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Roles of Social Capital in Health Production Model: Evidence from Vietnam

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ABSTRACT

Despite the rich literature on the impact of social capital on health, the findings have been disputed because only certain dimensions of the two latent variables were analyzed. Moreover, the roles of soical capital in the health production has not fully investigated. This study aims to operationalize social capital and health in a multidimensional approach. The path-analysis of the impact of social capital on health is then explored by applying the Partial Least Squares-Structural Equation Model (PLS-SEM). Employing the primary data of 400 migrant laborers in a survey conducted in Ho Chi Minh City, Vietnam in 2016, the model confirms the direct, indirect and mediate roles of social capital in the health production function. The findings provide a general picture of positive as well as negative aspects of social capital to health outcomes. This gives an empirical result for strategy to mobilize social capital to promote individual health.

JEL Classifications: A1, D0, I3, K0.

Keywords: Health, PLS-SEM, social capital, Vietnam.

1. INTRODUCTION

The big cities in Vietnam have encountered the rural to urban migrants wave as a consequence of the rapid national industrialization and modernization. Ho Chi Minh city was not an exception with more than 30% of the city's population were migrants (GSO, 2014). Migrants may enjoy better job opportunities but they themselves encounter various difficulties in the city, especially their health is vulnerable(Vanlandingham,2003; Berchet & Laporte, 2012; Le, 2013). This is also a challenge to the municipal authority in reaching the United Nations sustainable development goals in 2030.

Social capital has been considered as a health driver though it is not always good (Putnam, 2000; Portes, 2000). This study contributes to the literature by investigating the roles of social capital in the health

production model using PLS-SEM.It is also an empirical result for exploiting social capital to improve individual health.

2. RESEARCH BACKGROUND

2.1. Social Capital Definition and Measurement

According to Hanifan (1916), the word "capital" in "social capital" does not refer to real assets. It implies values such as friendship, tolerance and good attitude towards the network's members. When the network is connected, social capital accumulation shall occur, which may bring positive externality to the individual and the community. This definition was developed by Bourdieu (1986) as a structure of more or less institutionalized relationships. However, the network is necessary but not sufficient for social capital creation. Coleman (1988) has added to the definition with the emphasis on trust, shared norms and networks which can drive the coordination actions in the society. Putnam (2000) have emphasized that shared norms were fostered by trust. In short, social capital concept with the composition of network and trust has got a wide consensus in the social capital research communities (Van Beuningen and Schmeets, 2013).

The actual or potential network resources accessed by individual depend on his or her tie strength and social standing with the network members. Tie strength is a criterion to distinguish bonding (strong ties) and bridging (weak ties) while social standing is for linking (formal ties) (Woolcock & Narayan, 2000; Szreter & Woolcock, 2004). Bonding can enhance the consolidation within a closed network but it may, without bridging, derive the narrow interest and the consequence is outsiders' exclusion (Portes, 2000). The same philosophy is applied for linking. A strong linking may benefit the favoured groups by accessing to great funding or less strict regulations, which is potential for corruption. Therefore, the combination of social standing with bonding and bridging to form bonding-link and bridging-link besides a traditional way of analyzing social capital as bonding, bridging and linking is an innovative way (Dinh et. al., 2012).

Trust expresses the beliefs about predicted actions. Trust can be categorized as particular, general and institutional one. In fact, general trust relies on the institutional frame of the society and therefore, institutional trust is under the umbrella of general trust. Moreover, the two functions of bonding and bridging have lead to the popular classification of particular trust and general trust respectively (Stone et. al.,2004). Particular trust resides in closed network while general trust extends to the strangers in society (open networks). Figure 1 summarizes the social capital definition and measurement.

2.2. Health Definition and Measurement

According to McDowell (2006), health is previously understood as survival ability and measured by mortality rate. It is then defined as a disease absence with morbidity rate as a measure. However, the WHO definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease of infirmity" is comprehensively accepted since 1948.

Self-rated health is a popular health indicator (Fujiwara & Kawachi, 2008; Takahashi et. al., 2011). Though it is subjective, it can well reflect the health status with both current and potential disease (Habibov & Afandi, 2011). SF-36 with 8 domains of health including physical function (PF), physical roles limitation (RP), bodily pain (BP), general health (GH), vitality (VT), emotional roles limitation (RE), mental health

(MH) and social function (SF)has been considered as a proper instrument of individual health measurement in the world since 1991 (Brazier, 1993; Maruish, 2011).

