CARE WORK AND THE ECONOMY

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THE TOLL AND REWARD OF FAMILY CAREGIVING: ELDERCARE IN SOUTH KOREA

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1. INTRODUCTION

In rapidly aging populations such as South Korea's, an increasing number of family members find themselves faced with hard decisions about how to care for aging parents and other relatives and are assuming caregiving responsibilities themselves. The population profile of South Korea had been changing so rapidly that, in fewer than 100 years, the median age of the population rose from 19 years in 1950 to 43.7 years in 2020 and is projected to rise further to 56.5 by 2050 (United Nations 2019b). Two underlying factors have contributed to this trend: a rapid increase in the average life expectancy at birth from 47.9 years in 1950-55 to 81.3 years in 2010-15 due to rising incomes and improved public health, and an even steeper decline in its total fertility rate from 5.1 births per woman in 1950 to 1.0 births per woman in 2018 (United Nations 2019a).

This dramatic demographic shift necessitates a structural change in care provisioning that must also take into account transformations in family structures due to Korea's rapid industrialization and urbanization, both overlaid on existing traditional social and cultural norms about family.[1] Although a growing share of care responsibilities are now borne by paid caregivers at home or in care centers, a significant share is still being met through family caregiving (Y. S. Kim et al. 2018). Family caregivers face many stressors related to care provisioning that affect the quality of their own life. The stressors might include controlling behaviors by care recipients which could cause physical and mental problems (Pinquart and Sörensen 2003; Vitaliano, Zhang, and Scanlan 2003; Smith et al. 2011), and time demands that impinge on the caregiver's ability to engage in other productive and social activities (Bauer and Sousa-Poza 2015; Smith et al. 2011). In Korea, these costs of family caregiving have significant adverse effects on the quality of life of caregivers, especially for daughters and daughters-in-law (Do et al. 2015).

The quality of life of family caregivers – their mental and physical functioning as well as their economic and social wellbeing – is important for at least two reasons. First, the caregivers' own quality of life is likely to affect the level and quality of care that they are able to provide. Decreased cognitive ability of informal caregivers' ability has been linked to the quality of care that they provide (Miller et al. 2006), and increased depression levels in caregivers are predictive of increased frequency of their potentially harmful behavior, such as verbal abuse towards their wards (Smith et al. 2011). Second, there is a need to minimize the health and mental risks to caregivers for their own benefit so that they are able to return to their previous employment and other activities once their care responsibilities end. Informal caregiving tends to reduce formal labor market participation both on the extensive

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[1] A strong tradition of filial piety means caregiving for frail elderly parents is the responsibility of adult children. As in other East Asian cultures, informal caregiving for disabled parents is embedded as an inseparable component of old-age support in traditional Korean culture (Sung 1990; 2001).

and intensive margins (Van Houtven, Coe, and Skira, 2013), but these effects vary by type and amount of care provided (Butrica and Karamcheva, 2014).

This paper focuses on the quality of life of family caregivers which in turn depends on the mental, physical, and opportunity costs—collectively referred to as the toll—that they incur due to caring for elderly family members. In 2018, the Care Work and the Economy (CWE-GAM) project team designed and conducted a special-purpose national survey of 501 households about family care provision to older people.[2] The survey collected self-reported information about the quality of life of the caregiver, detailed information about the mental and physical status of the elderly being cared for and the family caregiver, the time and effort spent on caregiving, and the extent to which that care work is shared with other household members or paid workers. Depending on the nature and gravity of the elderly care recipient's health, intensive caregiving may be required, exacting a corresponding burden on caregivers and the rest of the family.

The aim of this paper is to examine the quality of life of unpaid family caregivers and estimate the extent to which the costs that fall on them compare with rewards they perceive, measured as psychic satisfaction, from caregiving. The greater the costs relative to the rewards, the poorer the caregiver feels about her quality of life. Understanding the toll and rewards for family care providers can point to the kind and level of support that they themselves need.

2. ELDERCARE IN SOUTH KOREA: THE CONTEXT

In Korea, care responsibility for the elderly traditionally rests with family members, especially the eldest son whose wife is expected to be the main caregiver of her elderly parents-in-law (Do et al. 2015). Korea's rapid economic development and industrialization over the last few decades have been transforming the structure of the family and shifting the social norms and familial expectations related to care of the elderly. In particular, the implementation of the National Long-Term Care Insurance (LTCI), a universal care service system for older people in 2008, has signaled the beginning of a "de-familisation" of eldercare. (Y. O. Kim, 2021). Under LTCI, older people aged 65 and over (and people under 65 with chronic illness or disabilities) are eligible to receive support for an institutional care service or in-home services. LTCI is provided based upon approval of an application to avail the support; older people having difficulties with activities of daily living (ADLs) for at least

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[2] The survey was funded as part of a research grant from the William and Flora Hewlett Foundation to CWE-GAM project, a global research project led by American University. In collaboration with Center for Transnational Migration and Social Inclusion (CTMS) at Seoul National University, the team developed the concept and questionnaires for the survey and Gallup Korea was commissioned by the project to conduct the survey from September to December 2018.

6 months are approved to receive the care service (Ga, 2020). The institutional care service includes staying in nursing homes, while in-home services include the use of day/night care center services, home-visit care services by elder care workers, home-visit bathing services, etc. The percentage of those using long-term care services has been increasing rapidly, from 2.9 percent of the population aged 65 and over in 2008 to 9.6 percent of this population in 2019 (Kang et al., 2020). According to Statistics Korea, in 2008, 40.7 percent of people reported that the family should be responsible for the care of the elderly, but this fell to 27 percent by 2018, implying that more people now tend to believe that the society or government should be responsible for the care of older people.

Despite these shifts, the family remains a major source of eldercare in Korea because care services such as the LTCI are not sufficient to meet all care needs. According to the 2019 survey for LTCI, among recipients of benefits, only 26.9 percent used an institutional care service, and 48.6 percent used in-home care (Kang et al. 2020). For in-home care, the maximum home-visit care service allowed was four hours per day for LTCI levels 1-2 (that is, for the elderly with severe restriction of daily activities) and three hours per day for those in levels 3-5, with a family member typically providing care for the elderly person the rest of the day (Park, 2017). Given prevalent social norms, it is usually daughters and daughters-in-law who bear the care responsibility, but with spouses increasing their share of eldercare.

