



*Research article*

## **Are there heterogeneous impacts of social support on subjective well-being?**

**Qingqing Hu<sup>1</sup>, Xiaobing Wang<sup>2,\*</sup> and Mark Xu<sup>3</sup>**

<sup>1</sup> School of International Studies, Hunan Institute of Technology, 421000, Hengyang, P. R. China

<sup>2</sup> School of Business, Hunan Institute of Technology, 421000, Hengyang, P. R. China

<sup>3</sup> Portsmouth Business School, University of Portsmouth, Portsmouth PO1 3DE, UK

\* **Correspondence:** Email: [wxbing@huit.edu.cn](mailto:wxbing@huit.edu.cn); Tel: +8613637343217.

**Abstract:** Subjective well-being is a global health issue exacerbated by the COVID-19 pandemic. Social support has a positive impact on subjective well-being, however, the level of impact and the regulatory mechanism of social support on subjective well-being with reference to economic and cultural differences is unknown. Based on the Gallup survey data, a panel fixed effect model is constructed to examine the heterogeneity and regulatory mechanisms of social support on subjective well-being according to country-based economic and cultural matrix. Our findings show that, first, economic differences cause heterogeneous influence of social support on subjective well-being. Specifically, high-income countries have positive impact of social support on subjective well-being; whereas the lower ones have no significant influence. Secondly, cultural differences also cause heterogeneous impact, i.e. generosity of cultural characteristics regardless of high or low level in countries has a significant positive impact on subjective well-being, however, the degree of impact varies and is associated with level of generosity. Thirdly, a cross examination of heterogeneous moderating effect shows that democracy and freedom have a significant positive adjustment effect in both high and low generosity culture-characterized countries. These findings are significant to shape the conception of economic dominated social support for well-being, with significant implication for balancing (or shifting) social and public health policy with economic support towards building generosity and democratic societies.

**Keywords:** subjective well-being; social support; heterogeneous impact; economic difference; cultural difference

---

**JEL Codes:** G15, F36, C40

---

## 1. Introduction

Subjective well-being is a global health issue exacerbated by the COVID-19 pandemic. Social support has a positive effect on subjective well-being. Studies concerning the correlation between social support and subjective well-being have been conducted from different perspectives. Firstly, social support and active social relations have positive influence on human mental and physical health. Literature suggests that individuals could achieve optimal psychological well-being when they have strong and forceful social support (Mellor et al., 2018; Moeini et al., 2018). Social support can reduce stress or negative influence resulted from negative events or difficulties by acting as a hindrance factors (Cassel, 1976; Cobb, 1976; Liu et al., 2014). With more types of social ties, people might live longer, have less cognitive decline with age, more resistant to infectious diseases, and a better prognosis in life-threatening chronic diseases (Cohen and Janicki-Deverts, 2009; Itzick et al., 2018). Secondly, different types and sources of social support also have positive impacts on happiness for different people. The supports from colleagues and supervisors are significantly positively correlated with the well-being of employees (Merida-Lopez et al., 2019). Support from closest family members, mentors and best friends can improve the subjective well-being of vulnerable groups (Mendonca and Simoes, 2019). Emotional support from children was more important than social support from outside for the older immigrants (Peng et al., 2015). Thirdly, researchers identified other personal and social attributes that also affect the degree of social support to subjective well-being, such as gender (Hori and Kamo, 2018), age (Ju et al., 2018), loneliness (Tian, 2016), emotional intelligence (Gallagher and Vella-Brodrick, 2008), social status (Yoon et al., 2012), social trust (Helliwell and Huang, 2011). For example, Kong and You (2013) examined that overall self-esteem had a positive regulating effect on the relationship between social support and life satisfaction, but had no effect on the negative effect between them by the investigation of Chinese college students.

However, subjective well-being can vary even receiving the same social support. For example, in highly developed countries, people may have strong subjective well-being when they get social support because rich materials and complete social security can satisfy their spiritual demands. Conversely, in less-developed countries where there is a lack of survival necessities, poor medical conditions, weak social security system, people could not achieve subjective well-being because social support cannot meet the requirement of their material need (Ko and Kuo, 2009). It can be further argued that differences in thinking modes, language, religious belief and personal values, could lead to different subjective well-being. For example, a culture of collectivism may associate with a higher degree of subjective well-being; whereas in countries with individualism culture, people's subjective well-being may not reach their expectations with different types of social support. Generally, the economy offers the most important material basis, while culture makes values more diversified, which have significant impact on subjective well-being. Based on the above, it is possible that different levels of economic development and pluralistic culture can lead to different degrees of subjective well-being even with the same social support.