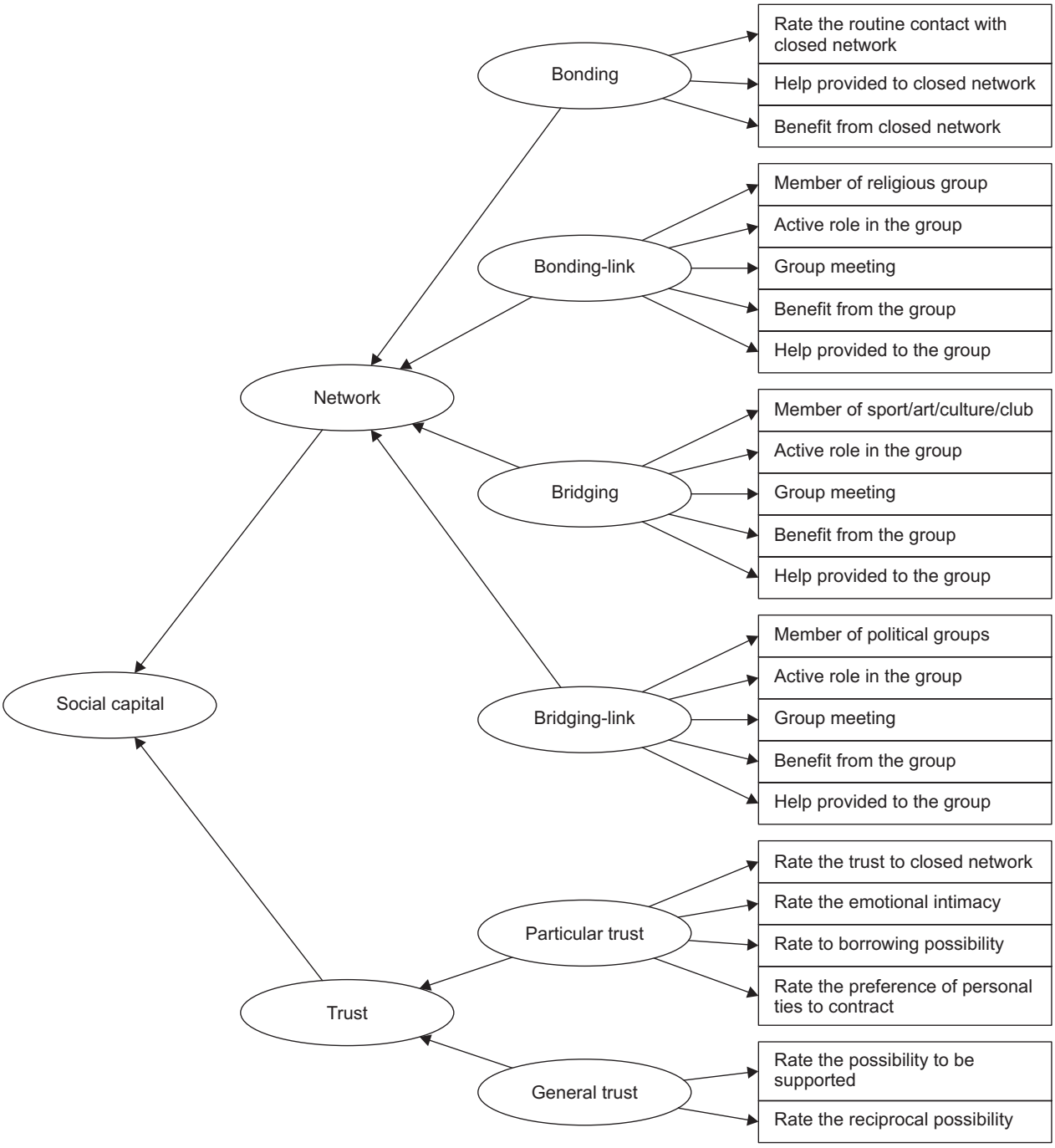

Figure 1: Social capital definition and measurement
***Source:* Author's review of literature**

Various researches have applied SF-36 Version 2 thanks to the superiority of 5-point scale of SF-36 Version 2 to Yes/No scale of SF-36 Version 1 (Jenkinson et. al., 1999).OECD (2013) has recently recommended the 11-point scale (0-10) with emphasized advantages on the magic of 0.

