The effect of household head's employment status on subjective well-being of female spouses

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This paper examines the effect of household head's unemployment on subjective well-being of female spouses in Korea. Using six waves of data from the Korea Labor Income and Panel Study (2001, 2003-2007), we estimate an individual fixed-effects model of poor subjective well-being as a function of household head's employment status, own employment status, household income in the past month, and other factors. Estimation results suggest a considerable negative effect of household head's unemployment, which is comparable to that of poor self-rated health and of own unemployment, and much larger than the effect of typical ranges of income support. Policies promoting a flexible labor market in Korea should take into account these large but less visible societal costs of unemployment.

I. Introduction

The negative impacts of unemployment on workers' well-being have been widely recognized (Dolan, Peasgood, and White, 2008; Dooley, Fielding, and Levi, 1996). Employment provides not only material rewards for daily living but also various psychosocial benefits through important latent functions; 1) by imposing time structure on the working day, 2) by implying regularly shared experiences and contacts with people outside the nuclear family, 3) by linking individuals to goals and purposes that transcend their own, 4) by defining aspects of personal status and identity, and 5) by enforcing activity (Jahoda, 1981).

Economists and psychologists have proposed potential pathways how unemployment could affect subjective well-being, which can be classified into two distinct categories; 1) direct or pecuniary pathway by the reduction of disposable income, and 2) an indirect or non-pecuniary one through psychosocial factors (Winkelmann and Winkelmann, 1998). The effect size and potential pathways are important for evidence-based policies; for instance, if the

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harmful effect through financial loss is considerable, income replacement could be the most relevant approach. However, if factors other than pecuniary losses also have considerable effects, income replacement alone would not be adequate.

Although income and happiness is positively associated but with diminishing returns (Dolan, Peasgood, and White, 2008), Winkelmann and Winkelmann (1998) used data from the German Socio-Economic Panel to find that non-pecuniary effect of unemployment on well-being was found to be more important than the loss of income (pecuniary effect) due to unemployment. Several studies explored the effect of household unemployment on family members. Siegel *et al*. (2003), using data from the U.S. Health and Retirement Survey, show the negative effects of husband's unemployment on his wife, which were mediated through the change in mental health status of the husband rather than by financial distress. In addition, a study on Danish and Swedish children reports that children's health problems worsen when their parents do not participate in paid work, which could not be explained by the financial strain of unemployment alone (Reinhardt, Madsen, Kohler, 2005). Such studies imply that effects of unemployment affect the unemployed themselves but also their family members. In this case, the social cost of unemployment might be greater as previously estimated.

Most of the previous studies come from Western advanced societies, such as Germany (Winkelmann and Winkelmann, 1998), Australia (Headey and Wooden, 2004; Scutella and Wooden, 2008), Nordic (Reinhardt, Madsen, and Kohler, 2005) and the United States (Siegel *et al*., 2003), while there is little evidence from developing or emerging economies with inadequate welfare programs. In the case of Korea, despite its rapid economic development in the recent decades, social protection for the unemployed is weak with minimal family support policy. For example, without taking into account social assistance, the net replacement rate of over 60 months unemployment was only 6% in 2001 (vs. OECD average 40%) and income support to the working population amounted to 1.0% of GDP, which was the lowest in the 28 Organisation for Economic Co-operation and Development countries except for Mexico (OECD, 2008). From the experience of rapid economic development coupled with such weak welfare programs, hard work is perceived as a civic duty for national development and personal imperative for family subsistence, especially among men under a strong patriarchal order. It is, therefore, plausible that the non-pecuniary effect of unemployment on personal well-being could be far more salient in Korea than in many Western countries. Moreover, given the cultural legacy of patriarch and the poor quality of women's labor work in general, the non-pecuniary effect of unemployment may spill over to other household members, most importantly female spouses.

This study aims to estimate the effect of household head's unemployment on subjective well-being (hereafter, SWB) of female spouse in Korea, using longitudinal data from the Korea Labor Income and Panel Study. Our primary interest lies in the relative contribution of the pecuniary and non-pecuniary factors to link unemployment with SWB in the Korean context. This study makes several methodological contributions to the literature. First, our study exploits the longitudinal nature of the data to control for the potential endogeneity between employment status and subjective well-being (Winkelmann and Winkelmann, 1998). Second, our study differentiate unemployment from being out-of-workforce (or being economically inactive), thus allowing for a more conceptually valid and more precise estimation of the effect of unemployment. Third, this study uses data on household income in a more immediate period (in the past month rather than in the past year), thereby better separating out the non-pecuniary effect of unemployment from the pecuniary effect.