3. CAREGIVER'S BURDEN AND ITS EFFECTS ON THE QUALITY OF LIFE

There is a large body of literature on elderly care provision, its burden on caregivers, and its effect on the quality of life of caregivers. One recurring theme that emerges is how difficult it is to identify the factors that most influence the burden experienced by caregivers, let alone measure them. Some studies differentiate the overall cost of caregiving into subjective and objective burdens. The subjective burden generally relates to the feelings of the caregiver (feelings of guilt, ambivalence, anger and sense of loss) and how those differ according to the characteristics of the caregiver (Schene 1990), whereas the objective burden relates to the specific types of caregiving tasks performed and the time spent on those tasks (Montgomery, Gonyea, and Hooyman 1985). Although the subjective and objective burdens tend to be correlated, different factors predict each type of burden (Y. C. Chou et al. 2011). This typology of the care burden uses the perspective of the researcher, especially on how to measure the burden.

Another categorization of the burden of caregiving focuses instead on how the caregiver is affected. It differentiates among mental, physical, and opportunity costs. Mental, psychic, or emotional costs result from having to cope with the care recipient's level of disability (such as cognitive impairment, problematic behavior, and ADL limitations) and the caregiver's feelings about those conditions (such as feelings of overload), as well as any problems that arise as a result of caregiving in the family or at work (K.-R. Chou 2000; Connell, Janevic, and Gallant 2001; Amirkhanyan and Wolf 2003; 2006; M. Kim et al. 2009; Brown et al. 2019). In particular, the caregivers of people with dementia tend to suffer more stress and mental health problems themselves, partly because these recipients require long-term care, compared with caregivers of physically impaired older people (Dow et al. 2018). The changed social situation in which caregivers find themselves, such as the loss of social bonds outside the family due to time demands or feeling of lack of appreciation from the care receiver or other family members, are also sources of mental or emotional stress (Amirkhanyan and Wolf 2003; 2006; Coe and Houtven 2009).

Physical costs relate to the level of effort required by specific tasks, such as lifting the care recipient and the effects of these tasks on the health status of the caregiver (Chang, Chiou, and Chen 2010; Committee on Family Caregiving for Older Adults 2016). The physical burden of caregiving (which may include lack of sleep and loss of time for self-care) can lead to an increased risk for caregivers to develop health issues such as back problems, cardiovascular disease, and other chronic ailments (Brouwer et al. 2004; Zacharopoulou, Zacharopoulou, and Lazakidou 2015) and, thus, increase the health costs for caregivers themselves (Zhu et al. 2015). But the duration of caregiving also matters; for example, Coe and Houtven (2009) find that negative physical health effects begin to emerge only two years after the initial caregiving. Over time, women and men, especially married women, experience persistent depressive symptoms and decreases in self-rated health.

A third type of cost, opportunity cost, pertains to the indirect costs of caregiving which may include the value of the caregiver's lost earnings due to loss of employment and any reduction in the time for other caregiving or social activities. Two systematic reviews of empirical studies on the US, UK, and Canada conclude that caregiving is generally associated with a negative effect on female labor force participation (Lilly, Laporte, and Coyte 2007; Meng 2013). The magnitude of this effect varies from almost negligible to six fewer hours of labor market work per week for each additional hour of caregiving (Meng, 2013). Caregivers generally are able to balance their market work and caregiving when their care responsibilities are not heavy, but much less so when care work involves more than ten hours per week, particularly for women (Carmichael and Charles, 2003). In Korea, women who provide more than 10 hours of care per week participate in the labor force at 15.2 percentage points lower than those without any care burdens (Do et al., 2015). In China, women confront competing demands not only from work and caregiving in their families, but also from the care of elderly parents and their own young children (Liu, Dong, and Zheng, 2010). In the long-run, once caregivers reduce their market work, women, in particular, are unlikely to return to previous levels even after their caregiving responsibilities end. In contrast, in the U.K., caregiving men are not likely to leave the labor force or reduce their hours at the beginning of their caregiving commitment (Meng, 2013).

An immediate impact of providing care is to alter the caregiver's time allocation, leading to foregone time for social and leisure activities and perhaps also for caregiving to others in the household. Eldercare competes and interferes with one's social time with friends and kin that help develop and maintain personal relationships and with leisure time, often leading to depression (Amirkhanyan and Wolf, 2006; Yee and Schulz, 2000). The demands of caregiving reduce the amount of time that informal caregivers are able to spend with other family members and friends or with co-workers if they are employed (Fast, Williamson and Keating, 1999). Informal caregivers forego social, leisure, and personal development activities in order to fulfill their caregiving responsibilities. This effect of caregiving could increase feelings of depression and worsen life satisfaction. In Japan, a study of elder caregivers finds that caregivers who were able to engage daily in a hobby or a leisure activity in the home felt less burden from caregiving (Wakui et al., 2012).

Although caregiving imposes a significant toll on caregivers, there are also rewards from caregiving. It can lead to "an enhanced caregiver–care recipient relationship, personal growth, caring self-competence, satisfaction with social involvement, increased understanding of the aging process, ability to provide good care, and other specific uplifts in the caregiving process" (Amirkhanyan and Wolf 2003, p.818). These rewards can counterbalance the feeling of being burdened and depressive symptom scores while improving self-assessed health (Cohen, Colantonio, and Vernich, 2002; Khalaila and Litwin, 2011). Caregiving is not only about undertaking tasks to meet a recipient's personal needs but also about interactions that demonstrate "affective relations" (Folbre, 1995; England and Folbre, 2003). But there may also be an economic component to this reward in terms of a pecuniary exchange or an expected future bequest (Cantor and Hirshorn, 1989). As Folbre (2012) writes, "many unpaid caregivers in the family are not only motivated by tender affection but also expect some reciprocity in the form of mutual aid or future payback" (p. 598).