2.3. Social Capital and Health Model

Becker & Murphy (2009) have added social capital (S) in the utility to eliminate the limitations of neo-classical model for lacking of "social environoment".

$$U = U(x, y, S)$$

Assuming x is health, an increase in S leads to an increase in x. According to Becker & Murphy (2009), it's practical to assume the indirect effect of x, y, S on U. With this approach, x, y and S are considered as inputs of the production function. Therefore, the health production is applied for the utility function:

$$Ui = U(Hi, Zi)$$

Of which:

Hi: health capital

Zi: other goods

According to Folland (2008), the health production function is:

$$Hi = H(HI, SC)$$

Of which:

HI: health inputs

SC: social capital

Each individual is assumed to maximize the utility under the constrains:

$$Max\ Ui = U(Hi, Zi)$$

Subject to:

$$Hi = H(HI, SC)$$

$$pHi + Zi = B$$

The core idea of social capital theory is social relationships and its benefits to health promotion either directly or indirectly. According to Folland (2008), an increase in social capital leads to the decrease of unhealthy behaviours as presented in equation 1.

$$\frac{\partial p}{\partial S} = \frac{(1-p)U_{ms}M_p - U_s}{-\lambda M_{pp} + U_m M_p + M_p U_m - M_p^2(1-p)U_{mm}} < 0 \quad (1)$$

Of which:

p: the probability of death caused by unhealthy behaviours.

m: compensation value (m) as a trade-off for unhealthy behaviours

3. METHODOLOGY

Qualitative and quantitative approaches are used in designing this research. The results of previous empirical researches and group discussion are fundamental for exploring the social capital and health structure as well as optimal scale of measurement for primary data collection. The pilot survey has been done to confirm

the favor of 0-10 scale (11-point scale) and similarity in understanding 8 healthy domains and 6 dimensions of social capital.

3.1. Data and Participants

The study analyzed the data from the cross-sectional field survey in Ho Chi Minh City, Vietnam in 2016. The rationale for selecting this city resides in its attracting destination of rural to urban migrant labourers (Le, 2013) with the leading net migration rate in the country (GSO, 2014). A structured questionnaire was designed as a data collecting instrument to take advantages of closed-end questions regarding responses uniformity and easy processing. Participants are those with (i) age of 18-55, which is in the range of Vietnamese working age (ii) living a period of 6 months-10 years in Ho Chi Minh City to ensure the city life integration and (iii) non-city dweller at the age of 0-17. These criteria are applied in this study due to the standard practice in national censuses and local researches on rural to urban migrant labourers. In each household, one participant was interviewed. In case more than one respondent was available, all of them were included.

3.2. Data Analysis

Structural Equation Model (SEM), a multivariate technique based on the combination of both factor analysis and regression, has been considered as an advanced statistical method for data analysis in complicated models of the latent and measured variables (Hair et. al., 2010). Two methods: covariance-based techniques (CB-SEM) and variance-based partial least squares (PLS-SEM) are taken into considerations when conducting SEM. PLS-SEM becomes an optimal alternative for researchers when dealing with (i) non-normality data set (ii) minimum demand of sample size and (iii) the use of both formative and reflective modes. In this study, skewness and kurtosis are unavoidable because they are normally found in the data with self-perception and attitude based questionnaires. Therefore, PLS-SEM is superior to CB-SEM in this situation.

4. DATA DESCRIPTION

Survey questionnaires were sent to participants who have satisfied three criteria as mentioned in section 3.1. Four hundred and eighty questionnaires were delivered and explained to them by trained data collectors. Of these, 432 responses were returned with 90% rate of response. The survey took 30 minutes on average. A further data review excluded 31 responses with missing data and outliers. Table 1 summarizes the description of the study sample. Male and female rates were approximately equal. Religious participants shared 40.8% of the total. The largest proportion of participants (57.9%) were from the South. Over half of them were under 30 years. Participants with degrees accounted for over 65%.

Table 1
Description of the study sample (N = 400)

Description	*%*
Gender	
Male	50.2
Female	49.8
Religion	40.8
Departure	
From the North	9.8

Description	*%*
From the Central and High Land	32.3
From the South	57.9
Age group	
Under 30 years	53.8
30-40 years	32.2
Over 40 years	14.0
Education	
Under grade 12	10.8
Grade 12, vocational school, college	24.0
Graduate	55.2
Postgraduate	10.0

Source: Authors' survey data (2016)

5. RESULT AND DISCUSSION

The PLSPM package in R is used to estimate the model with iterative steps to optimize initial model. Then bootstrapping is processed with initial model as input data. Both outer and inner models are tested.