Economy is the material basis of subjective well-being. Income as the most important key factor, determines the level of people's happiness to a certain extent. According to Maslow's Hierarchy of Needs, human happiness comes from satisfaction of needs from lower levels to higher levels (Benson

and Dundis, 2003). During this process, income level plays a profound role among other factors. In highly developed countries, high income provides a solid material basis for people's life (Huang et al., 2020). Social support along with high income provides individuals energy and power for spiritual pursuit, ambitions realization, and ultimately enables improvement of subjective well-being. Thus, people's subjective well-being may be stronger when social support reaches or exceeds their own expectation. In low income countries, people are likely to gain lower subjective well-being because of limited material support, such as insufficient survival necessities, poor medical care, scarce educational resources and weak social security system. Under this circumstance, their expectations of personal self-esteem, status and self-realization of spiritual needs are likely to be low. Research evidence supports that working long hours often leads to fatigue and stress (Valente and Berry, 2016). Based on that, people have relatively low subjective well-being when there is a large gap between the level of social support and people's expectations.

Pluralistic cultural background is also considered a factor influencing subjective well-being and social support. Cultural dimensions, such as: power distance, uncertainty avoidance, masculinity and femininity, individualism and collectivism, influence human behaviors of different countries (Hofstede, 1980). People with individualism culture tend to emphasize goals and interests' pursuit that requires less social interaction or cooperative support, thus, their subjective well-being with emotional social support may be low. Anderson et al. (2012) assert that people with high social status gain more respect and appreciation from friends, which suggests people with high social status have more subjective or emotional support by means of self-satisfaction of being respected. With collectivism culture, people pay more attention to maintaining harmonious social relationships, emphasizing cooperation over competition, and developing unity of groups' interests. Thus, their subjective well-being is largely determined by social contacts or relations with others. For example, marital status is one of these relations. It reported that in Japan, full-time work is negatively correlated with women's happiness (Hori and Kamo, 2018). Wang et al. (2020) also assessed that the dual pressures of work and family make female doctors less happy and more likely to experience burnout.

Although the above literatures suggest an impact of relationship between social support and subjective well-being, there is apparently a gap on the potential heterogeneous effect due to economic and cultural differences. This paper aims to make a tentative study with the following specific contributions:

Firstly, based on the Gallup survey data, this paper constructs a panel fixed effect model to further verify the differences of the influence of social support on subjective well-being under different conditions. On the one hand, under the background of economic differences, high-income countries have positive impact of social support on subjective well-being; whereas the lower ones have no significant impact. On the other hand, from the perspective of cultural differences, social support in countries with high and low generosity of cultural characteristics has a significant positive impact on subjective well-being; however, the higher ones have greater impact than the lower ones.

Secondly, the influencing mechanism of social support on subjective well-being has heterogeneity underpinned by different economic and cultural levels. The research shows that the difference of economic and cultural condition had a consistent effect on the influencing mechanism by the regulating variables of democracy and freedom. However, these regulating variables have different effects when their economic and cultural backgrounds are different. Specifically, under economic differences, democracy and freedom both have a significant positive regulating effect in low-income countries; However, under different culture background, democracy and freedom both

have a significant positive adjustment effect in both high and low generosity countries, but the moderating effect of the higher ones is greater than the lower ones.

The remainder of this paper is arranged as follows: Section 2 introduces model, variables and data, which including variables description, data description and grouping, as well as stationary test. Section 3 reports test results, which including heterogeneous impacts of social support on subjective well-being by economic and cultural differences, and their influencing mechanisms as well. This is followed by discussion in Section 4. Lastly, section 5 concludes our paper with a note on limitation and implications.

## 2. Materials and methods

### 2.1. Model setting

This paper aims to explore the differences of the influence of social support on subjective well-being under different conditions. Social support and subjective well-being are the key variables in this research. The following benchmark panel regression model is constructed based on the panel data of this paper.

$$SWB_{it} = \beta_0 + \beta_1 * Social\ support_{it} + \lambda * Control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (1)$$

where  $SWB_{it}$  stands for subjective well-being for the  $t$  year of individual  $i$ ;  $Control_{it}$  denotes for a series of control variables for the  $t$  year of individual  $i$ , which includes health life expectancy, generosity, corruption perception, freedom, democratic quality, positive affect and negative affect.  $\varepsilon_{it}$  represents random error terms;  $\beta_0$  represents the constant term, and  $\beta_1, \lambda$  are the regression coefficients,  $v_i$  are individual effects,  $\mu_t$  are time effects.

### 2.2. Variable and data

#### 2.2.1. Variables description

In this model, subjective well-being is the explained variable and social support is the explanatory variable. Some control variables and moderating variables are: health life expectancy, generosity, corruption perception, freedom, democratic quality, positive affect and negative affect. Data for all the variables are obtained from World Happiness Report 2019 (Helliwell et al., 2021). The data sources and description of the variables are shown in Table 1 as below.

The sample data is drawn from 53 selected countries that cover the period from 2007 to 2018. The criteria for the sample selection is considering the continuity of indicators in the Global Happiness Index series reports, and data integrity, regional representation and parameter estimation of sample size. In terms of time span, the data is available from 2006 to 2019 (<https://worldhappiness.report/ed/2019/>) with useful continuity indicators available from 2007. From the sample countries, the survey scope has expanded from 27 in 2005 to 102 in 2007, then to 146 in 2011, and finally stabilized at around 140 at present. Due to missing values for data continuity in some countries, the sample frame of 53 countries covering a period from 2007 to 2018 has been finally confirmed.

