its effectiveness in integrating socially excluded people by offering jobs and creating innovative partnerships among players in the market, state and civil society to resolve various social problems (Dees and Anderson, 2006; Kerlin, 2009; Borzaga and Defourny, 2010).

The essence of SE lies in not relying on the neoclassical rational behavior and methodological individualism assumption but turning to the behavioral assumption of reciprocity ((Fehr & Gächter, 2000; Bowles & Gintis, 2002) and relational and collective ego, which emphasizes process rather than result (Brewer & Gardner, 1996). From the SE perspective, one

may be happier as the happiness of others in the community increases or as the relationship among them becomes better. These assumptions are closely connected to the embeddedness of the economy in a society (Polanyi, 1944), implying that complex socio-economic issues cannot be resolved by the market exchange principle only, but should rely more on reciprocity and the gift exchange principle (Akerlof, 1982).

Therefore, the non-economic outcomes generated by SE organizations, such as building social capital and relational goods in a community and giving rise to collective externalities (Sabatini et al., 2014; Prouteau and Wolff, 2004; Laville and Nyssen, 2010), are considered indispensable for evaluating the performance of an SE organization. However, the effectiveness of SE tends to be under-valued since measuring the non-economic outcomes generated by SE organizations is fairly difficult and complex. The existing literature on measuring performance in SE organizations focuses on tools and instruments potentially relevant to deal with performance measurement in social enterprises in particular (Bagnoli and Megali, 2011; Hall, 2014; Arena et al., 2015). However, most models for performance measurement in social enterprises are confined to measurable output or outcomes that individual social enterprises generate, while assessing the social impact to the community or the environment produced by social economy organizations becomes appealing (Grieco et al., 2015).

This paper focuses on the spillover effects of the SE sector to the community. In particular, it empirically examines the relationship between the magnitude of the SE sector in a region and the average happiness of residents in the region. This study utilizes existing studies on the noneconomic or nonmaterial dimensions of subjective well-being (SWB), such as social capital and relational goods (Bruni and Porta 2007; Leung et al., 2013; Becchetti et al., 2008; Bruni and Stanca, 2008), and on the contributions of SE organizations to the creation of social capital, relational goods, and collective externalities (Sabatini et al., 2014; Prouteau and Wolff, 2004;

Laville and Nyssen, 2010), to generate the hypothesis that a resident's SWB becomes higher as the size of the SE sector in the region increases.

The hypothesis was tested using a data set called the "Seoul Survey," which provides observations on the level of subjective well-being of 45,496 citizens living in Seoul and the size of social economy organizations, which is measured by the number of social cooperatives, certified social enterprises, communal enterprises, and active cooperatives belonging to the relevant administrative district. We also utilized data sets to control for variables in district level and appropriate socio-economic characteristics of each individual in the survey dataset.

South Korea has observed significant development in its social economy in the last decade amidst chronic and complex socio-economic difficulties, including unemployment, deterioration of working conditions of non-regular workers, burgeoning of unsecure self-employed workers, polarization of income and wealth, mounting demand for social services resulting from rapid aging and social needs for women's active participation in economic activities, and environmental issues (Mendell et al., 2010; Bidet and Eum, 2011; Jang, 2016). The SE sector has been quickly expanding by institutional changes such as the enactment of the 2006 Social Enterprise Promotion Act and the 2011 Framework Act on Cooperatives and increasing collaboration between local government and civil society organizations (Jang, 2016).

In Seoul, the capital of Korea, SE has been expanding via collaboration between municipal government and civil society organizations for the last decade. This prompts us to anticipate that SE in the biggest city of Korea has impacted its towns and communities. From the fact that the 25 districts of Seoul, for some reason, differ in number of SE organizations, we derive the hypothesis that the 25 districts of Seoul have been influenced differentially by the SE organizations that came into being within them. Our empirical analysis supported the hypothesis

that the number of social economy organizations working in a specific district of the city has a significant impact on the SWB of its residents.

The paper is organized as follows. Section 2 presents existing literature on the causal effects of social capital and relational goods on SWB and existing studies on contributions of SE organizations to the creation of social capital, relational goods, and collective externalities. Section 3 describes our data. The empirical analysis of the effects of the social economy's magnitude on happiness and further analysis of a related causality issue is presented and discussed in sections 4 and 5, respectively. Section 6 concludes by providing implications for measuring the performance of the SE sector and future research directions.