This study estimates how the aforementioned collective toll and rewards affect the quality of life of the caregiver. Measures of the quality of life of caregivers tend to be subjective and multidimensional, encompassing the caregiver's psychological, physical, emotional and social well-being, family relationships, and overall life satisfaction (Deeken et al., 2003; Lim and Zebrack, 2004; Brown et al., 2019). Researchers have constructed proxy measures of the quality of life that reflect broad health status (Dow et al., 2018), but such constructs cast the measure in terms of how researchers conceptualize quality of life rather than in terms of the respondents' own perceptions (Carr and Higginson, 2001). In contrast, a unidimensional response from the caregiver is more respondent-centered and simpler to analyze and interpret (Bowling, 2005). A note of caution about this approach, however, is that respondents may not understand the scales provided comparably.[3] In this paper, we use the direct responses from the caregiver to a question regarding the quality of life, but we use those responses within a multivariate analysis in which we control for the characteristics of the respondent as well as other factors.

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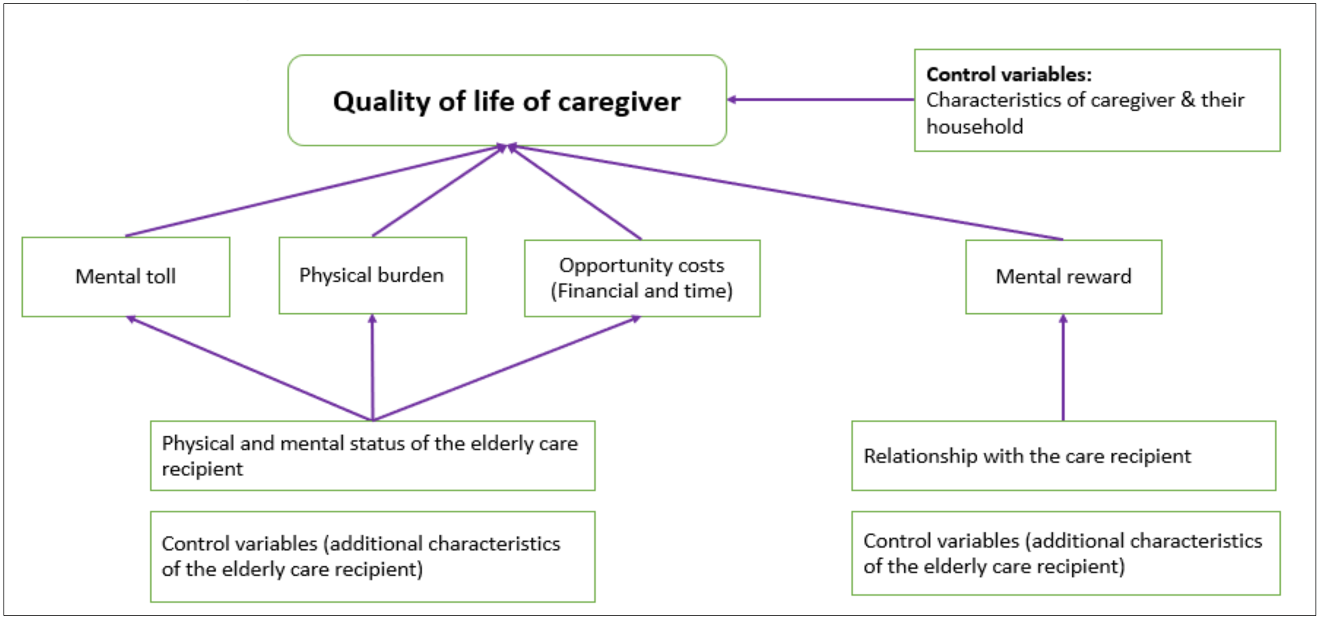
[3] "Despite the apparent signal in subjective well-being data, one could legitimately question whether one should give a cardinal interpretation to the numeric values attached to individuals' responses about their life satisfaction or emotional states because of the potential for personal use of scales" (Kahneman and Krueger, 2006, 18–19).

4. CONCEPTUAL FRAMEWORK AND EMPIRICAL MODEL

The balance between the toll and rewards of family caregiving determines the quality of life of the caregiver. We posit that the quality of life of an unpaid family caregiver depends on the toll of caregiving—the mental cost, physical burden, and opportunity costs it imposes on the caregiver—relative to the reward, as measured by the caregiver's feeling of satisfaction. The higher the toll relative to the perceived reward, the poorer the caregiver will feel about the quality of life, Q. But how toll and reward translate into quality of life is influenced by mediating factors such as the characteristics of the caregiver and the household, which are meant to proxy for the resilience of the caregiver and the availability of household resources to support the caregiver. The poorer the household and the fewer the support resources for caregivers within it, the heavier the burden of the costs of caregiving. Due to data constraints, our measure of the rewards of caregiving is limited to the mental or emotional reward. Figure 1 presents a simple illustration of the basic conceptual model that underlies our empirical analysis.

Figure 1: A conceptual framework for how toll and reward of eldercare affects the quality of life of the caregiver



Notes: Authors' diagram.

In equation form, this general conceptual framework can be expressed as a system of equations,

$$Q_i = f(C*_i, R*_i, X_i, v_i) \qquad [1]$$

in which Q_i, the quality of care of caregiver i, is a function of a vector of different costs (C*) and rewards (R*) to caregiving, a vector of control variables (X) and a random error vector (ν). X_i pertains to the characteristics of caregiver i, such as gender, age, and employment status, and several household characteristics such as household size, location, presence of young children, and income. Each cost C and reward R component of the respective C* and R* vectors can be written, in turn, as,

$$C_i = aZ_i + e_i \qquad [2]$$
$$R_i = rY_i + w_i \qquad [3]$$

where Z pertains to the characteristics of the elderly being cared for, such as age, gender, and the mental and physical status of the elderly, and Y includes the relationship of the caregiver to the elderly person. As mentioned above, we use only one measure of reward in our estimation model.