**Table 1.** Variables and description.

Type	Variable	Measurement	Range	Source
Explained variable	subjective well-being	Imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time.	[0, 10]	GWP
	Social support	National average of the binary responses (either 0 or 1) to the GWP question “If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?”	[0, 1]	GWP
Control variables and moderating variables	Healthy life expectancy	Healthy life expectancies at birth.		WDI
	Generosity	Residual of regressing national average of response to the GWP question “Have you donated money to a charity in the past month?” on GDP per capita.	[0, 1]	GWP
	Corruption perception	National average of the survey responses to two questions in the GWP: “Is corruption widespread throughout the government or not?” and “Is corruption widespread within businesses or not?” The overall perception is just the average of the two 0 or 1 responses.  In case the perception of government corruption is missing, we use the perception of business corruption as the overall perception.	[0, 1]	GWP
	Confidence	Confidence in national government from The English wording of the question is “Do you have confidence in each of the following, or not? How about the national government?”	[0, 1]	GWP
	Negative affect	Average of three negative affect measures in GWP. They are worry, sadness and anger, respectively the responses to “Did you experience the following feelings during a lot of the day yesterday? How about worry?”, “Did you experience the following feelings during a lot of the day yesterday? How about sadness?”, and “Did you experience the following feelings during a lot of the day yesterday? How about anger?”	[0, 1]	GWP
	Positive affect	Average of three positive affect measures in GWP: These measures are the responses to the following three questions, respectively: “Did you experience the following feelings during a lot of the day yesterday? How about Happiness?”, “Did you smile or laugh a lot yesterday?”, and “Did you experience the following feelings during a lot of the day yesterday? How about Enjoyment?”	[0, 1]	GWP
	Democratic quality	Democratic and delivery quality measures of governance are based on six dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption.	[0, 1]	WGI
	Freedom	National average of responses to the GWP question “Are you satisfied or dissatisfied with your freedom to choose what you do with your life?”	[0, 1]	GWP

**Notes:** The measurements in this table are all refer to the World Happiness Report 2019. GWP denotes Gallup World Poll; WGI means The Worldwide Governance Indicators. WDI denotes World Development Indicators.

### 2.2.2. Data description and grouping

Firstly, the descriptive statistics of all variables data of 53 countries from 2007 to 2018 involved in this paper under complete sample are shown in Table 2. The mean, standard deviation, minimum and maximum of each variable are given as below:

**Table 2.** Descriptive statistics of full sample.

Variable	Mean	Std. Dev.	Min	Max
SWB	5.536	1.050	2.903	7.971
Social support	0.822	0.101	0.467	0.975
Healthy life	63.248	6.894	42.860	75.000
Freedom	0.748	0.127	0.295	0.970
Generosity	0.002	0.160	-0.302	0.549
Corruption	0.764	0.164	0.151	0.979
Positive	0.736	0.103	0.427	0.934
Negative	0.257	0.072	0.115	0.544
Confidence	0.485	0.183	0.079	0.930
Democratic	-0.128	0.728	-1.706	1.430

Secondly, diversified backgrounds could make this impact of social support on subjective well-being heterogeneous. As aforementioned, economic and cultural differences are the key factors likely to cause heterogeneity, thus, the samples are grouped according to economic and cultural variables to explore heterogeneity. Generally, national income is more directly related to subjective well-being among the indicators in economic differences grouping. According to the World Bank, the distribution of grouping samples presents a serious asymmetry. By analyzing the data distribution characteristics, the samples are divided into high-income and low-income countries based on national income grouping. The high-income countries include upper or middle-income ones and low-income countries include low-income and lower-middle income ones. There are totally 30 high-income countries and 23 low-income countries after grouping. These 38 high-income countries are Argentina, Azerbaijan, Belarus, Brazil, Canada, Chile, Colombia, Denmark, Dominican Republic, Ecuador, Georgia, Germany, Guatemala, Indonesia, Italy, Japan, Kyrgyzstan, Lithuania, Mexico, Panama, Peru, South Africa, South Korea, Spain, Sweden, Thailand, Turkey, United Kingdom, United States and Uruguay. The rest 23 low-income countries are Bangladesh, Bolivia, Cambodia, Cameroon, Chad, El Salvador, Ghana, Honduras, India, Kenya, Kazakhstan, Mauritania, Moldova, Nepal, Nicaragua, Niger, Philippines, Senegal, Tajikistan, Tanzania, Uganda, Ukraine and Zimbabwe.

Cultural differences are with many indicators. According to the hypothesis of rational man, generosity degree is closely related to human subjective well-being, which reflects the differences on cultural values. Under this premise, the indicator of “Generosity” from World Happiness Report is selected as the proxy variable of cultural difference, and then group samples with data sources. Specifically, all sample data of generosity value is ranked in the order from small to large, and divide them into two groups by 50% quantile: one is the upper quantile which represents the group with higher degree of generosity, and the other is lower quantile which means the lower degree generosity group.

The following descriptive statistical indicators of key variables after grouping are shown in Table 3. It shows that the average level of subjective well-being and social support are different from different groups of income and generosity.