5.1. Outer Model

Table 2 presents the result of outer model with 5% significant level. The measured items are grouped into latent variables as expected. The reliability and validity are tested. Firstly, communality (square of loadings) is considered. Comrey and Lee (1973) suggested the acceptable loadings of 0.45-0.54. Hair et. al., (2010) noted that the minimum value > 0.3 is required provided that sample size met the minimum quantity of 350. The results in Table 2 shows that almost loadings exceed 0.7 except for bridlink 2, parttrust1, GH4, PF10 with loadings over 0.6 and VT4 with the lowest loading of 0.59. In general, the measured items in this study are acceptable, given the sample size of 400 observations.

Table 2
Outer model result

No.	*Indicator*	*LV*	*Loading*	*Communality*	*DG.rho*	*AVE*	*5% Significant Level*	
							Perc.025	*Perc.975*
1	Bolink1	Bonding-link	0.94	0.89	0.95	0.81	0.92	0.97
2	Bolink2		0.75	0.57			0.58	0.80
3	Bolink3		0.93	0.86			0.90	0.96
4	Bolink4		0.94	0.89			0.92	0.97
5	Bolink5		0.91	0.83			0.88	0.95
6	Brid1	Bridging	0.97	0.94	0.96	0.86	0.96	0.98
7	Brid2		0.81	0.66			0.74	0.85
8	Brid3		0.95	0.91			0.93	0.97
9	Brid4		0.96	0.92			0.94	0.97
10	Brid5		0.93	0.87			0.90	0.96

No.	*Indicator*	*LV*	*Loading*	*Communality*	*DG.rho*	*AVE*	*5% Significant Level*	
							Perc.025	*Perc.975*
11	Bridlink1	Bridging-link	0.91	0.83	0.94	0.76	0.89	0.94
12	Bridlink2		0.63	0.39			0.51	0.69
13	Bridlink3		0.92	0.85			0.88	0.94
14	Bridlink4		0.93	0.87			0.91	0.96
15	Bridlink5		0.91	0.84			0.89	0.95
16	Bond1	Bonding	0.82	0.68	0.85	0.66	0.75	0.88
17	Bond2		0.84	0.71			0.73	0.89
18	Bond3		0.77	0.60			0.66	0.85
19	Parttrust1	Particular trust	0.62	0.39	0.85	0.59	0.47	0.76
20	Parttrust2		0.81	0.66			0.66	0.88
21	Parttrust3		0.76	0.58			0.68	0.88
22	Parttrust4		0.84	0.71			0.70	0.89
23	Gentrust1	General trust	0.84	0.71	0.88	0.79	0.73	0.93
24	Gentrust2		0.93	0.86			0.83	0.97
25	GH1	General health	0.70	0.49	0.86	0.54	0.55	0.77
26	GH2		0.75	0.56			0.67	0.84
27	GH3		0.77	0.59			0.66	0.82
28	GH4		0.61	0.38			0.50	0.77
29	GH5		0.83	0.70			0.74	0.87
30	PF1	Physical function	0.74	0.54	0.95	0.67	0.67	0.80
31	PF2		0.79	0.63			0.73	0.85
32	PF3		0.83	0.68			0.77	0.87
33	PF4		0.83	0.69			0.78	0.87
34	PF5		0.86	0.75			0.82	0.89
35	PF6		0.84	0.72			0.79	0.88
36	PF7		0.84	0.71			0.80	0.87
37	PF8		0.90	0.81			0.86	0.92
38	PF9		0.86	0.75			0.85	0.89
39	PF10		0.63	0.40			0.52	0.72
40	RP1	Physical restriction	0.92	0.85	0.96	0.86	0.89	0.94
41	RP2		0.94	0.88			0.91	0.96
42	RP3		0.91	0.84			0.88	0.94
43	RP4		0.92	0.85			0.88	0.94
44	RE1	Emotional restriction	0.91	0.84	0.94	0.84	0.89	0.95
45	RE2		0.93	0.87			0.89	0.96
46	RE3		0.90	0.81			0.81	0.93
47	VT1	Vitality	0.73	0.53	0.81	0.51	0.54	0.83
48	VT2		0.78	0.61			0.63	0.85
49	VT3		0.74	0.56			0.60	0.85
50	VT4		0.59	0.35			0.41	0.78
51	SF1	Social function	0.83	0.70	0.85	0.74	0.69	0.94
52	SF2		0.88	0.77			0.73	0.95

No.	*Indicator*	*LV*	*Loading*	*Communality*	*DG.rho*	*AVE*	*5% Significant Level*	
							Perc.025	*Perc.975*
53	BP1	Body pain	0.92	0.85	0.91	0.84	0.86	0.95
54	BP2		0.91	0.83			0.85	0.94
55	MH1	Mental health	0.80	0.64	0.92	0.71	0.70	0.84
56	MH2		0.84	0.71			0.80	0.89
57	MH3		0.82	0.67			0.76	0.88
58	MH4		0.90	0.81			0.87	0.93
59	MH5		0.86	0.74			0.81	0.89