We estimate this system of relationships of the quality of life of the caregiver as a generalized structural equations model (GSEM) using maximum likelihood estimation. In this approach, we explicitly recognize that the costs and rewards of caregiving are themselves endogenous and are functions of measures of the elderly's mental status, physical capacity, and household characteristics. We use as direct measures of the different costs and rewards the responses by the caregivers to specific survey questions, discussed in the next section.[4] A structural equations model allows us to establish the pathways through which the individual costs and reward of caregiving affect the quality of life of the caregiver, as well as how characteristics of the elderly and the caregiver influence those costs and reward. By directly estimating the relative effects of the different costs and reward on the caregiver's quality of life, we are able to identify how the caregiver's quality of life might be improved. This structural approach is different from previous studies that have also used multivariate analysis but have obtained reduced-form estimates (e.g. Amirkhanyan and Wolf, 2006; Abdollahpour et al., 2018). In addition, by using maximum likelihood estimation, we are able to take into account the fact that the different costs may be correlated with each other, such as when a heavy physical burden or a high opportunity cost also increases the mental

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[4] In STATA, we use the GSEM command to estimate this model. An alternative to estimating the model using maximum likelihood estimation is to estimate a two-stage model which would involve estimating each cost and reward equation in a first stage (perhaps using Seemingly Unrelated Regressions method) and then to use the predicted values of the costs and returns in the quality-of-life equation. The shortcoming of this alternative method is that it does not allow for interdependencies between the endogenous variables. Recognizing that the costs likely are interrelated, we estimated a Seemingly Unrelated Regression model (SUR) of the cost equations to ascertain that the GSEM estimates are not significantly different from the SUR estimates.

cost, or when the caregiver's health suffers because of the emotional stress from observing a loved one's health decline.

5. DATA AND MEASUREMENT

For the empirical application of the models, we use the data from the 2018 Care Work Family Survey in Korea (Eun et al., 2018), which was collected as a part of the Care Work and the Economy (CWE-GAM) project that aimed to enhance the understanding of the nature and value of care work and to incorporate care into macroeconomic models. As the survey was developed to provide a comprehensive picture of care work in Korea, it contains detailed information on caregivers and care recipients, on care arrangements of the household, as well as on the physical, psychological, and economic burden of the caregivers, which enable us to explore the cost of caregiving from various dimensions.

The survey drew a nationally representative sample of 1,000 households in Korea that provide care either for an older adult(s) or child(ren). For this study, we used the eldercare sample, which consists of 501 caregivers who take care of a person aged 65 or older who needs help in maintaining daily life due to frailty or sickness. Because we do not know the population distribution of caregivers, the population distribution of the people aged 65+ was used to draw the sample. Only main caregivers were eligible for the interview: people who consider themselves as mainly responsible for the care of the older person(s) and who either live with the older person(s) and provide care or who do not live with them but visit at least three times a week providing a minimum of two hours of care per visit.[5]

Table 1 provides an overview of the family caregiver characteristics. The vast majority (85 percent) of them are women, with an average age of 56.5 years. Most of the respondents are married (90.5 percent), and most (69.6 percent) were not employed in paid work at the time of the survey. Respondents generally are highly educated, with 61.6 percent completing secondary school, and 19.4 percent holding a college degree or higher. In terms of the relationship to the care recipient, 36.8 percent of the respondents are the care recipients' daughters-in-law and 35 percent are daughters. The rest of the caregivers are spouses of the elderly care recipient (15.6 percent) or sons (10.8 percent). About half of the respondents live in metropolitan areas, less than one-third live in medium or small sized city (30.5 percent), and just under one-fifth live in the county (18.9 percent). Only 16.4 percent reported that they had at least one child aged less than 18 living with them. The sample households are fairly equally distributed across the household income groups.

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[5] More detailed information about the survey can be found in Jun et al. (2021).

Table 1: Family caregiver and household characteristics

Characteristic	Mean/Percentage
Caregiver characteristics	
Age (years)	56.5 [9.82]
Female (=yes)	84.7
In Couple (=yes)	90.5
Relationship to the older person	
Daughter	35.0
Daughter-in-law	36.8
Son	10.8
Son-in-law	0.2
Spouse	15.6
Other	1.6
Highest level of education attained	
Middle school or less	20.0
Secondary school	61.6
College or higher	18.4
Employment status	
Employed	29.4
On leave	1.0
Unemployed, looking for work	5.6
Unemployed, not looking for work	64
Household size	3.2[1.15]
Children aged less than 18 present	16.4
Residence owned	92.9
Monthly Household income	
KRW 2,500,000 or below	21.8
KRW 2,500,000~ 3,500,000	21
KRW 3,500,000~4,500,000	21.3
KRW 4,500,000~5,500,000	19.6
KRW 5,500,000 or above	16.3
Urban residence	50.6
Locality	
Metropolis	50.1
Small or medium sized city	30.5
County	18.9
Observations	501

Source: 2018 Care Work Family Survey
in Korea
Notes: Means and percentages were computed using analytic weights. Standard deviations are given in brackets for means.

Table 2 provides an overview of elderly care recipient characteristics. Most elderly care recipients (62 percent) reside with the caregiver. The mean age of the elderly care recipients is 81.3 years, and slightly more than half (57.3 percent) are female. Only 0.8 percent of elderly care recipients were reported to have severe dementia, as older people with severe dementia generally are more likely to be in facilities and thus would not be included in our sample. Slightly more than half (54.5 percent) of the care recipients do not have dementia, while 15.2 percent have moderate dementia and 29.5 percent have mild dementia. To measure the level of daily life constraints of the older people, the survey included questions about the average number of activities that the older person can perform without assistance, such as whether the older person can use the bathroom by him/herself, whether he/she can get around inside and outside of the house without help, etc. Care recipients in the sample are found to be able to perform 2.4 activities out of a total of eight activities on average.[6]

Table 2: Characteristics of elderly care recipient

Characteristic	Mean/Percentage
Age (years)	81.3 [6.98]
Female (=yes)	57.3
Co-resident with respondent	62.0
Dementia status	
None	54.5
Mild	29.5
Moderate	15.2
Severe	0.8
Number of activities able to perform independently	2.4 [1.53]
Observations	501

Source: 2018 Care Work Family Survey in Korea
Notes: Means and percentages were computed using analytic weights. Standard deviations are given in brackets for means. Family caregivers were asked whether the elderly care recipient was able of performing eight different activities of daily living (e.g. preparing and eating meals and drinks,

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[6] To be considered as being in need of assistance, the care recipient should be able to do less than six daily activities independently.

dressing appropriately, using public transportation, etc.). To be eligible for the survey, elderly care recipients could be able to perform a maximum of five such activities without assistance.