**Table 3.** Descriptive statistics of key variable after grouping.

Variable	Sample	Mean	Std. Dev.	Min	Max
SWB	full	5.54	1.05	2.9	7.97
	high income	6.14	0.85	3.66	7.97
	low income	4.75	0.72	2.9	6.84
	high generosity	5.71	1.25	2.9	7.97
	low generosity	5.42	0.87	3.17	7.44
Social support	full	0.82	0.1	0.47	0.98
	high income	0.87	0.08	0.5	0.98
	low income	0.76	0.09	0.47	0.91
	high generosity	0.83	0.1	0.51	0.98
	low generosity	0.82	0.1	0.47	0.96

**Notes:** This table summarizes descriptive statistics (sample mean, maximum, minimum, standard deviation) of subjective well-being (SWB), social support in 53 economics sample economies from 2007 to 2018.

### 2.2.3. Stationary test of data

This study is going to take a further step to test the different impact by the panel model. Before testing, in order to avoid the occurrence of false regression, two methods of Levin-Lin-Chu unit-root test and Fisher ADF unit-root test are selected respectively to conduct stationarity tests on all index data. The test results are shown in Table 4.

Table 4 presents the results of unit root test for subjective well-being, social support, and the control variables. It is worth to report in particular, two test results for the null hypothesis that each sequence contains unit roots. The first one is the Levin-Lin-Chu unit root test, and the second is the Fisher augmented Dickey Fuller t test. The criterion is: if the unit root test confirms that it is 0 at 5% significance level, the variable is stationary. In both cases, the null hypothesis is rejected at 1% significance level. Therefore, all variables are stationary for panel model.

**Table 4.** Results of the Panel Unit Root Test.

Variables	LLC	Fisher-ADF test
SWB	-25.226*** (0.000)	350.289*** (0.000)
Social support	-15.007*** (0.000)	353.715*** (0.000)
Healthy life	-6.424*** (0.000)	235.810*** (0.000)
Freedom	-7.753*** (0.000)	300.065*** (0.000)
Generosity	-22.461*** (0.000)	269.377*** (0.000)
Corruption	-27.918*** (0.000)	300.907*** (0.000)
Positive	-112.000*** (0.000)	289.569*** (0.000)
Negative	-9.332*** (0.000)	306.060*** (0.000)
Confidence	-5.269*** (0.000)	284.245*** (0.000)
Democratic	-12.495*** (0.000)	277.825*** (0.000)

**Notes:** It summarizes panel unit-root tests for all related variables in 53 countries. LLC denotes Levin-Lin-Chu unit-root test; Fisher-ADF denotes fisher ADF unit-root tests. \*\*\*, \*\* and \* indicate significant at the 1%, 5% and 10% levels respectively. P-values are in parentheses. The sample period is from 2007 to 2018.

### 3. Results

#### 3.1. Heterogeneity by economic differences

Based on the above, this part is to take high and low level income as indicators to verify the heterogeneity of social support on subjective well-being by economic differences. Based on the samples from high and low income countries, the baseline panel model (1) with the time and individual fixed effects is estimated by selecting the hausman test. At the same time, the GMM model is used to test its robustness. Table 5 shows the estimated results of the benchmark regression model with different income levels.



**Table 5.** The results of tests of difference in income.

	Panel fixed effect model		Panel GMM model	
	High income	Low income	High income	Low income
Social support	1.491*** (0.510)	0.165 (0.551)	2.031*** (0.576)	0.129 (0.918)
Control variables	Yes	Yes	yes	Yes
L.SWB			0.686*** (0.137)	0.641*** (0.112)
_cons	7.966*** (1.751)	10.73*** (2.168)	-2.182* (1.159)	2.307 (3.838)
Individual fixed	yes	yes	yes	yes
Time fixed effect	yes	yes	yes	yes
N	360	276	330	253
R2	0.337	0.158		
AR(1)			0.000	0.000
AR(2)			0.737	0.229
Hansen test			0.148	0.419

**Notes:** \*\*\*, \*\* and \* indicate significant at the 1%, 5% and 10% levels respectively. Standard errors are in parentheses. The sample period is from 2007 to 2018. L.SWB stands the lag 1 of SWB.

It is confirmed that income differences cause heterogeneous influence of social support on subjective well-being. Based on the estimation of baseline regression model with different income samples, Table 5 shows that the regression estimation coefficients of social support in the panel model for high-income is 1.491, which is significant under the significance of 1%. However, the impact for low income is not significant. The empirical results indicate that high-income countries have positive impact of social support on subjective well-being; whereas the lower ones have no significant impact. In addition, panel GMM regression model estimation results in column (3) and (4) also show the same result. Hence, the estimation results of base panel regression model are stable.

### 3.2. Heterogeneity by culture differences

Then, cultural characteristics of generosity levels are taken as an indicator to verify the heterogeneity of social support on subjective well-being by cultural differences. Based on sample data from high-generosity and low-generosity countries, we estimate the baseline panel model (1) with time and individual fixed effects, which is selected by hausman test. At the same time, the panel GMM model is also used to test its robustness. The estimated results of the benchmark regression model with different generosity levels are shown in Table 6.