## **2. Literature Review and Theoretical Foundations**

### **2.1 Noneconomic Dimension of Subjective Well-Being**

SWB has been understood to be one of the most important topics in the field of psychology for decades (Diener et al., 1999). This research program has rejuvenated age-old issues, such as genetic versus sociocultural factors and nature versus nurture or culture. Moreover, due to the seminal work of Easterlin (1974), an increasing number of economists have turned to the area of happiness studies. In particular, behavioral economics attributes lack of correlation between per capita income and happiness to adaptation and social comparison (Kahneman, 2011; Frank, 2005). These research programs have contributed to producing the idea that SWB or happiness is not reducible to per capita income. Instead, more weight should be placed on noneconomic or nonmaterial dimensions of SWB, such as intrinsic motivation, social relationships, autonomy, and participation (Deci and Ryan, 2000; Ryan and Deci, 2000; Ryan and Deci, 2001; Frey et al.,

2004).

For this position to be sustained, SWB must be measured. Theorists of SWB advocate the measurement of utility not only as unavoidable but also as feasible (Frey & Stutzer, 2002). They argue that, although it would be difficult to come up with a fully-fledged concept of cardinal utility as standard economic theory has alleged, it is possible to measure and aggregate the utilities of individuals empirically. They have relied on surveys or questionnaires that ask people to rate their happiness on a four-point or ten-point scale.

Empirical studies of SWB have found evidence that social capital and relational goods positively affect an individual's SWB (Bruni and Porta 2007; Leung, 2013; Becchetti et al., 2008; Bruni and Stanca, 2008; Bruni and Zamagni 2016). Social capital is one of the important factors that are not only closely related to civic engagement but also have a great effect on people's SWB. Putnam (1995) defines social capital as social trust, horizontal social networks, and civic engagement and regards associations as the prime sources of social capital. Per Leung et al. (2011), there are significant relationships between all these aspects of social capital and happiness and trust is an essential component of life satisfaction. Hommerich (2015) examines the relationship between different forms of social capital and civic engagement in Japan and shows that social trust brings about civic engagement mediated by lower feelings of disconnectedness.

Relational goods are also considered as an important factor affecting a human being's SWB. Uhlener (1989) defines relational goods as goods that can only be “possessed” by mutual agreement, such that they exist after appropriate joint actions have been taken by a person and non-arbitrary others. Per Gui (2005), relational goods are intangible entities that are inextricably associated with personalized interactions. Becchetti et al. (2008) propose that relational goods

include companionship, emotional support, social approval, solidarity, a sense of belonging and of experiencing one's history, the desire to be loved or recognized by others, and so forth. Evidence on the positive impact of relational goods on life satisfaction is widely found in empirical studies. Helliwell (2008) demonstrates that relational ties such as marriage and voluntary activities are significantly and positively related to life satisfaction. Bruni and Stanca (2008) find a strong correlation between the time that a person spends in activity with a relational component and self-reported subjective well-being.

## **2.2 Social Economy Sector as a Generator of Social Capital, Relational Goods, and Collective Externalities**

Existing literature on the SE sector has claimed and offered empirical evidence that the activities of SE organizations help build social capital, are well aligned with providing relational goods, and produce collective externalities (Sabatini et al., 2014; Prouteau and Wolff, 2004; Laville and Nyssen, 2001), each of which contributes to the SWB of residents in a community. SE organizations, such as worker cooperatives, which are characterized by participatory and democratic decision-making processes, may play an important role in the diffusion of generalized trust and in the accumulation of social capital. Sabatini et al. (2014) use an Italian sample to provide empirical evidence that the status of being employed in a cooperative enterprise increases the probability that work has improved the social trust of workers relative to employment in public enterprises, private enterprises, and self-employment. Considering existing claims that social capital can be nourished with horizontal relatedness and procedural fairness (Putnam, 1993; Tortia, 2008), the findings are not surprising.

As described above, relational goods are receiving increasing attention from the happiness study circle. SE organizations, such as social cooperatives and social enterprises which provide social services, are inherently structured to take advantage of relationships among service workers, service beneficiaries, volunteers, and other community stakeholders, to effectively supply social services (Laville & Nyssens, 2001; Pestoff, 2009). In this regard, it is necessary to consider that not only the qualities of social services but also the qualities of relationships between people are impressively enhanced by co-production between various stakeholders in the service production process. Ostrom (1999) emphasizes that citizens can play an active role in producing public goods and services in the co-production process. Per Vidal (2014), co-production can be described by voluntary, formal, and continuous collaboration between service providers and service beneficiaries. Pestoff (2009) proposes that the provision of social services through social enterprises, by means of facilitating co-production, can change the relationship between the state and citizens in such a way that citizens who had been passive consumers of social services become active participants in the production of social services. Recently, co-production has been attempted successfully in areas such as childcare, eldercare, handicap care, and health and medical care (Pestoff, 2009).

More generally, studies of European countries and the US show that people who participate in civil society associations are happier on an individual level (Howard and Gilbert 2008). Through participation in the community, people have a sense of community, self-esteem, and identity, and can thereby increase their subjective satisfaction (Tiefenbach and Holdgrün, 2015). Since most SE organizations tend to be established by initiatives of civic organizations, the claim can be applied to SE organizations.