For the analysis, we use the self-reported responses to direct questions about the different costs and reward of caregiving, as well as the self-reported response to the question about the quality of life of the caregiver.[7] The survey questions and possible responses were:

- Mental toll: In general, how much stress do you have taking care of the elderly person? (Not stressful at all, not too stressful, neutral, a bit stressful, very stressful)
- Physical burden: In general, how much physical difficulty do you have taking care of the elderly person? (Not difficult at all, not too difficult, neutral, a bit difficult, very difficult)
- Opportunity cost:
  (i) How is your household's current financial situation compared to when you started taking care of the elderly person? That is, has your financial situation worsened compared to when care started? (Our financial situation worsened a lot, slightly worsened, there isn't much difference, slightly improved, improved a lot)
  (ii) Please indicate whether the following statement describes your situation: I feel lack of time to take care of other family members because I need to take care of the older person (strongly disagree, disagree, neutral, agree, strongly agree)
- Mental or emotional reward: What do you think of the following statement: I feel proud of myself for taking care of the older person? (Strongly disagree, disagree, neutral, agree, strongly agree)
- Quality of life: How satisfied are you with your life in general? (Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied)

Table 3 presents the descriptive statistics for each cost component by gender. The majority of respondents (64.5 percent) found caregiving stressful; only 7.8 percent reported that they did not. More than 60 percent of caregivers reported physical strain from the caregiving, with 12 percent finding caregiving physically very difficult. In terms of the financial opportunity cost, 27.7 percent of the caregivers experienced a worsening of financial situation with caregiving. For time cost, about half of the respondents answered that they felt a lack of time to provide care for other family members or to do housework due to the care responsibility for the elderly. 37.2 percent of caregivers reported that caregiving makes them feel proud of themselves, and about half of the caregivers found caregiving as meaningful. For our response variable, quality of life, only 25.1 percent answered that they are satisfied with their life in general. The largest group was neutral,

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[7] The survey contains additional questions that can be used to measure toll and reward of the caregiving, such as level of depression and various types of time costs. For more details and discussion of these measurements, refer to Jun and King (2020).

which was people who reported that they are neither satisfied nor dissatisfied. 19 percent reported that they are not satisfied with their life.

In our analysis, we condense the categories to reflect the limited observations in the tails of the distributions. For instance, the mental toll was coded as 1= not stressful if the respondent found the caregiving either not too stressful or not at all stressful, 2=neutral if the respondent found it neutral, 3=stressful if the respondent found the caregiving either a bit stressful or very stressful.

Table 3: Descriptive statistics for the toll, reward, and quality of life of caregiver

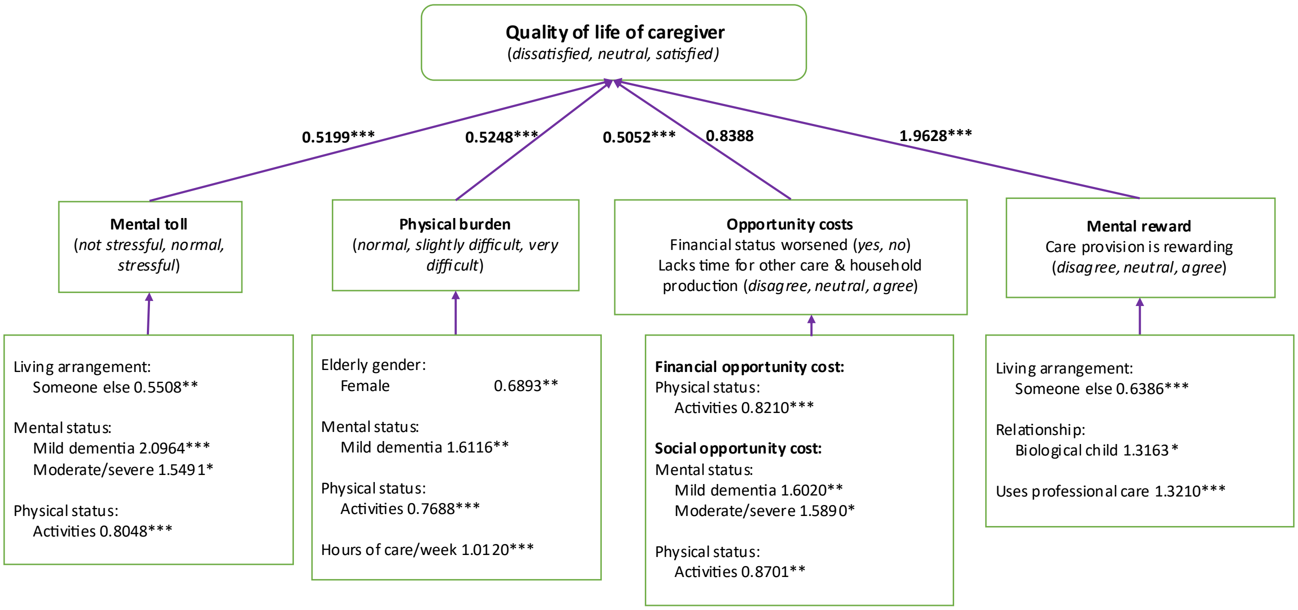
Variable	Measurement	Men	Women	Full Sample
Mental Toll	Amount of stress			
	Not Stressful	14.4	6.6	7.8
	Neutral	30.4	27.2	27.7
	Stressful	55.2	66.2	64.5
Physical Burden	Physical strain			
	Not Difficult	19.7	7.7	9.6
	Neutral	29.7	24	24.9
	Slightly difficult	39.4	56	53.5
	Very difficult	11.2	12.2	12.1
Opportunity cost: Financial	Worsened financial situation			
	Yes	34.5	26.5	27.7
	No	65.6	73.5	72.3
Opportunity cost: Time	Lack of time to provide care or do housework			
	Disagree	30.7	16.2	18.4
	Neutral	29.5	32.2	31.8
	Agree	39.8	51.6	49.8
Reward	Providing care causes feelings of pride			
	Disagree	6.5	17.9	16.2
	Neutral	54.7	45.2	46.7
	Agree	38.8	36.9	37.2
Quality of Life	General level of life satisfaction			
	Dissatisfied	13.9	20.0	19.1
	Neutral	61.8	54.7	55.8
	Satisfied	24.3	25.3	25.1
Observations		76	425	501