**Table 6.** The results of tests of difference in generosity.

	Panel fixed effect model		Panel GMM model	
	High Generosity	Low Generosity	High Generosity	Low Generosity
Social support	1.053* (0.588)	0.885* (0.478)	2.693*** (0.962)	2.181*** (0.246)
Control variables	yes	yes	yes	yes
L.SWB			1.021*** (0.197)	0.327*** (0.0936)
_cons	5.528** (2.160)	8.746*** (1.571)	0 (.)	-2.364*** (0.541)
Individual fixed effect	yes	yes	yes	yes
time fixed effect	yes	yes	yes	yes
N	264	372	243	340
R2	0.121	0.167		
AR(1)			0.114	0.005
AR(2)			0.859	0.210
Hansen test			0.534	0.545

**Notes:** \*\*\*, \*\* and \* indicate significant at the 1%, 5% and 10% levels respectively. Standard errors are in parentheses. The sample period is from 2007 to 2018. L.SWB stands the lag 1 of SWB.

The results reveal that generosity levels cause heterogeneous influence of social support on subjective well-being. In Table 6, columns (1) and (2) show regression coefficients under high and low generosity sample are 1.053 and 0.885 respectively, both are significant respectively under 10%. The empirical results show that social support in countries with high and low generosity both has a significant positive impact on subjective well-being. In addition, the countries with high generosity have greater impact than in countries with low levels. Besides, the estimation results of column (3) and (4) in panel GMM regression model also show the same results. It indicates that the panel fixed effect model estimation results are stable.

### 3.3. Heterogeneity of moderating effects mechanism

#### 3.3.1. Model

The study continues to investigate the moderating effect of regulatory variables. In this part, only the democracy and freedom variables are selected. Based on the benchmark regression model, we construct the following regulatory effect model:

$$SWB_{it} = \beta_0 + \beta_1 * Social\ support_{it} + \beta_2 * Mediate_{it} + \beta_3 * Social\ support_{it} * Mediate_{it} + \lambda * Control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (2)$$

where *SWB* means subjective well-being and the interactive item *Social support\*Mediate* means the regulating effect of regulating variable. *Mediate* is a regulating variable, such as democracy and

freedom. The meanings of other variables are consistent with the baseline regression model. If  $\beta_3$  significant, it indicates that democracy or freedom has a significant regulating effect. And if  $\beta_3 > 0$ , it shows that democracy or freedom has a positive regulating effect. In other words, the higher the level of democracy or freedom, the greater the positive influence of social support on subjective well-being.

### 3.3.2. Heterogeneity by economic differences

Taking a similar approach as before, regulatory effect model further test on the moderating effect of democracy and freedom is conducted to examine the heterogeneity of regulatory mechanisms by economic differences. The panel fixed effect model is adopted using samples of different income levels. The results are shown in Table 7.

**Table 7.** The moderating effect by different income.

	High income	Low income	High income	Low income
Social support	1.521*** (0.512)	2.300*** (0.771)	1.508*** (0.543)	0.709 (0.590)
Democracy	-0.0235 (0.115)	0.522*** (0.152)	0.000832 (0.112)	0.448*** (0.155)
Social support*Democracy	0.623 (0.698)	3.333*** (0.866)		
Social support*freedom			0.179 (1.896)	6.104** (2.523)
Control variable	yes (0.202)	yes (0.323)	yes (0.203)	yes (0.329)
_cons	9.467*** (1.778)	11.67*** (1.925)	9.803*** (1.779)	11.08*** (1.970)
Individual fixed effect	yes	yes	yes	yes
Time fixed effect	yes	yes	yes	yes
N	360	276	360	276
R2	0.338	0.209	0.337	0.179

**Notes:** Standard errors are in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , we centralized social support, democracy and freedom respectively and then introduced cross-multiplication term in order to avoid multicollinearity problem.

The moderating effects of democracy and freedom on the relationship between social support and subjective well-being in countries with different income levels are heterogeneous. According to column (1) and (2) in Table 7, the estimated regression coefficients of Social support\*Democracy in high and low income sample are 0.623 (not significant under the level of 10%) and 3.333 (significant under the level of 1%) respectively. It shows that democracy has no significant regulating effect in high-income countries, but has a significant positive regulating effect in low-income countries. At the same time, according to columns (3) and (4), the estimated regression coefficients of Social support\*freedom in high and low income sample are 0.179 (not significant under the level of 10%)

and 6.104 (significant under the level of 5%) respectively. The results show that freedom has no significant regulatory effect in high-income countries, but has a significant positive moderating effect in low-income countries.