SE can also increase the overall SWB of a region by increasing the SWB of those who are not actively involved in SE. The primary factor by which SE enhances the overall SWB in the



regional level is collective externalities. Per Defourny (2001), the main purpose of activities in SE, especially serving the community, can be defined as the explicit enhancement of collective externalities. Laville and Nyssens (2001) propose that the provision of a service involves the creation of collective externalities (i.e., indirect effects of the activities that benefit the whole community). Community services strengthen social cohesion, through reducing the isolation of elderly people and creating links between people who live in the same neighborhood, which increases the SWB not only of the people helped but also of society as a whole. Activities that help improve the conditions of life in the region also encourage people to remain in the neighborhood and attract other economic activities (Laville and Nyssens, 2001).

To summarize, the noneconomic dimensions of SWB and the contributions of SE organizations to social capital, relational goods, and collective externalities have combined to generate a hypothesis that increased activities of social economy organizations have a causal effect on the subjective well-being of people living near those organizations.

### **3. Data Description**

In this paper, we use a reported subjective well-being indicator as a proxy to reveal the degree of happiness following happiness research. This variable is taken from the “Seoul Survey” which contains responses of 45,496 Seoul residents (whose age is above 15) to a questionnaire including a question on the degree of subjective well-being of the respondent. More specifically, the survey asked, “How much do you feel happy?” The scale is 100 for the most and zero for the least. Hence, degree of happiness is a continuous variable whose value is between 0 and 100. The average of the total respondents is 72.7. The following table shows the average and the standard deviation of this variable for each district (Gu) in Seoul.

<Table 1> about here

Among the 25 districts in Seoul, Gangdong-Gu showed the highest score of 77.61, and Gangnam-Gu and Seocho-Gu followed with 77.52 and 76.66, respectively. Meanwhile, Geumchon-Gu, Gwanak-Gu, and Dongdaemun-Gu are shown to be the three lowest districts with scores of 64.9, 69.78, and 69.81, respectively.

In this research, we use the size of the social economy sector as a proxy to represent the growth of the sector. Measurement is critically dependent on the definition of the SE sector, but we follow the EMES approach to the principles of SE (Defourny & Develtere, 1999; Defourny & Nyssens, 2010). The principles of SE are as follows: the priority of members' interest or collective interest relative to capital's interest or the profit maximization objective; a high degree of autonomy; democratic decision making; an explicit aim to benefit the community; and a participatory nature involving the persons affected by the activity.

For an operational definition, we include i) social cooperatives, ii) certified social enterprises, iii) village firms, and iv) cooperatives actually in practice as member organizations in the sector, and sum the numbers for a calculation of the size of the SE sector. Social cooperatives and cooperatives actually in practice were established under the 2011 Framework Act on Cooperatives while social enterprises were certified under the 2006 Social Enterprise Promotion Act. Village firms are voluntarily organized by the leaders of a village to benefit the community but are not classified as either (social) cooperatives or certified social enterprises (Jang, 2016). SE organizations have been expanding to meet the urgent needs of social job creation since the East Asian financial crisis took place in 1997 when many firms were dispeled

from the market. Hundreds of thousands of people suddenly fell into trouble from involuntary unemployment and suffered from the pains of unwanted loss in income and work (Bidet and Eum, 2011). The Seoul metropolitan city, the capital of Korea, has been recognized as a leading city for the SE sector mainly due to the partnership between the fairly established civil organizations and the city government for developing the SE sector (Jang, 2016).

Detailed information on the organizations currently working (at the end of 2014) is provided by the Seoul City Government and Comprehensive Community Support Center. In particular, for an identification of currently working cooperatives, we refer to a survey report by KIHASA (Korea Institute for Health and Social Affairs), sponsored by the Ministry of Finance and Planning in 2015. KIHASA collected detailed information on cooperatives reported to be active by the last day of December 2014, and investigated whether they are really in operation. The size of the SE sector in each district (Gu) in Seoul, as of 2014, is shown in Table 2.

<Table 2> about here

In this table, we find that Mapo-Gu has the largest number (78) of SE organizations, followed by Yeongdeungpo-Gu (60) and Chongro-Gu (51), while Yangcheon-Gu, Joongnang-Gu, and Gangbuk-Gu are shown to have the lowest number of these organizations with 10, 15, and 17, respectively.

#### **4. Empirical Analysis**

The regression model to be estimated using the data explained in the previous section is given by

$$y_{i,j} = \alpha^* + \beta^* S_j + X_i' \gamma^* + Z_j' \delta^* + \varepsilon_{i,j} \quad (4.1)$$

where  $y_{i,j}$  is the level of subjective well-being (or happiness) index of the  $i^{th}$  individual who lives in district  $j$ ;  $S_j$  is the size of social economy in district  $j$ ;  $X_i$  is a vector of all relevant socio-economic control variables of the  $i^{th}$  individual, such as income, age, gender, household size, education, job status and type, residential area, and marital status; and  $Z_j$  is a vector of some other control variables in district level, such as the number of residents, the number of profit-seeking firms, and the crime rate in district  $j$ . The key population parameter of interest is obviously  $\beta^*$ , which measures the causal effect of social economy on subjective well-being or happiness. We will call this number  $\beta^*$  “the degree of social happiness.”