Source: Authors' Calculation (2016)

Relating uni-dimensionality, cronbach's alpha is often used in social science research. However, Dillion-Goldstein's rho (DG rho) is recommended to replace cronbach's alpha in PLS-SEM (Hair et. al., 2012). According to Sanchez (2013), DG rho is preferable to cronbach's alpha because it relies on loadings from the model results. As a rule of thumb, the uni-dimensional criterion is met when the parameters exceed 0.7 (Sanchez, 2013). Table 2 presents the outer model with DG rho of 0.81-0.96, exceeding the threshold of 0.7. The results satisfy uni-dimensional criteria.

According to Hair et. al., (2010), convergent validity test verifies loadings of the measured items as well as the average variance extracted (AVE). A common rule of thumb for loading value of 0.708 or higher. The rationale of this rule is the square of loading, defined as communality, equaling 0.50. The convergent of the outer model, indicated in Tab.2 are reached with the values of 0.51-0.86.

Discriminant validity implies the unique and distinct construct through comparing the square root of the AVE values with the construct correlations (Fornell-Larcker criterion). The behind logic is that more variance is explained by a construct associated measured items than with others. Another method is based on cross loadings, which is to imply the different level of a given construct compared to the others (Sanchez, 2013). The discriminant validity of the outer model, indicated in Table 3 are reached with the measured items' loadings are the highest in the measured constructs. In general, the testing results have confirmed the reliability and validity of the outer model.

Table 3
Cross–loadings matrix

	Bolink	*Brid*	*Bridlink*	*Bond*	*Parttrust*	*Gentrust*	*Eat*	*GH*	*PF*	*RP*	*RE*	*VT*	*SF*	*BP*	*MH*
Bolink1	0.94	0.04	–0.17	0.02	–0.06	–0.02	0.03	0.01	–0.03	0.01	0.07	0.01	0.007	–0.01	–0.009
Bolink2	0.75	0.10	–0.07	0.04	–0.01	0.12	0.07	0.06	0.07	0.01	0.09	0.10	0.06	0.09	0.01
Bolink3	0.93	0.07	–0.14	0.02	–0.08	–0.05	0.04	0.05	–0.03	0.01	0.08	0.01	0.01	0.01	0.05
Bolink4	0.94	0.05	–0.17	0.01	–0.09	–0.04	0.04	0.02	–0.02	0.04	0.08	0.01	0.01	–0.03	0.01
Bolink5	0.91	0.06	–0.17	0.06	–0.06	–0.02	0.05	0.03	–0.01	0.05	0.06	0.02	–0.006	–0.03	0.02
Brid1	0.09	0.97	0.20	0.11	0.08	0.08	–0.03	0.15	0.12	0.06	–0.03	0.09	0.10	0.10	0.02
Brid2	0.05	0.81	0.13	0.02	0.12	0.10	–0.06	0.16	0.14	0.07	–0.01	0.12	0.10	0.14	0.05
Brid3	0.08	0.95	0.19	0.10	0.09	0.07	–0.02	0.17	0.13	0.08	–0.03	0.09	0.09	0.12	0.04
Brid4	0.07	0.96	0.19	0.11	0.06	0.07	–0.03	0.15	0.10	0.07	–0.02	0.08	0.09	0.10	0.01
Brid5	0.06	0.93	0.17	0.11	0.08	0.08	–0.01	0.14	0.12	0.05	–0.03	0.10	0.09	0.08	0.04
Bridlink1	–0.13	0.14	0.91	0.09	0.12	0.02	0.06	0.11	0.006	0.04	–0.01	0.002	–0.007	0.01	–0.02
Bridlink2	–0.10	0.21	0.63	0.005	0.11	0.005	0.04	0.11	–0.054	0.05	0.04	0.07	0.02	0.01	0.03