Using the same approach, the heterogeneity of moderating mechanisms by cultural differences is further examined. The results are shown in Table 8:

**Table 8.** The moderating effect by different generosity.

	High Generosity	Low Generosity	High Generosity	Low Generosity
Social support	3.211*** (0.757)	1.533*** (0.568)	1.337** (0.597)	1.492*** (0.532)
Democracy	0.000443 (0.205)	0.213* (0.118)	0.0666 (0.212)	0.213* (0.118)
Social support*Democracy	3.776*** (0.881)	1.387** (0.663)		
Social support*freedom			6.374** (2.917)	4.774** (1.902)
Control variables	yes	yes	yes	yes
_cons	7.393*** (1.975)	9.946*** (1.498)	6.115*** (2.048)	10.17*** (1.477)
Individual fixed effect	yes	yes	yes	yes
time fixed effect	yes	yes	yes	yes
N	264	372	264	372
R2	0.192	0.178	0.141	0.183

The moderating effects of democracy and freedom on the relationship in countries with different generosity degrees of cultural characteristics are heterogeneous. From columns (1) and (2) in Table 8, democracy has a significant positive adjustment effects both in the samples of high and low generosity countries, which are 3.776 and 1.387, and the moderating effect of the higher ones are greater than the lowers. At the same time, based on column (3) and (4), it told us that freedom also has a significant positive moderating effect both in the samples of high and low generosity countries, which are 6.374 and 4.774, but the moderating effect of the higher ones are greater than the lowers.

## 4. Discussion

### 4.1. Heterogeneity analysis

The results in section 3 reveal that the differences of economic levels cause heterogeneous impact of social support on subjective well-being. Social support in high income countries has a significant positive impact on subjective well-being; however, it has no significant impact in low-income countries. This may be explained that people in high-income countries generally have a good material base and living conditions, the spiritual level of self satisfaction will be greatly improved with the increase of the channel and strength of diversified social support (tool and information support). This is similar to existing studies. For example, people with higher social

capital and social relationships may have more chances to maintain better overall health or better be able to overcome stress and then improve their subjective well-being (Liang et al., 2011; Kumar et al., 2012). Conversely, in low-income countries, people may tend to obtain a large amount of social capital or material resources as their first task because of insufficient survival necessities, poor medical conditions and weak social security system and so on. Some kinds of emotional support, social relations as well as instrumental support cannot meet the requirement of their material needs. For instance, through a five-year longitudinal study, Moskowitz et al. (2013) confirm that social support does not uniformly mitigate the effects of stressors on health for individuals living in urban poverty. Because social networks of the poor tend to include others who are resource deprived, there may be limits to the extent that they buffer individuals from the harmful effects of stress on health. From the above, this add to the understanding that social support, such as emotional support, tangible or instrumental support, interaction or exchange support, and community support may influence subjective well-being outcomes to some extent no matter in high or low income countries. However, it is pretty certain that more diversified especially hard and accurate social support may definitely improve the possibility of subjective well-being in high income countries.

Besides, social support in countries with high and low generosity with cultural characteristics also has a significant positive impact on subjective well-being; however, countries of high-level generosity have higher positive effects than that in low-level ones. This may be based on the reason that people in high generosity countries are more willing to help others. Generosity itself as a voluntary behavior can bring people high subjective well-being. The more social support people receive; the more generous act they give to society, which can improve more subjective well-being to themselves finally. This is similar to the existing literature. For example, Kyung-Hee (2012) denoted that generosity (prosocial behavior) means try one's best to help or benefit others with happy, and their voluntary behavior of helping others do not expecting a return. However, in low generosity countries, people are less likely to give, unwilling to dedication but more inclined to ask for help or support for free. As a result, their subjective well-being stays at the material level, and they will not get real spiritual pleasure and realize their personal values in this society. This finding tells us social support also can influence subjective well-being outcomes to some extent no matter in high or low generosity levels countries with different cultural characteristics. People would respond positively to the needs of others, which in turn has the potential to generate more prosocial behaviors (Twenge et al., 2007). In view of this, it is a good way to advocate prosocial behavior because generosity itself can improve individual's subjective well-being.

#### *4.2. Moderating effects analysis*

The moderating effect on the relationship between social support and subjective well-being at different income and generosity levels are also heterogeneous. To begin with, democracy and freedom both has a significant positive regulating effect in low-income countries. This may be explained that promoting a high-quality democratic government may be the best way for people in low income countries with conditions of insufficient living necessities, poor medical conditions, and weak social security system in order to get a positive impact of social support on subjective well-being. This is similar to the previous research, such as: democracy is positively related to national well-being and has the meaning of good governance or the quality of government (Ott, 2010; Ott, 2015). Besides, freedom also has a significant positive regulatory effect in low-income countries.

This may be based on the fact that economic scarcity is one of the most important factors limiting people's choices. In low income countries, freedom can increase the growing demand for resources greatly. The findings of Inglehart also show the similarities. The extent to free choice can be improved by economic development, democratization and increasing social security, which in turn has led to higher levels of happiness around the world (Inglehart et al., 2008).

Moreover, democracy and freedom both have more significant effect in high generosity countries with cultural characteristics than the lower ones. This may be based on the reasons that high generosity countries generally have higher influence on speech rights and public decision-making, as well as more moral advantages on political and moral aspects, which promotes more unconditional gratitude and support from their citizens when compared with low generosity countries. This is the same to the existing literature that generosity is not only promoting harmony between the government and people, but also increasing more support for their dominant democracy in turn when it acted as a pro-social behavior (Aristotle, 2011).