The regression model in (4.1) is estimated by the least squares method, and standard errors are computed using the heteroscedasticity-robust covariance matrix proposed by White (1980). Regression results based on the data set “Seoul Survey” discussed in the previous section are provided in the following table.

<Table 3> about here

#### **4.1 The Effect of Social Economy on Happiness**

It turns out that the size of SE has a significant effect on the level of subjective well-being or happiness. The estimated coefficient of  $\beta^*$  is 0.033 and its t-statistic based on heteroscedasticity-robust standard error is 6.243, so the size of SE is highly significant. More

specifically, when all the control variables, such as income, age, gender, household size, education, job status and type, residential area, marital status, the number of residents, the number of profit-seeking firms, and the crime rate, are held constant, one unit increment in the size of SE (i.e., creating one social organization in a form of social cooperatives, certified social enterprises, communal enterprises, or active cooperatives) in a typical administrative district can increase the average happiness level of the residents living in the district by 0.033. The estimated coefficient 0.033 seems to be a fairly small number compared with the scale of the index, which takes any value between 0 and 100. We will return to the issue of how small this number is and how to interpret this number.

#### **4.2 The Effect of Other Control Variables on Happiness**

The regression results show that people tend to be happier as they earn more income. Specifically, if you move to the group whose income is between “1 million to 2 million” Korean won from the base case “Less than 1 million,” your happiness increases by 1.644. When you move to the upper levels of “2 million to 3 million,” “3 million to 4 million,” “4 million to 5 million,” and “More than 5 million,” your happiness will increase by 2.106, 1.447, 0.620, and 1.216, respectively. The average of these increments is about 1.407 so that one can roughly say that, when all the other variables except income are held constant, a one million increment in income can boost happiness by about 1.407.

When all other factors are held constant, getting old is likely to deteriorate your happiness gradually. If people are in their twenties, they are as happy as when they were teenagers. However, when they move to “in their thirties,” “in their forties,” “in their fifties,” and “in their

sixties or older,” their happiness level deteriorates by 0.711, 1.754, 0.279, and 0.313, respectively. The largest fall occurs when you enter your forties.

It is interesting and surprising to know that, when all other factors in our model are held constant, men are unhappier than women by 0.555. Considering our previous observation that when all the other variables except income are held constant, a one million increment in income can boost happiness by 1.407, this difference of 0.555 is a fairly large gap in the happiness level between men and women. It may be that men are usually subject to more competitive and stressful ways of living than women in the city of Seoul. It may also be related to the traditional Korean culture that men, regardless of whether they are married, tend to put on their shoulders all the responsibilities of leading their families (i.e., present families when men are married and future families when they are not yet married).

Now we turn to three important factors accounting for happiness: (i) education, (ii) job status and type, and (iii) marital status. The regression results about the effect of these three factors are in line with general expectations. First, the higher the education level people obtain, the happier they become. Second, people are happier when they are employed than when they are unemployed except for one type of job: temporary construction work. The particular types of jobs delivering the highest levels of happiness are managers, administrators, specialists, and experts. Third, married people are happier than unmarried, but both “divorced/separated” and “bereaved” people are unhappier than unmarried.

Finally, we turn to the remaining three district-level factors: (i) the number of residents, (ii) the number of profit-seeking firms, and (iii) the crime rate. First, when all other factors in our model are held constant, the average happiness level of residents living in a district decreases by 0.04 if the number of residents in the district increases by 10,000. Second, similar to social enterprises, the effect of profit-seeking firms on happiness is also positive (i.e., when the number

of profit-seeking firms in a district increases by 10,000, the average happiness level of the residents living in the district increases by 0.116). Third, as expected, when the major crime rate in a district increases by 1%, the average happiness level of the residents living in the district decreases by 0.001.

#### **4.3 Interpreting the Degree of Social Happiness**

It was shown above that, when all other factors in our model are held constant, one additional SE organization in a district can increase the average happiness level of the residents living in the district by 0.033. We now turn to the issue of how to interpret this seemingly very small number, the degree of social happiness.

When we investigate the effect of income on happiness, it has been argued that, when all other variables except income are held constant, an increment of one million Korean won in income can boost happiness by 1.407. Using this information regarding the relationship between income and happiness, it is possible to calculate how much income is required to increase the level of happiness by 0.033. It is easy to show that an increment of 23,400 Korean won in income can increase the level of happiness of an individual by 0.033. Considering that the average number of residents in a typical district is 400,000, a total of 936,000,000 Korean won is required to increase the average happiness level of the residents living in the district by 0.033. Therefore, a possible interpretation is that the monetary value of creating one additional SE organization is approximately equivalent to 936,000,000 Korean won because both an additional SE organization and 936,000,000 Korean won can achieve the same degree of happiness.