	Bolink	*Brid*	*Bridlink*	*Bond*	*Parttrust*	*Gentrust*	*Eat*	*GH*	*PF*	*RP*	*RE*	*VT*	*SF*	*BP*	*MH*
Bridlink3	–0.14	0.19	0.92	0.13	0.13	0.04	0.06	0.14	–0.03	0.01	0.03	0.07	0.01	0.03	0.04
Bridlink4	–0.16	0.14	0.93	0.10	0.12	0.03	0.06	0.12	–0.04	–0.01	0.01	0.03	0.0005	0.001	–0.02
Bridlink5	–0.15	0.16	0.91	0.13	0.12	0.03	0.06	0.10	–0.01	0	0.003	0.03	–0.03	0.009	–0.02
Bond1	0.003	0.08	0.02	0.82	0.27	0.17	0.13	0.11	0.03	0	–0.03	0.08	–0.01	–0.01	0.09
Bond2	0.04	0.03	0.07	0.84	0.28	0.20	0.13	0.07	0.03	0	0.04	0.09	0.03	–0.02	0.05
Bond3	0.04	0.13	0.20	0.77	0.33	0.13	0.14	0.14	–0.005	0.02	0.01	0.01	0.007	0.01	0.18
Parttrust1	–0.06	0.07	0.03	0.24	0.62	0.29	0.04	0.07	–0.03	0.02	–0.03	0.04	–0.06	–0.03	0.06
Parttrust2	–0.03	0.01	0.06	0.29	0.81	0.31	0.15	0.003	–0.11	–0.08	–0.04	0.08	–0.09	–0.08	0.02
Parttrust3	–0.06	0.11	0.07	0.23	0.76	0.28	0.09	–0.01	–0.07	–0.05	–0.10	0.02	–0.09	–0.08	0.06
Parttrust4	–0.07	0.12	0.20	0.32	0.84	0.26	0.15	0.10	–0.04	0	–0.02	0.11	–0.07	–0.01	0.2
Gentrust1	0.01	0.05	0.03	0.16	0.30	0.84	0.11	0.09	0.05	0	0.002	0.12	0.06	0.01	0.09
Gentrust2	–0.01	0.09	0.03	0.20	0.34	0.93	0.09	0.13	0.10	0.07	0.03	0.17	0.04	0.03	0.09
GH1	0.006	0.15	0.07	0.18	0.08	0.14	0.13	0.70	0.20	0.2	0.12	0.36	0.20	0.28	0.17
GH2	0.01	0.17	0.14	0.07	–0.007	–0.005	–0.07	0.75	0.34	0.4	0.32	0.44	0.39	0.48	0.11
GH3	0.07	0.12	0.12	0.08	0.04	0.07	0.04	0.77	0.33	0.3	0.27	0.41	0.34	0.38	0.13
GH4	–0.01	0.05	0.08	–0.01	–0.02	0.07	–0.13	0.61	0.35	0.3	0.33	0.44	0.46	0.49	0.02
GH5	0.05	0.08	0.09	0.10	0.06	0.16	0.10	0.83	0.36	0.3	0.27	0.49	0.35	0.34	0.26
PF1	0.01	0.04	–0.10	–0.008	–0.12	0.05	–0.04	0.39	0.74	0.5	0.33	0.40	0.41	0.48	0.003
PF2	0.01	0.07	–0.03	0.02	–0.08	0.11	–0.09	0.33	0.79	0.4	0.31	0.33	0.37	0.38	–0.09
PF3	–0.02	0.14	0.01	0.04	–0.05	0.10	–0.06	0.38	0.83	0.5	0.36	0.36	0.43	0.43	–0.04
PF4	0.03	0.13	–0.06	0.08	–0.05	0.04	–0.05	0.41	0.83	0.5	0.37	0.37	0.45	0.47	–0.02
PF5	0.01	0.11	–0.01	0.06	–0.01	0.09	–0.06	0.34	0.86	0.5	0.34	0.34	0.45	0.40	–0.04
PF5	0.03	0.14	–0.009	0.008	–0.04	0.10	–0.08	0.33	0.84	0.5	0.33	0.39	0.42	0.45	–0.05