Source: 2018 Care Work Family Survey in Korea
Notes: Percentages were computed using analytic weights. Mental toll refers to how much stress is reported due to taking care of the elderly care recipient, with ordered responses collapsed to be "not stressful," "normal," or "stressful." Physical burden refers to how much physical strain is reported due to caregiving, with ordered responses collapsed to be "not difficult/normal," "slightly difficult," or "very difficult." Financial opportunity cost is a yes or no response to whether the respondent's financial situation has worsened compared to when care started, while time opportunity cost refers to whether a respondent reports lacking time to provide care or do other housework due to eldercare, with ordered responses collapsed as "disagree," "neutral," or "agree."

6. RESULTS

As discussed above, the direct responses to the survey questions about the quality of life, costs and reward are discrete and ordered, so we use ordered logit specification in our estimation. The estimated proportional log odds ratios of the structural model are presented in Figure 2, following the conceptual framework in Figure 1. Figure 2 highlights the statistically significant predictors of the individual toll and reward measures, and summarizes the contributions of the different costs and reward to the affect the quality of the life of the family caregiver. Full results, including the estimated coefficients of the control variables are given in tables in the appendix.

Figure 2: Estimation results for how toll and reward of eldercare affect the quality of life of the caregiver



Notes: Log-odds ratios shown were obtained by estimating Eqs. 1-3 using a generalized structural equations model. Statistical significance: * p<0.1, ** p<0.05, *** p<0.01.
Data source: Authors' calculations using 2018 Korea Paid Care Workers Survey.

Focusing first on how the different costs and reward affect the caregiver's reported quality of life, we find that a caregiver who experiences either heavier mental toll, physical burden, or worsened financial status is approximately half as likely to report being satisfied with her life as not. These three costs have about the same effect on the quality of life, while the effect of time opportunity costs (that is, loss of time for other care and household production) is not statistically significant. A caregiver who finds caregiving rewarding is nearly twice as likely to report a high quality of life.

Turning to the predictors of cost and reward, we find that a caregiver who reports that someone else lives with the elderly care recipient is roughly half as likely to report a stressful (high) mental toll (odds ratio of 0.5508, p=0.02), compared with those caregivers who report being co-resident with the elderly care recipient. Living arrangement does not enter significantly for physical burden or either of the opportunity cost measures. However, caregivers who report someone else living with the elderly care recipient also are much less likely on average to report perceiving care as rewarding (odds ratio of 0.6386, p=0.01), all else constant.

As with previous studies, we find that taking care of an elderly person with dementia produces higher mental and physical stress. If the elderly care recipient has mild dementia, the caregiver is twice as likely (odds ratio of 2.096, p=0.00) to report a high mental toll compared with caring for an elderly care recipient with no dementia. Moderate/severe dementia also increases the likelihood (odds ratio of 1.5491, p=0.08) of mental stress, but there is some right-censoring bias here because those elderly persons with severe dementia are more likely to have been receiving care in an institution rather than at home and, thus, will have been missed by our survey. We also find that caregivers who provide care to an elderly recipient with mild dementia are more likely to report a higher degree of physical burden (odds ratio of 1.612, p=0.02).

Increased physical independence among elderly care recipients, measured as the number of daily activities they are able to do without assistance, is associated with lower mental and physical toll, less financial burden, and reduced loss of time for other care or household production. Hours of care provided per week was significant only for increasing physical burden, with a slightly increased likelihood of high physical toll (odds ratio of 1.0120, p=0.01). We also find that decreased physical capacities of the elderly is correlated with the presence or absence of dementia. In our sample, on average, elderly care recipients without dementia in the sample could perform 2.8 activities compared with only 1.5 activities for those with moderate/severe dementia.

On the reward of caregiving, it matters whether the caregiver is a biological child of the elderly care recipient, more likely a daughter since the large majority of the caregivers in our sample is female. Being a daughter of the elderly significantly increases the likelihood of finding care rewarding (odds ratio of 1.3163, p=0.07). Being able to use paid care services also significantly increases the likelihood of finding care rewarding, all else constant (odds ratio of 1.3210, p=0.01), which may be due to the fact that external care services are more likely to be used in the case of elderly persons with higher dementia scores. We find that 52 percent of family caregivers caring for elderly recipients with moderate/severe dementia report using external care services, compared with only 22 percent of those caring for elderly recipients with no dementia. These external services probably allow family caregivers to focus on caregiving tasks that they find more rewarding or to find time and space for their self-care.

With respect to the control variables in the caregiver's quality of life equation, being employed and being a caregiver reduces the quality of life (odds ratio of 0.5506, p=0.02), but the presence of children, household size, and wealth are not statistically significant. Lastly, we find that living in a county (versus a metropolitan area) improves the quality of life (odds ratio of 2.5803, p=0.00).

7. DISCUSSION AND POLICY IMPLICATIONS

Family members continue to be the predominant providers of eldercare in Korea, but their role as care providers depends on their ability to protect a minimum level of quality of life. Caring for elderly persons can come at a heavy cost to the mental, physical, financial and social well-being of family caregivers, but evidence shows that caregivers also perceive rewards from caregiving. In this paper, we examined to what extent the full toll of caregiving and its reward affect the quality of life of family members who care for elderly family members. We estimate a generalized structural model equations model that explicitly recognizes that the quality of life and the costs and rewards of caregiving are all endogenous variables affected by several factors representing the characteristics of the elderly care recipient, the caregiver, and the household. We analyzed data collected by the 2018 Korea Care Work Family Survey from a random sample of 501 households from the population in which family care was being given to an elderly person.