## 5. Conclusions

The key findings of this study are summarized as below: the differences of economic levels and culture are the two influential factors on the heterogeneous impacts of social support on subjective well-being. However, the degree of impact varies when it is associated with levels of income and generosity. Democracy and freedom have a constant significant positive adjustment effect on the relationship in both high and low generosity culture-characterized countries; such moderating effect is also associated with the level of income.

This has significant implications. It not only confirms the notion that social support significantly impacts on subjective well-being, but also contributes to new insight that the impact is heterogeneous according to economic and culture differences that have different moderating effect. The significance of this finding shapes the conception of economic dominated social support for well-being. It can be suggested that future social and public health policy shall focus on balancing (or shifting) towards building generosity and democratic societies alongside economic support. Countries should enrich non-economic social support channels in order to increase subjective well-being based on its own economic status and cultural characteristics. For example, increasing more functional social support after the income level exceeds the critical value; combining social entrepreneurship and entrepreneurial behavior to fight poverty and inequality (Kruse, 2020); considering PPS (Private Pension System) to help individuals make savings and make contributions to the nation's economy (Demirtas and Kececi, 2020). In terms of culture, advocating caring for people, and establish good social atmosphere of personality equality and mutual respect. Moreover, for the moderating effects, such as establishing social trust mechanisms, carrying out the public construction of public resources and effective supervision in countries with higher levels of generosity; whereas in lower generosity countries, enhancing the personal ethical values of the wealthy class, so as to promote the ethics of resource sharing and fulfill the obligation of public well-being.

It is worthy to note the limitations of this study—due to the limited data available and the specific model and variables selected. Future research could further analyze the heterogeneous influence of social support on subjective well-being from different perspectives, e.g. consider other indicators such as: energy ecology (Goers and Schneider, 2019), human resources (Sánchez-Ollero et al., 2020; Syed et al., 2020), etc. other economic indicators in the field of economic differences, such

as economic credit (Kartal, 2020; Li et al., 2020), financial cycle (Liu et al., 2020), economical risk (Sukharev, 2020), etc. Moreover, study can consider alternative variable measures of subjective well-being in different countries from Gallup, diversified background with specific country/context so that specific policy and intervention mechanisms can be initiated and implemented.

## Acknowledgments

We would like to thank the funding support from Education Special Project of National Social Science Fund of China [grant number: BIA180197].

## Conflicts of interest

All authors declare no conflicts of interest in this paper.

## References

- Anderson C, Kraus MW, Galinsky AD, et al. (2012) The Local-Ladder Effect: Social Status and Subjective Well-Being. *Psychol Sci* 23: 764–771.
- Aristotle (2011) Eudemonian Ethics.
- Benson SG, Dundis SP (2003) Understanding and motivating health care employees: integrating Maslow's hierarchy of needs, training and technology. *J Nurs Manage* 11: 315–320.
- Cassel J (1976) The contribution of the social environment to host resistance: the Fourth Wade Hampton Frost Lecture. *Am J Epidemiol* 104: 107–123.
- Cobb S (1976) Presidential Address-1976. Social support as a moderator of life stress. *Psychosom Med* 38: 300–314.
- Cohen S, Janicki-Deverts D (2009) Can We Improve Our Physical Health by Altering Our Social Networks? *Perspect Psychol Sci* 4: 375–378.
- Demirtas YE, Kececi NF (2020) The efficiency of private pension companies using dynamic data envelopment analysis. *Quant Financ Econ* 4: 204–219.
- Gallagher EN, Vella-Brodrick DA (2008) Social support and emotional intelligence as predictors of subjective well-being. *Pers Individ Differ* 44: 1551–1561.
- Goers S, Schneider F (2019) Economic, ecological and social benefits through redistributing revenues from increased mineral oil taxation in Austria: A triple dividend. *Green Financ* 1: 442–456.
- Helliwell J, Layard R, Sachs J, et al. (2021) World Happiness Report 2021.
- Helliwell JF, Huang H (2011) Well-Being and Trust in the Workplace. *J Happiness Stud* 12: 747–767.
- Hofstede G (1980) *Culture's Consequences: International Differences In Work-Related Values*.
- Hori M, Kamo Y (2018) Gender Differences in Happiness: the Effects of Marriage, Social Roles, and Social Support in East Asia. *Appl Res Quality Life* 13: 839–857.
- Huang Z, Li T, Xu M (2020) Are There Heterogeneous Impacts of National Income on Mental Health? *Int J Environ Res Public Health* 17.
- Inglehart R, Foa R, Peterson C, et al. (2008) Development, Freedom, and Rising Happiness A Global Perspective (1981–2007). *Perspect Psychol Sci* 3: 264–285.