PF7	–0.02	0.12	–0.036	0.006	–0.13	0.06	–0.01	0.37	0.84	0.5	0.37	0.40	0.50	0.49	–0.008
PF8	–0.03	0.12	–0.034	0.000	–0.08	0.04	–0.07	0.34	0.90	0.5	0.36	0.36	0.48	0.44	–0.09
PF9	–0.02	0.13	–0.005	0.01	–0.04	0.08	–0.06	0.28	0.86	0.4	0.34	0.32	0.44	0.38	–0.08
PF10	–0.05	0.04	0.02	–0.02	–0.06	0.04	0.02	0.12	0.63	0.3	0.27	0.19	0.30	0.25	–0.05
RP1	0.004	0.05	0.04	0.06	–0.02	0.07	–0.07	0.39	0.58	0.92	0.54	0.35	0.48	0.50	0.05
RP2	0.05	0.03	0.006	0.008	–0.01	0.05	–0.08	0.41	0.59	0.94	0.58	0.39	0.51	0.53	0.02
RP3	0.08	0.08	0.007	0.02	–0.04	–0.006	–0.06	0.33	0.54	0.91	0.59	0.35	0.50	0.50	0.06
RP4	0.06	0.10	0.01	0.001	–0.07	0.04	–0.06	0.43	0.59	0.92	0.58	0.40	0.61	0.57	0.05
RE1	0.11	–0.04	–0.02	0.02	–0.01	0.01	0.002	0.30	0.35	0.5	0.91	0.43	0.59	0.45	0.08
RE2	0.06	0.003	0.04	–0.006	–0.06	0.04	–0.04	0.33	0.40	0.6	0.93	0.45	0.67	0.48	0.08
RE3	0.08	–0.05	0.01	0.01	–0.07	0.002	–0.02	0.29	0.38	0.5	0.90	0.38	0.65	0.43	0.08
VT1	0.03	0.04	0.04	0.03	0.12	0.13	0.09	0.49	0.25	0.2	0.27	0.73	0.31	0.34	0.23
VT2	0.02	0.11	0.02	0.07	0.10	0.16	0.05	0.46	0.35	0.3	0.33	0.78	0.40	0.29	0.19
VT3	0.02	0.04	0.008	0.10	0.05	0.09	–0.02	0.33	0.29	0.3	0.38	0.74	0.39	0.46	0.11
VT4	0.03	0.15	0.11	0.01	–0.06	0.09	–0.06	0.33	0.43	0.3	0.38	0.59	0.45	0.41	0.01
SF1	0.01	0.05	–0.01	0.02	–0.09	0.04	–0.01	0.28	0.39	0.4	0.70	0.38	0.83	0.42	0.02
SF2	0.02	0.12	0.01	–0.006	–0.09	0.05	–0.02	0.46	0.51	0.5	0.51	0.50	0.88	0.73	0.04
BP1	–0.04	0.09	0.001	–0.03	–0.05	0.004	–0.07	0.45	0.46	0.4	0.41	0.46	0.56	0.92	0.03
BP2	0.06	0.13	0.03	0.01	–0.06	0.04	0.02	0.46	0.49	0.5	0.50	0.45	0.70	0.91	0.07
MH1	0.08	0.005	–0.02	0.09	0.10	0.12	0.17	0.12	–0.02	0.07	0.11	0.22	0.03	0.11	0.80
MH2	–0.002	0.03	0.007	0.17	0.18	0.12	0.19	0.18	–0.08	0.02	0.05	0.17	0.01	0.02	0.84
MH3	0.007	0.06	0.02	0.10	0.08	0.08	0.13	0.24	–0.04	0	0.01	0.16	0.04	0.04	0.82
MH4	–0.006	0.01	0.006	0.10	0.07	0.05	0.17	0.23	–0.03	0.06	0.05	0.15	0.02	0.01	0.90
MH5	0.002	0.06	0.01	0.08	0.10	0.03	0.18	0.16	–0.07	0.04	0.11	0.17	0.05	0.03	0.86