Our results contribute to the literature on other countries about the quality of life of the caregiver. In summary, we find that the quality of life of the caregiver is indeed affected significantly by the different costs of eldercare as well as the reward felt or expected from caring from an elderly relative. The mental, physical and financial costs of caregiving have about an equal effect on the quality of life of the caregiver, and these costs appear to be outweighed by the psychic or emotional reward felt by the caregiver. The factor that most significantly adds to the toll of caregiving is the mental state of the elderly person. The degree of cognitive impairment of the elderly significantly increases the mental and physical stress felt by the caregiver. The care of persons with dementia may involve dealing not only with the cognitive limitations but also with challenging behavioral problems. In addition, the greater the number of the functional activities that the elderly is capable of undertaking without help from the caregiver, the lower the probability of mental and physical stress for the caregiver.

Our findings imply that family caregivers themselves require care and support. Previous studies have evaluated the effectiveness of a number of interventions and provide lessons for designing such interventions.

Develop and pilot valid measures of the well-being of caregivers that are suited to Korean culture.

While public programs and instruments are available to measure the cognitive and physical functions of elderly people, the mental and physical conditions of caregivers are generally not measured unless they visit their own health providers, thereby missing the opportunity to identify the onset of their own emotional and physical problems (K.-R. Chou, 1997; Dow et al., 2018). Depression, anxiety, drug use and cardiovascular diseases are among the health problems that affect long-term caregivers. Vitaliano et al. (1989) developed the Screen for Caregiver Burden to appraise the level of distress felt by the caregiver, but this has been applied mainly in the U.S., Canada, and U.K. (K.-R. Chou 1997). In England, the Care Act 2014 gives all caregivers new legal rights to assess their needs. The Personal Social Services Survey of Adult Carers in England (Carers' Survey) was included in a national survey of whether social care users and caregivers feel that the social care they receive improves outcomes (Manthorpe and Bowling 2016). This caregiver-reported QoL score is based on responses to six questions, including one on satisfaction with care services.

Promote educational programs to increase the competence and confidence of family caregivers.

Unlike health professionals and paid caregivers, family caregivers typically undertake their care responsibilities without any formal training. Educational programs can provide valuable information to caregivers (and other family members), such as what challenges to expect in caring for the elderly with progressive dementia and thus help caregivers to develop coping mechanisms to enhance their self-efficacy, emotional functioning, and problem-solving skills. These programs can help the caregiver and the rest of the family manage their caregiving need, such as how to manage episodes of agitation, irritability, and aggression from someone they know and love.

In the U.S., education interventions have been designed to provide caregivers with critical information that will enhance their abilities to provide care and cope with the associated stresses (Blackburn and Dulmus, 2007). Many of these programs are intended to either increase the knowledge or skills of caregivers to provide care or address their emotional needs by teaching self-care or coping skills, and skill-focused programs about direct care skills and behavior management.

Establish psychosocial support programs for family caregivers, such as family counseling, help-lines or online help programs, respite care, and peer support groups.

Several studies have examined the effectiveness of support programs for caregivers. Many of these programs combine educational interventions with support, "safety net" type of interventions. A systematic review of 14 studies evaluated different psychosocial interventions that offer services, including education, skill-building, counselling, information and emotional support (Lopez-Hartmann et al., 2012). While not all reviewed studies reported positive outcomes for the caregivers, one lesson is that customized services for the caregiver's situation are more effective. In the U.S., counseling interventions designed to identify specific individual needs of the caregiver can improve the caregiver's understanding of problematic behaviors and their reactions to the caregiving experience (Acton and Kang, 2001). Counseling can be done through group meetings or through individual meetings with family members; the latter are tailored to address the caregiver's individual needs and problems. The National Family Caregiver Support Program, created in the U.S. in 2000, is a federally based program administered by the states that provides comprehensive services: information to caregivers about available services; assistance to caregivers to access to these services; individual counseling, organization of support groups and caregiver training to assist caregivers in making decisions and solving problems relating to their caregiving roles; adult daycare or emergency respite to enable caregivers temporary relief from their caregiving responsibilities; and supplemental services, on a limited basis, to complement the care provided by caregivers (Whittier, Scharlach, and Dal Santo (2005). The evaluations of this program in California point to service gaps however, particularly that of providing culturally and linguistically appropriate caregiver services and services in rural areas. ICT technologies can be used to facilitate long-distance education and instant communication among multiple locations, promising a way to meet the specific educational and support needs of family caregivers.[8]

Develop post-caregiving support programs to family caregivers of elderly individuals.

Caregiving research and practice have focused primarily on caregiving activities but not on the post-caregiving stage when the caregiver may have to cope with the death of the care-receiver. Caregivers face ongoing emotional transitions and losses following the death of the care recipient, including coping with the grieving process and rebuilding one's identity and perhaps employment status. These point to a need for appropriate services and support. Unlike paid caregivers, most family caregivers who have had to leave their jobs in order to provide full-time care do not have formal caregiving jobs to which to return. Support programs to help post-caregivers develop a new role, reengage with friends, return to the labor market, or take up community voluntary activities could help them deal with the feelings of loss associated with the termination of their caregiving task and the death of a spouse or parent (Jameson, Parkinson, and Banbury, 2020).

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[8] Glueckauf et al. (2004) describes the development and implementation of an Alzheimer's Caregiver Support Online (also known as AlzOnline) program in the U.S., an Internet- and telephone-based education and support network for caregivers of elderly persons with progressive dementia. A key feature of AlzOnline is a series of six 45-minute live, interactive classes that focus on managing stress, enhancing interpersonal communication and family relationships, promoting emotional well-being, and setting and implementing personal caregiving goals. A preliminary evaluation of the program showed substantial improvements in the caregivers' perceptions of self-efficacy in performing routine caregiving duties and managing challenging care recipient behaviors.