II. Methods

1. Data source and variables

We used data from the Korean Labor and Income Panel Study (hereafter KLIPS), a nationally representative longitudinal survey in Korea. KLIPS was launched with a survey of 5,000 households and 13,321 individuals in those households in 1998, with annual follow-up surveys conducted currently into 10^{th} wave (2007). The questionnaire was administered for all family members older than 14 years through personal interviews by trained personnel. KLIPS contains rich information on households and their members, including demographic variables, labor force participation, income, health status, and subjective well-being.

We used both individual-level and household-level data from the 4^{th} wave and 6-10^{th} waves of KLIPS, based on the availability of the study variables. We could not use data from the 1^{st} to 3^{rd} waves because data in these three waves do not include household income in the past month. We also excluded the 5^{th} wave because the variable on health status is not available from the data.

The dependent variable in this study is a binary variable of poor subjective well-being. KLIPS respondents were requested to answer the question, "How much are you satisfied in your life in general?" with a five-point scale from "very satisfied" to "very dissatisfied." We define the indicator variable as 1 if the respondent answered in "dissatisfied" or "very dissatisfied."

To construct key independent variables, we created a set of dummy variables of individual employment status. We defined unemployment=1 (otherwise 0) if the respondent was unemployed in the previous week, was seeking a job in the previous month, and would have taken a job opportunity if available. We also defined out-of-workforce=1 (otherwise 0) if the respondent was unemployed in the previous week, but was not seeking a job or and could not have taken a job opportunity even if available. One's having the value of 0 for these dummy variables would mean that the individual was employed according to the standard definition of employment in KLIPS, including unpaid family work of at least 18 hours per week. These three categories of employment status (unemployment, out-of-workforce, employment) are mutually exclusive, and we omitted the reference category of employment.

Other explanatory variables included household income, health status, and age. Household income was obtained from household-level data and defined a sum of six sources of income: labor income, financial income, real estate income, social insurance benefits, transfer income, and other incomes. We used the natural logarithm of this highly right-skewed variable. We defined an indicator variable of poor health status as 1 if the respondent's self-rated health was "poor" or "very poor." Finally, considering this study spans 8 years of duration, we also included age in the model. Table 1 presents summary statistics of the study variables for the study sample at the observation level.

<Table 1> Summary statistics of study variables (*N*=5,311 observations)

Study variable	Mean/Freq.	Std. Dev./%	Min	Max
Dependent variable				
Poor subjective well-being (yes=1, no=0)	1,654	31.1%	0	1
Key explanatory variables				
Unemployed household head (yes=1, no=0)	190	3.6%	0	1
Out-of-workforce household head (yes=1, no=0)	1,256	23.6%	0	1
Unemployed self (yes=1, no=0)	154	2.9%	0	1
Out-of-workforce self (yes=1, no=0)	2,508	47.2%	0	1
Other explanatory variables				
Logged household income in 10K Korean Won	4.7	1.47	0	9.9
Poor self-rated health (yes=1, no=0)	1,540	29.0%	0	1
Age, y	48.1	12.1	20	86
Year of survey				
2001 (4^{th} wave)	850	16.0%	0	1
2003 (6^{th} wave)	938	17.7%	0	1
2004 (7^{th} wave)	951	17.9%	0	1
2005 (8^{th} wave)	924	17.4%	0	1
2006 (9^{th} wave)	894	16.8%	0	1
2007 (10^{th} wave)	754	14.2%	0	1

2. Descriptive studies on employment status and subjective well-being

Table 2 presents the overall distribution of employment status of original KLIPS data and proportions of poor SWB by employment status. While the proportions do not vary widely between employed and out-of-workforce on average, the proportions of poor SWB are higher under the category of unemployed. This pattern is also true for the proportions calculated from the observations of female spouses used in the fixed-effects estimation in this study (Table 3). These findings may indicate that individual's own unemployment is correlated with poor SWB, which has been established in the literature. However, it is also possible that individuals may differ in their baseline level of SWB to begin with, leaving the question of causality to an open question.