Source: Authors' Calculation (2016)

5.2. Inner Model

Figure 2 presents the impact of social capital on health with significant level of 5%.Before discussing the findings from the inner model, several criteria of the model quality are investigated. Firstly, coefficient of determination **(R^2)** is evaluated. According to Hair et. al., (2011), R^2thresholds depend on the research field. In social science, the acceptable value is greater than 0.1 (Falk & Miller, 1992). In this study, R^2 values of six healthy domains including GH, PF, RP, VT, BP and MH exceed 0.1. Secondly, goodness of fit is considered. This criterion is applicable for PLS-SEM with the fit value of 0.1, 0.25 and 0.36 for small, medium and large respectively (Wetzels et. al., 2009; Tenenhause et. al., 2004). In this study, medium goodness of fit is found with the value of 0.242.

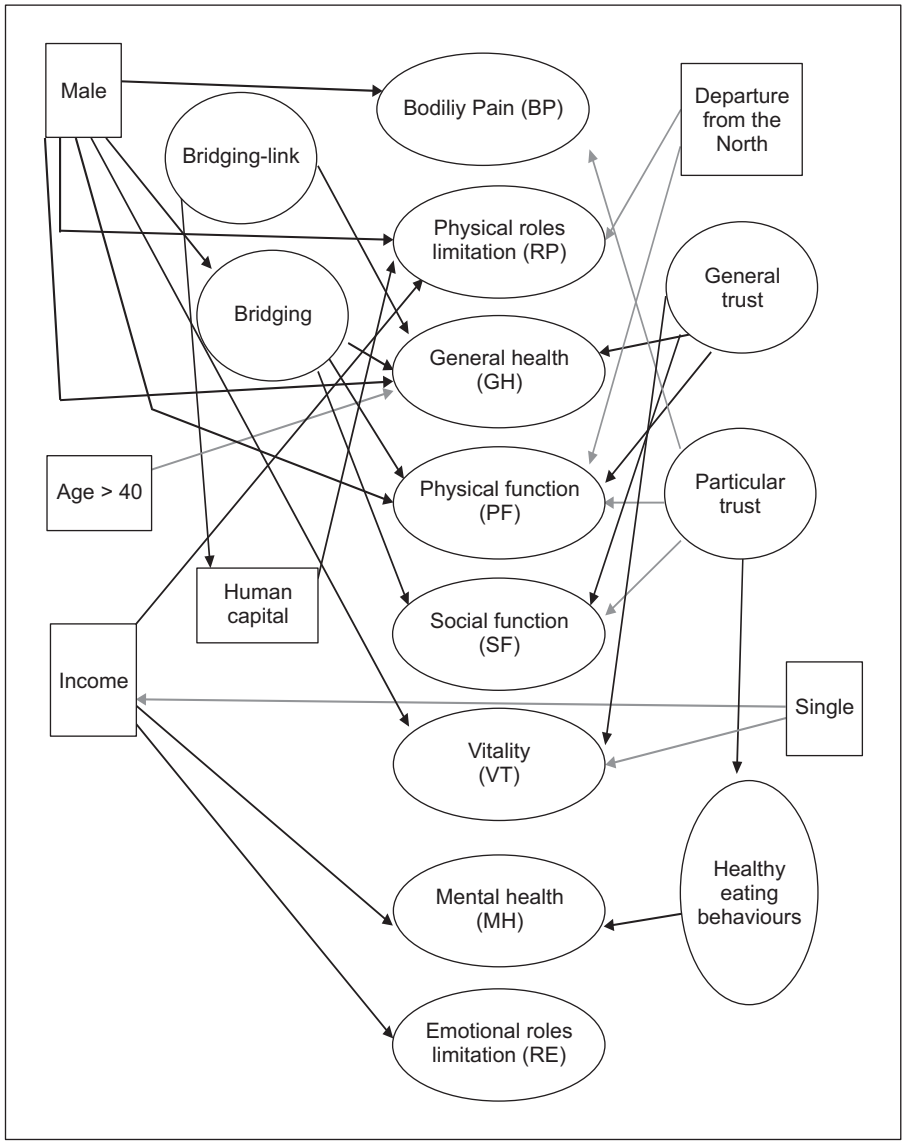

Figure 2: Impact of social capital on health (5% significant level)
***Source:* Authors' calculation (2016)**

The inner model results have generally confirmed the positive impact of certain social capital dimensions to health, especially those relating to open network. In fact, general trust is a drive for improving health at GH, PF, VT and SF domains. It's obvious that general trust motivates the relationships in open network. According to Fritz et. al., (2011), the more the individual involves in the open network, the more energy and vitality he/she can enjoy. This is also a practical evidence of bridging role in enhancing health at GH, SF and PF domains. Similarly, bridging- link is found to be useful for GH. In general, open network with general trust is catalysis for social engagement, and the results are stress-releaving and life enjoyment. These factors shall promote both physical and mental health (Cohen, 2004; Folland, 2008; Chen & Meng, 2015).

Meanwhile, social capital is not always good. The theory has mentioned its limitation, especially bonding. This empirical result confirms the theory when finding a negative impact at 5 % significant level of particual trust on health at PF, SF and BP. This result is also supported by Wolf et. al., (2010) in their research on the role of bonding on health of the aged people in Norwich and London (England)

6. CONCLUSION

In Vietnam, not many studies have explored the impact of social capital on health by considering all of their dimensions using PLS-SEM. This statistical modeling technique is a proper choice in research situations of small sample sizes, non-normally distributed data and complicated model, which are commonly encountered in social sciences. The findings are to illustrate the contribution of each social capital dimension to healthy domains promotion. Moreover, it is innovative and practical for providing a comprehensive picture on the role of social capital to health muti-dimensionally. This provides the evidence for better exploiting the positive aspects and eliminate the negative ones of social capital.

The research finds that general trust is more important than particular one. This reflects the priority in nurturing general trust for the Vietnamese. In addition, the research results confirm the importance of bridging and bridging-link. This implies the necessity of fostering the open network, especially when it combines with social standing because it is useful for leveraging the resources in the community.

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