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APPENDIX

Table A1: Pairwise correlations of toll measures

	Mental toll	Physical burden	Opportunity cost: Financial	Opportunity cost: Time
Mental toll	1.0000			
Physical burden	0.5963	1.0000		
Opportunity cost:				
Financial	0.2189	0.1645	1.0000	
Opportunity cost: Time	0.2477	0.2668	0.0435	1.0000

Notes: Mental toll refers to how much stress is reported due to taking care of the elderly care recipient, with ordered responses collapsed to be "not stressful," "normal," or "stressful." Physical burden refers to how much physical strain is reported due to caregiving, with ordered responses collapsed to be "not difficult/normal," "slightly difficult," or "very difficult." Financial opportunity cost is a yes or no response to whether the respondent's financial situation has worsened compared to when care started, while time opportunity cost refers to whether a respondent reports lacking time to provide care or do other housework due to eldercare, with ordered responses collapsed as "disagree," "neutral," or "agree."

Table A2: Effects of toll and reward on caregiver's quality of life

	(1) Quality of life of caregiver				
	Odds ratio	Std. Err	p-value	[95% Conf. Interval]	
Toll & Reward					
Mental toll	0.5199***	0.0897	0.00	0.3707	0.7292
Physical burden	0.5248***	0.0894	0.00	0.3758	0.7328
Financial status (worsened)	0.5052***	0.1146	0.00	0.3238	0.7882
Lacks time for other care & household work	0.8388	0.1121	0.19	0.6455	1.0900
Mental reward	1.9628***	0.2849	0.00	1.4768	2.6087
Controls					
Age	1.0268	0.0992	0.78	0.8497	1.2409
Age^2	0.9997	0.0008	0.75	0.9982	1.0013
Caregiver gender (=female)	0.9056	0.2519	0.72	0.5250	1.5620
Employed (=yes)	0.5506**	0.1428	0.02	0.3312	0.9153
Child present (=yes)	1.2051	0.4527	0.62	0.5771	2.5162
Household size	1.1289	0.1285	0.29	0.9032	1.4110
Locality					
Metropolis	1.0000	(empty)			
Small/medium city	1.0985	0.2451	0.67	0.7094	1.7010
County (eup, myeon)	2.5803***	0.6719	0.00	1.5488	4.2986
Wealth - household income quintile					
Below 100~250	1.0000	(empty)			
250~350	1.3337	0.4145	0.35	0.7253	2.4524
350~450	1.3396	0.4457	0.38	0.6979	2.5714
450-550	1.5149	0.5607	0.26	0.7334	3.1292
550 or above	1.8368	0.7261	0.12	0.8464	3.9861

Notes: Results presented in Table A2—A3 are estimated simultaneously using maximum likelihood estimation. Statistical significance is denoted as p<0.01***, p<0.05**, and p<0.1*. Robust standard errors are reported. Quality of life refers to how satisfied the respondent reported being with their life in general (dissatisfied, neutral, or satisfied).

Table A3: Estimated effects on individual toll measures

	(2)		(3)		(4)		(5)	
	Mental toll		Physical burden		Opportunity cost: Financial status worsened		Opportunity cost: Lacks time	
	Odds ratio	Std. Err	Odds ratio	Std. Err	Odds ratio	Std. Err	Odds ratio	Std. Err
Elderly gender (=female)	0.7653	(0.1346)	0.6893**	(0.1253)	0.9186	(0.1896)	0.8553	(0.1534)
Living arrangement								
Respondent lives with elderly	1.0000	(-)						
Someone else lives with elderly	0.5508**	(0.1454)	0.8900	(0.2500)	1.3624	(0.4424)	1.1384	(0.3022)
Elderly lives alone	0.8684	(0.2289)	1.3230	(0.3379)	1.0531	(0.3167)	1.0699	(0.2651)
Dementia status								
No dementia	1.0000	(-)						
Mild dementia	2.096***	(0.4361)	1.6116**	(0.3328)	0.9752	(0.2347)	1.6020**	(0.3229)

Moderate/severe dementia	1.5491*	(0.3826)	0.6533	(0.1738)	0.9888	(0.2992)	1.5890*	(0.4141)
Activities elderly can perform	0.8048***	(0.0503)	0.7686***	(0.0468)	0.8210***	(0.0591)	0.8701**	(0.0533)
Hours per week spent on care	0.9970	(0.0040)	1.0120***	(0.0044)	1.0069	(0.0045)	1.0007	(0.0039)

Notes: Results presented in Table A2—A3 are estimated simultaneously. Significance is denoted as p<0.01***, p<0.05**, and p<0.1*. Robust standard errors are reported. Mental toll refers to how much stress is reported due to taking care of the elderly care recipient, with ordered responses collapsed to be "not stressful," "normal," or "stressful." Physical burden refers to how much physical strain is reported due to caregiving, with ordered responses collapsed to be "not difficult/normal," "slightly difficult," or "very difficult." Financial opportunity cost is a yes or no response to whether the respondent's financial situation has worsened compared to when care started, while time opportunity cost refers to whether a respondent reports lacking time to provide care or do other housework due to eldercare, with ordered responses collapsed as "disagree," "neutral," or "agree."

Table A4: Determinants of reward of caregiving

	(6)	
	Mental reward	
	Odds ratio	Std. Err
Elderly gender (=female)	1.1009	(0.1158)
Living arrangement		
Resp lives with elderly	1.0000	(-)
Someone else lives with elderly	0.6386***	(0.1030)
Elderly lives alone	0.9752	(0.1280)
Relationship to elderly		
Elderly's spouse	1.0000	(-)
Biological child	1.3163*	(0.2012)
Son/daughter-in-law	0.1617	(0.3200)
Other relative	0.9540	(0.3438)
Uses formal care (=yes)	1.3210***	(0.1415)

Notes: Results presented in Table A2—A3 are estimated simultaneously. Significance is denoted as p<0.01***, p<0.05**, and p<0.1*. Robust standard errors are reported. Reward refers to whether taking care of the elderly allows the respondent to feel proud (disagree, neutral, or agree).