- Itzick M, Kagan M, Tal-Katz P (2018) Perceived social support as a moderator between perceived discrimination and subjective well-being among people with physical disabilities in Israel. *Disability Rehabil* 40: 2208–2216.
- Ju C, Zhang B, You X, et al. (2018) Religiousness, social support and subjective well-being: An exploratory study among adolescents in an Asian atheist country. *Int J Psychol* 53: 97–106.
- Kartal MT (2020) The behavior of Sovereign Credit Default Swaps (CDS) spread: evidence from Turkey with the effect of Covid-19 pandemic. *Quant Financ Econ* 4: 489–502.
- Ko HC, Kuo FY (2009) Can Blogging Enhance Subjective Well-Being Through Self-Disclosure? *Cyberpsychol Behav* 12: 75–79.
- Kong F, You X (2013) Loneliness and Self-Esteem as Mediators Between Social Support and Life Satisfaction in Late Adolescence. *Soc Indic Res* 110: 271–279.
- Kruse P (2020) Spreading entrepreneurial news-investigating media influence on social entrepreneurial antecedents. *Green Financ* 2: 284–301.
- Kumar S, Calvo R, Avendano M, et al. (2012) Social support, volunteering and health around the world: Cross-national evidence from 139 countries. *Soc Sci Med* 74: 696–706.
- Kyung-Hee L (2012) The effects of gratitude enrichment program on school adjustment, life satisfaction & emotional-behavioral problems of children. *Korean J Elem Couns* 11: 107–122.
- Li T, Zhong J, Xu M (2020) Does the Credit Cycle Have an Impact on Happiness? *Int J Environ Res Public Health* 17.
- Liang TP, Ho YT, Li YW, et al. (2011) What Drives Social Commerce: The Role of Social Support and Relationship Quality. *Int J Electron Commer* 16: 69–90.
- Liu H, Li S, Xiao Q, et al. (2014) Social Support and Psychological Well-Being Under Social Change in Urban and Rural China. *Soc Indic Res* 119: 979–996.
- Liu Y, Li Z, Xu M (2020) The Influential Factors of Financial Cycle Spillover: Evidence from China. *Emerging Mark Financ Trade* 56: 1336–1350.
- Mellor N, Dufoix F, Saunder L, et al. (2018) Subjective well-being at work and its relationship with perceived social support. *Arch Mal Prof Environ* 79: 23–33.
- Mendonca C, Simoes F (2019) Disadvantaged Youths' Subjective Well-Being: The Role of Gender, Age, and Multiple Social Support Attunement. *Child Indic Res* 12: 769–789.
- Merida-Lopez S, Extremera N, Quintana-Orts C, et al. (2019) In pursuit of job satisfaction and happiness: Testing the interactive contribution of emotion-regulation ability and workplace social support. *Scand J Psychol* 60: 59–66.
- Moeini B, Barati M, Farhadian M, et al. (2018) The Association between Social Support and Happiness among Elderly in Iran. *Korean J Family Med* 39: 260–265.
- Moskowitz D, Vittinghoff E, Schmidt L (2013) Reconsidering the Effects of Poverty and Social Support on Health: A 5-Year Longitudinal Test of the Stress-Buffering Hypothesis. *J Urban Health-Bulletin New York Acad Med* 90: 175–184.
- Ott J (2015) Impact of Size and Quality of Governments on Happiness: Financial Insecurity as a Key-Problem in Market-Democracies. *J Happiness Stud* 16: 1639–1647.
- Ott JC (2010) Good Governance and Happiness in Nations: Technical Quality Precedes Democracy and Quality Beats Size. *J Happiness Stud* 11: 353–368.
- Peng H, Mao X, Lai D (2015) East or West, Home is the Best: Effect of Intergenerational and Social Support on the Subjective Well-Being of Older Adults: A Comparison Between Migrants and Local Residents in Shenzhen, China. *Ageing Int* 40: 376–392.



- Sánchez-Ollero J, García-Pozo A, Ons Cappa M (2020) Talent reward and gender wage gap in the hospitality industry. *Natl Account Rev* 2: 367–383.
- Sukharev OS (2020) Structural analysis of income and risk dynamics in models of economic growth. *Quant Financ Econ* 4: 1–18.
- Syed MW, Li JZ, Junaid M, et al. (2020) Relationship between human resource management practices, relationship commitment and sustainable performance. *Green Financ* 2: 227–242.
- Tian Q (2016) Intergeneration social support affects the subjective well-being of the elderly: Mediator roles of self-esteem and loneliness. *J Health Psychol* 21: 1137–1144.
- Twenge JM, Baumeister RF, Dwall CN, et al. (2007) Social exclusion decreases prosocial behavior. *J Pers Soc Psychol* 92: 56–66.
- Valente RR, Berry B JL (2016) Working Hours and Life Satisfaction: A Cross-Cultural Comparison of Latin America and the United States. *J Happiness Stud* 17: 1173–1204.
- Wang L, Wang H, Shao S, et al. (2020) Job Burnout on Subjective Well-Being Among Chinese Female Doctors: The Moderating Role of Perceived Social Support. *Front Psychol* 11.
- Yoon E, Hacker J, Hewitt A, et al. (2012) Social Connectedness, Discrimination, and Social Status as Mediators of Acculturation/Enculturation and Well-Being. *J Counsel Psychol* 59: 86–96.



AIMS Press

© 2021 the Author(s), licensee AIMS Press. This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>)