## 5. Causality or Correlation?

According to our dataset and regression model, we can argue that one additional SE organization, such as social cooperatives, certified social enterprises, communal enterprises, or active cooperatives, in a district can increase the average happiness level of the residents living in the district by 0.033, *ceteris paribus*.

One can question the nature of this uncovered relationship between SE and happiness. Is it possible to say that this is a causal relationship? If not, it may be a simple correlation, an illusory artifact created by pure luck. We note that the average number of profit-seeking firms per district is about 31,000, whereas the average number of SE organizations is about 33 per district. Hence, it appears to be reasonable to argue that the uncovered relationship may have been created by pure luck because the density of SE organizations is too sparse to exert such a strong causal impact on happiness.

On the other hand, SE organizations tend to have some unique characteristics that are usually absent in profit-seeking firms. SE organizations are generally interested in social cohesion and solidarity, such that they tend to create their organizational cultures in a way to strongly encourage their members and workers to contribute to local communities. Indeed, some social organizations try to open their boards of directors to local communities and directly provide a variety of services that they produce to the people living near their organizations. Hence, it also appears to be reasonable to claim that, although the density of social organizations is fairly sparse at the moment, it is possible that their dedicated contributions to local communities can produce meaningful outcomes, such as increasing the level of happiness of the local communities. When this view is taken, the uncovered degree of social happiness simply



reflects a causal relationship. In this section, we will attempt to put forward a testable hypothesis supporting that the uncovered relationship is indeed causal.

When either SE organizations or their members try to make contributions to the local communities, they are bound to make contact with local people directly or indirectly. Such contact can naturally enhance the level of recognition of SE organizations among the local people. Therefore, it is possible to conjecture that people who recognize SE organizations include the recipients of all the direct or indirect spillover effects created by SE organizations and, therefore, their happiness can be more sensitive to the activities of SE organizations than those who do not recognize the social economy.

We can divide the entire population into two groups; one group (denoted by Group Zero) consists of those who do not recognize SE organizations and the other group (denoted by Group One) consists of those who do recognize SE organizations. Based on this division, we put forward the following hypothesis. If the relationship between SE organizations and happiness is a pure correlation, then the effect of SE organizations on happiness should be the same for these two groups. On the other hand, if it is a causal relationship, the effect of SE organizations on happiness should be greater for Group One than for Group Zero (i.e., the degree of social happiness is greater in Group One than in Group Zero).

To test the proposed hypothesis, we reformulate the baseline model in (4.1) as follows:

$$y_{i,j} = \alpha^* + \beta_1^* S_j + \beta_2^* D_i S_j + X_i' \gamma^* + Z_j' \delta^* + \varepsilon_{i,j} \quad (4.2)$$

where  $D_i$  is a dummy variable taking zero if the  $i^{th}$  individual does not recognize SE and one if he or she knows about SE. The only difference between the baseline model in (4.1) and the

reformulated model in (4.2) is that (4.2) includes the additional interaction term,  $D_i S_j$ .

According to the new model in (4.2), the expected value of happiness for those who do not recognize SE ( $D_i = 0$ ) is given by

$$E(y_{i,j} | X_i, Z_j, D_i = 0) = \alpha^* + \beta_1^* S_j + X_i' \gamma^* + Z_j' \delta^*. \quad (4.3)$$

Hence, the degree of social happiness is captured by the coefficient  $\beta_1^*$ . On the other hand, the expected value of happiness for those who know about SE ( $D_i = 1$ ) is given by

$$E(y_{i,j} | X_i, Z_j, D_i = 1) = \alpha^* + (\beta_1^* + \beta_2^*) S_j + X_i' \gamma^* + Z_j' \delta^* \quad (4.4)$$

For this group, the degree of social happiness is indicated by  $\beta_1^* + \beta_2^*$ . Our proposed hypothesis is that if the relationship between SE organizations and happiness is causal, then the effect of SE organizations on happiness should be greater for Group One than for Group Zero (i.e.,  $\beta_1^* + \beta_2^*$  should be greater than  $\beta_1^*$ ). Therefore, the following null and alternative hypotheses can be set up to test the proposed causal hypothesis:

$$H_0: \beta_2^* = 0,$$

$$H_1: \beta_2^* > 0.$$

If we have data on the dummy variable  $D_i$ , the new model in (4.2) can be easily estimated and the null and alternative hypotheses can be straightforwardly tested. Fortunately, in our data set “Seoul Survey,” there is a survey question “how much do you know about social economy?” and all the respondents can choose one from the following four answers: (1) knowing very well; (2) knowing about it, but not very well; (3) having heard about it; and (4) not knowing at all. The summary statistics on the answers to this particular question are shown in the following table.