<Table 2> Proportion of poor subjective well-being by employment status (KLIPS total)

Year	2001	2003	2004	2005	2006	2007
Employed						
# of observations	5,827	6,211	6,284	6,210	6,349	6,363
(column %)	(52.7%)	(53.8%)	(53.9%)	(53.6%)	(54.0%)	(53.4%)
Poor subjective well-being (%)	12.8%	9.8%	9.2%	8.0%	8.0%	7.4%
Out-of-workforce						
# of observations	4,953	5,022	5,054	5,027	5,083	5,275
(column %)	(44.8%)	(43.5%)	(43.3%)	(43.4%)	(43.2%)	(44.3%)
Poor subjective well-being (%)	14.6%	11.6%	10.8%	9.1%	9.1%	9.0%
Unemployed						
# of observations	271	308	323	343	324	276
(column %)	(2.5%)	(2.7%)	(2.8%)	(3.0%)	(2.8%)	(2.3%)
Poor subjective well-being (%)	33.2%	29.2%	26.8%	20.9%	24.8%	18.8%
	11,051	11,541	11,661	11,580	11,756	11,914
Total	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<Table 3> Proportion of poor subjective well-being by own employment status among female spouses

Year	2001	2003	2004	2005	2006	2007
Employed						
# of observations	423	463	477	464	439	383
Poor subjective well-being	40.2%	33.5%	30.4%	23.3%	27.1%	25.1%
Out-of-workforce						
# of observations	400	451	442	431	427	357
Poor subjective well-being	36.0%	34.8%	31.7%	26.7%	26.2%	28.9%
Unemployed						
# of observations	27	24	32	29	28	14
Poor subjective well-being	70.4%	62.5%	68.8%	51.7%	46.4%	42.9%
	850	938	951	924	894	754
Total	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

Note: Statistics are only for observations used in the fixed-effects estimation.

Turning to our research question, Table 4 shows that household head's unemployment status is also correlated with poor SWB of female spouses. One notable difference between Table 4 and the previous two tables is that household head's being out-of-workforce is consistently related with higher rates of poor SWB of female spouses than household head's being employed is, and that the differences are somewhat large. When examined for female spouses' own employment status (Table 3), such pattern is not observed.

<Table 4> Proportion of poor subjective well-being by household head's employment status among female spouses

Year	2001	2003	2004	2005	2006	2007
Employed household head						
# of observations	642	680	692	667	644	540
Poor subjective well-being	35.0%	33.5%	29.9%	23.5%	23.8%	24.1%
Out-of-workforce household head						
# of observations	183	223	226	215	212	197
Poor subjective well-being	49.7%	34.1%	37.6%	27.9%	34.9%	33.5%
Unemployed household head						
# of observations	25	35	33	42	38	17
Poor subjective well-being	68.0%	65.7%	45.5%	50.0%	44.7%	52.9%
Total	850	938	951	924	894	754

Note: Statistics are only for observations used in the fixed-effects estimation.

While this descriptive study from Table 4 may be suggestive of the negative effect of household head's unemployment on SWB of female spouses, the argument for the causation in the direction from unemployment to poor SWB is still weak. Household head's unemployment and female spouses' poor SWB can be two different aspects of underlying socioeconomic disadvantages that may confound the causal relationship (omitted variable bias). Moreover, household members' baseline level of SWB may affect their probabilities of being in the labor force either voluntarily or involuntarily (reverse causality). One way to make a stronger causal argument is to examining the correlation between changes in both phenomena within individuals (Table 5). Even when observed within individuals, household head's unemployment seems to be substantially correlated with poor SWB of female spouses. For example, the subsample of observations from the female spouses who newly experienced household head's unemployment between the previous year (t-1) and the current year (t) (No→Yes) shows a remarkable change in the probability of poor SWB from 23.5% to 47.0%. Furthermore, the transition of Yes→No shows a marked drop of the probability from 53.3% to 27.0%. Other two

cells experiencing no change over the one-year period do not exhibit such large changes. These findings may strengthen the causal argument for the negative effect of household head's unemployment on female spouses' SWB, but the question still remains to what extent non-pecuniary effects matter after accounting for the loss of income due to the unemployment.

<Table 5> Changes in household head's unemployment status and subjective well-being (SWB) of female spouses in *t*-1 and *t*

Unemployed household head in *t*−1	Unemployed household head in *t*		
	Yes	No	
Yes	51.4% → 48.6%	53.3% → 27.0%	Poor SWB (%): *t*−1 → *t*
	35 (n_{11})	122 (n_{10})	No. of observations
No	23.5% → 47.0%	30.7% → 28.5%	Poor SWB (%): *t*−1 → *t*
	115 (n_{01})	4,006 (n_{00})	No. of observations

Note: The number of observations in four cells (4,278=n_{11}+ n_{10} +n_{01}+n_{00}) and the number of households (1,033; first appeared survey for each household) add up to the total number of observations (5,311) used in the fixed-effects estimation.