<Table 4> about here

Based on Table 4, we can construct the dummy variable as follows:  $D_i$  takes zero if the  $i^{th}$  respondent chooses (4), and one if the  $i^{th}$  respondent chooses one of the other three options, (1), (2), and (3). Since we include “(3) having heard about it,” we are defining “recognition” in a very broad sense. Using this dummy variable, the new regression model in (4.2) is estimated and the regression results are shown in Table 5. As shown clearly in the table, the coefficient of interest  $\beta_2^*$  is estimated at 0.0213 and its t-statistic is 7.147, which is highly significant. The data strongly reject the null hypothesis  $H_0 : \beta_2^* = 0$  and accept the alternative hypothesis  $H_1 : \beta_2^* > 0$ . Therefore, the causal hypothesis is accepted in this data set.

<Table 5> about here

We have also checked the robustness of the above results by defining  $D_i$  differently. In the above results,  $D_i$  may have been defined too broadly. Therefore, one can define  $D_i$  in a more

strict sense:  $D_i$  takes zero if the  $i^{th}$  respondent chooses (3) or (4), and one if the  $i^{th}$  respondent chooses (1) or (2). Based on this more strictly defined dummy variable, the same regression model in (4.2) is re-estimated and its results are displayed in Table 6. The results are qualitatively the same as shown in Table 5. Specifically, the coefficient of interest  $\beta_2^*$  is estimated at 0.0415 and its t-statistic is 13.37. Considering that (i) the estimated coefficient becomes larger and (ii) its statistical significance substantially increases, the causal hypothesis seems to be more strongly supported when we define the group of recognition more strictly.

<Table 6> about here

## 6. Conclusion

Measuring performance of SE organizations is complex and controversial since their performance contains an economic and social dimension that is difficult to measure. Based on the idea that the social performance of the SE sector can be measured not only by direct achievements of each organization but also by its spillover effect, the paper attempted to empirically test whether SE contributes to the community in which SE organizations serve and are located. Since the members of SE organizations are assumed to have a tendency to work with the spirit of social integration and collective well-being, we hypothesized that a resident's happiness, SWB, becomes higher as the size of the SE sector in the district increases.

We attempted statistically to test the spillover-effect hypothesis using a dataset called "Seoul Survey," which provides observations on the level of SWB of 45,496 citizens living in Seoul and the size of SE organizations, which is measured by the number of social cooperatives,

certified social enterprises, communal enterprises, and active cooperatives belonging to the relevant administrative district. Controlling for variables in district level and appropriate socio-economic characteristics of each individual in the dataset, such as income, age, education, unemployment status, job type, and marital status, it is found that the key variable, the size of SE organizations, is highly significant.

The estimated coefficient of the variable is 0.033, which means that one additional creation of an SE organization in a district increases the level of subjective well-being of those living in the district by 0.033. The number itself seems to be quite small. According to our calculation, the money value of one additional SE organization is about 0.75 million dollars. In addition, we identified that the positive relationship between the size of SE and residents' happiness seems causal by testing whether the degrees of SWB of residents who are very aware of SE is greater than those of residents who do not recognize SE. The coefficient of recognition dummy turned out to be highly significant.

Our empirical results highlight the importance of the collective civil spirit embedded in SE organizations, which include participatory decision making processes, relational goods, social integration, and empowering of each citizen's capabilities, which cannot be easily nourished by either the public domain or the market exchange domain. Therefore, our results support the proposition that the business and activities of the SE sector effectively contribute to enhancing the happiness of residents of a community. The results also suggest that it is important to measure the social outcomes of SE organizations at both their individual organization and their territory or SE sector domain levels.

Finally, our research is subject to some limitations. We use the number of SE organizations as a proxy for their spillover impacts on the community. However, SE organizations may differ from one another in terms of size, business volume, activities, and degree of publicity in their

aims. Incorporating these variables into future research would be promising. In addition, spillover effects may tend to grow as SE organizations in a community collaborate with each other. Our study did not include this relationship. Finally, our paper did not control for the effects of other types of non-profit organizations on the happiness of residents. Future research delving into this direction would be helpful for both policy makers and practitioners.

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<Table 1 > The average and the standard deviation of “the degree of happiness” of each district (Gu) in Seoul, 2014

Gu	Average	Standard Deviation	No. of Samples
Chongro-Gu	72.29	0.35	1106
Joong-Gu	70.3	0.35	1065
Yongsan-Gu	71.82	0.32	1312
Sungdong-Gu	73.43	0.28	1645
Gwangjin-Gu	71.67	0.28	1744
Dongdaemun-Gu	69.81	0.29	1623
Joongrang-Gu	74.43	0.27	1890
Sungbuk-Gu	71.5	0.27	1845
Gangbuk-Gu	70.54	0.28	1750
Dobong-Gu	70.55	0.27	1820
Rowon-Gu	70.87	0.25	2065

Eunpyung-Gu	70.55	0.25	2103
Seodaemun-Gu	74.3	0.28	1705
Mapo-Gu	76.31	0.27	1829
Yangchon-Gu	72.38	0.26	2038
Gangseo-Gu	71.12	0.24	2265
Guro-Gu	74.27	0.26	2005
Geumchon-Gu	64.9	0.31	1432
Yeongdengpo-Gu	72.75	0.28	1669
Dongjak-Gu	75.13	0.27	1893
Gwanak-Gu	69.78	0.24	2299
Seocho-Gu	76.66	0.27	1765
Gangnam-Gu	77.52	0.24	2226
Songpa-Gu	73.3	0.24	2286
Gangdong-Gu	77.61	0.25	2116

<Table 2 > The Size of the SES in the Districts (Gu) in Seoul, 2014.

Gu	No. of Social Cooperatives (Not Certified)	No. of Certified Social Enterprises	No. of Village Firms	No. of Cooperatives (active)	Sum
Chongro Gu	3	16	4	28	51

Joong-Gu	3	15	3	27	48
Yongsan-Gu	0	10	10	8	28
Sungdong-Gu	1	10	5	10	26
Gwangjin-Gu	4	8	3	16	31
Dongdaemun-Gu	0	4	4	16	24
Joongrang-Gu	1	3	3	8	15
Sungbuk-Gu	6	15	11	5	37
Gangbuk-Gu	2	3	5	7	17
Dobong-Gu	4	4	6	8	22
Rowon-Gu	3	5	2	11	21
Eunpyung-Gu	1	13	5	15	34
Seodaemun-Gu	3	4	7	22	36
Mapo-Gu	4	19	11	44	78
Yangchon-Gu	0	4	2	4	10
Gangseo-Gu	1	5	4	14	24
Guro-Gu	2	11	10	18	41
Geumchon-Gu	5	9	6	12	32
Yeongdeungpo-Gu	12	24	4	20	60
Dongjak-Gu	2	7	7	10	26
Gwanak-Gu	1	9	4	8	22

Seocho-Gu	7	11	5	20	43
Gangnam-Gu	5	13	6	24	48
Songpa-Gu	1	4	5	26	36
Gangdong-Gu	2	1	7	8	18
Total	73	227	139	389	828

<Table 3> Baseline estimation results

	Variable Name	Estimated Coefficient	t-statistics
	Constant	64.862	64.767
	Size of social economy	0.033	6.243
Income dummies (base case: “less than 1 million Korean won”)	1 million to 2 million	1.644	2.802
	2 million to 3 million	3.750	6.648
	3 million to 4 million	5.197	9.261
	4 million to 5 million	5.817	10.329
	More than 5 million	7.033	12.453
Age dummies (base case: teenage)	In their twenties	-0.238	-0.705
	In their thirties	-0.949	-2.320
	In their forties	-2.703	-6.479
	In their fifties	-2.982	-7.087
	In their sixties or older	-3.295	-7.653
Gender dummy	Men	-0.555	-4.299

Household size		-0.259	-3.853
Education dummies (base case: elementary school graduates)	Middle school graduates	1.527	3.430
	High school graduates	2.494	5.736
	Technical college students/graduates	3.161	6.960
	College students/graduates	3.399	7.443
	Graduate students or higher	4.875	6.957
Job status/type dummies (base case: unemployed)	Managers/administrators	5.001	11.353
	Specialists/experts	4.733	11.044
	White collars	3.760	10.673
	Service workers	2.344	6.512
	Sales men	2.555	7.245
	Farmers/fishermen	0.915	0.594
	Technicians	2.009	4.802
	Machine assemblers	2.164	4.292
	Temporary construction workers	-0.883	-1.874
	Students	4.117	9.392
	House wives	2.820	8.146
	Other jobs	4.031	2.674
Residential area dummies (base case: central)	Northeastern area	-0.204	-0.577
	Northwestern area	0.424	1.112
	Southwestern area	0.281	0.755

area in Seoul)	Southeastern area	3.292	7.524
Marital status dummies (base case: not married)	Married	1.488	6.857
	Divorced/separated	-3.209	-7.295
	Bereaved	-1.679	-4.322
Number of residents in each district (divided by 10,000)		-0.040	-4.805
number of profit- seeking firms in each district (divided by 10,000)		0.116	1.981
Crime rate in each district		-0.001	-5.406

<Table 4> Recognition about social economy

	Number of respondents	Proportion
(1) knowing very well	886	0.0195
(2) knowing about it, but not very well	11874	0.2610
(3) having heard about it	14562	0.3201
(4) not knowing at all	18174	0.3995