3. Fixed-effects logistic estimation

We now estimate a fixed-effects logistic model of poor SWB as a function of household head's employment status, own employment status, household income, and other factors. This estimation only uses observations from individuals whose value of SWB changed at least once over the covered follow-up period, thereby substantially reducing statistical power. Moreover, the effects of time-invariant factors, such as education, cannot be estimated. However, this estimation allows for intra-individual comparison based on a more explicit counter-factual condition. We estimate the following model in the Eq. (1).

$$SWB_{iht}^{*} = \beta_1 HHHEMP_{iht} + \beta_2 OwnEMP_{iht} + \beta_3 HIncome_{ht} + \sum \beta X_{iht} + YEAR_t + \mu_{ih} + \varepsilon_{iht} \quad \text{Eq. (1)}$$

where $SWBiht^{*}$ denotes a latent variable for subjective well-being of individual *i*, household *h*, in the year *t*; *HHHEMP* a set of employment status dummies of household head (unemployed and out-of-workforce), *OwnEMP* another set of employment status dummies for self, *HIncome* for the household income, *X* a vector of time-variant individual factors (health status and age), *YEAR* year of survey, μ_{ih} individual fixed- effects, and e_{iht} for random error.

III. Results

Regression results suggest that household head's unemployment increases the probability of female spouse's suffering poor SWB while household head's being out-of-workforce does not (Table 6). The effect magnitude of household head's unemployment (0.844, OR=2.32) is close to that of own unemployment (0.918, OR=2.50). Interestingly, female spouse's being out-of-workforce decreases the probability of poor SWB compared with otherwise similar employed women. Coefficient estimates on household income and health status are statistically significant have a reasonable sign.

<Table 6> Fixed-effects logistic regression of poor subjective well-being (married women only)

	Coefficients with standard errors in parentheses
Employment status variables	
Unemployed household head	0.844***
	(0.19)
Out-of-workforce household head	0.22
	(0.14)
Unemployed self	0.918***
	(0.20)
Out-of-workforce self	-0.281**
	(0.11)
Other explanatory variables	
Logged household income	-0.205***
	(0.029)
Poor self-rated health	0.864***
	(0.098)
Age, y	0.278
	(0.26)
Number of observations	5,311
Number of individuals	1,033

Note: Year dummies were included in the estimation but are not presented in this table (all are statistically insignificant at the 5% level). *** $p<0.01$, ** $p<0.05$, * $p<0.1$

IV. Discussion

The results suggest that the non-pecuniary effect of household head's unemployment is considerable even for female spouse in Korea. The effect magnitude is comparable to that of own unemployment as well as of poor self-rated health. The importance of household head's employment status on female spouse's subjective well-being is further highlighted when its coefficient estimate (0.844) is compared with the coefficient estimate on logged household income (-0.205). These results indicate that the non-pecuniary effect of household head's unemployment on female spouse's SWB amounts to a substantial loss of household income. In other words, only a very large amount of household income subsidies would be able to mitigate the negative effect of unemployment on households.

Given the current labor market situation, these results provide an important implication for labor policy. Policies promoting a flexible labor market in Korea could have substantial yet less visible societal costs. Moreover, income support policies for the unemployed would be hardly adequate in relieving the negative household consequences of unemployment. Policymakers promoting a flexible labor market in Korea should take into account these societal costs.

In the methodological area, this study has made several important contributions to the international literature. First, we used recent panel data from an economy where labor market policies have increasingly become a major public concern. Using fixed-effects estimation, we account for the potential methodological issues. Second, we expand the scope of the related research by examining unemployment as a contextual factor at the household level. Our research question has another methodological advantage compared with previous studies linking own unemployment and subjective well-being: the potential issue of reverse causality in the immediate period is further weakened because it would be implausible that female spouse's subjective well-being affects household head's employment status. Third, this study uses detailed information available from KLIPS to construct a more reasonable empirical specification of employment status by separating unemployment from being out of the labor force. We found that married women out of the labor force may have favorable life satisfaction, thus requiring some caution for combining unemployment and out-of-workforce into a single category. Fourth, this study used information on household income in the past month, rather than in the past year, thus allowing for better capturing income effect of unemployment.

This study has several limitations. First, we only focused on female spouses in our empirical analysis. Examining gender differences or other types of household members (*e.g.*

children) was not feasible in the current data. Second, the model estimation included a small number of time-variable potential confounders, but it is possible that the model has omitted other important household or individual variables. Third, although the fixed-effects estimation can partially control for heterogeneity in responses, a binary variable of poor subjective well-being still is a crude measure of individual well-being. In our alternative estimation using the dependent variable of "very poor" subjective well-being, the fixed-effects estimation used only such a small number of individuals because of less variability in the variable. Future research could examine more measures for robustness checks and better construct validity.

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