Total	45496	1
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<Table 5> Regression results based on recognition dummy defined broadly

	Variable Name	Estimated Coefficient	t-statistics
	Constant	64.9772	64.9368
	$\beta_1^*$	0.0221	3.9946
	$\beta_2^*$	0.0213	7.147
Income dummies (base case: “less than 1 million Korean won”)	1 million to 2 million	1.6827	2.8718
	2 million to 3 million	3.7497	6.6604
	3 million to 4 million	5.1731	9.2378
	4 million to 5 million	5.7926	10.3061
	More than 5 million	6.9529	12.3366
Age dummies (base case: teenage)	In their twenties	-0.2833	-0.8398
	In their thirties	-1.0305	-2.5175
	In their forties	-2.7729	-6.647
	In their fifties	-3.0473	-7.2433
	In their sixties or older	-3.346	-7.7717
Gender dummy	Men	-0.5621	-4.3547
Household size		-0.2487	-3.6969
	Middle school graduates	1.4964	3.3662



Education dummies (base case: elementary school graduates)	High school graduates	2.397	5.5205
	Technical college students/graduates	2.9982	6.6079
	College students/graduates	3.2661	7.161
	Graduate students or higher	4.6828	6.6946
Job status/type dummies (base case: unemployed)	Managers/administrators	4.9149	11.1715
	Specialists/experts	4.6241	10.798
	White collars	3.7036	10.5254
	Service workers	2.289	6.3659
	Salesmen	2.5204	7.1546
	Farmers/fishermen	0.7278	0.4743
	Technicians	1.9607	4.6924
	Machine assemblers	2.0698	4.1026
	Temporary construction workers	-0.9226	-1.9596
	Students	4.0417	9.2291
	Housewives	2.7993	8.0976
	Other jobs	3.9856	2.6619
Residential area dummies (base case: central area in Seoul)	Northeastern area	-0.1994	-0.5626
	Northwestern area	0.3155	0.8274
	Southwestern area	0.3061	0.8236
	Southeastern area	3.2727	7.4805
Marital status	Married	1.4663	6.7642

dummies	Divorced/separated	-3.2052	-7.2962
(base case: not married)	Bereaved	-1.6429	-4.2352
Number of residents in each district (divided by 10,000)		-0.0381	-4.5629
number of profit-seeking firms in each district (divided by 10,000)		0.1098	1.8758
Crime rate in each district		-0.0014	-5.2999

<Table 6> Regression results based on recognition dummy defined strictly

	Variable Name	Estimated Coefficient	t-statistics
	Constant	64.8552	64.7573
	$\beta_1^*$	0.0208	3.8583
	$\beta_2^*$	0.0415	13.37
Income dummies	1 million to 2 million	1.6872	2.8777
	2 million to 3 million	3.7545	6.6654

(base case: “less than 1 million Korean won”) (base case: teenage)	3 million to 4 million	5.1828	9.249
	4 million to 5 million	5.8149	10.3391
	More than 5 million	6.9539	12.3294
Age dummies	In their twenties	-0.3579	-1.0607
	In their thirties	-1.0809	-2.6419
	In their forties	-2.8424	-6.8149
	In their fifties	-3.123	-7.4254
	In their sixties or older	-3.3953	-7.8881
Gender dummy	Men	-0.5568	-4.3191
Household size		-0.245	-3.6476
Education dummies (base case: elementary school graduates)	Middle school graduates	1.499	3.3716
	High school graduates	2.4407	5.6219
	Technical college students/graduates	3.0233	6.6677
	College students/graduates	3.3386	7.3223
	Graduate students or higher	4.7475	6.8069
Job status/type dummies	Managers/administrators	4.8137	10.955
	Specialists/experts	4.515	10.5498
	White collars	3.6632	10.4055
	Service workers	2.278	6.3364
	Salesmen	2.4932	7.0759
	Farmers/fishermen	0.5115	0.3347
	Technicians	1.943	4.6501

(base case: unemployed)	Machine assemblers	1.9942	3.9529
	Temporary construction workers	-0.9294	-1.9734
	Students	4.0151	9.1709
	Housewives	2.8138	8.138
	Other jobs	3.944	2.6573
Residential area dummies (base case: central area in Seoul)	Northeastern area	-0.0658	-0.1853
	Northwestern area	0.3635	0.9543
	Southwestern area	0.3811	1.0248
	Southeastern area	3.3542	7.6689
Marital status dummies (base case: not married)	Married	1.4915	6.8864
	Divorced/separated	-3.1869	-7.2585
	Bereaved	-1.6228	-4.187
Number of residents in each district (divided by 10,000)		-0.037	-4.441
number of profit-seeking firms in each district (divided by 10,000)		0.0933	1.5979
Crime rate in each		-0.0012	-4.8399

district			
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