Plight of the Elderly: Senior Citizen Allowance & Gender Disparities in Economic & Behavioral Outcomes

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Broad Overview

- Global population over 60 years will nearly double from 12% to 22% between 2015 and 2050, with 80% of older people living in low- and middle-income countries by the end of 2050 (WHO, 2019)
- Poverty rates among the elderly are substantially higher in developing countries where social security coverage is limited (Bando et al., 2020)

Nepalese Setting

- Nepal implemented the old age allowance program in 2008 that provides a monthly payment of 3000 Rupees for all residents aged 70 and over, including a monthly medical allowance of 1000 Rupees
- To quantify economic and behavioral outcomes, this article makes use of binary indicators related to ownership of economic assets and healthy practices, measures of food security and household composition

Objectives of Study

- Relationship between senior citizen allowance program and economic / behavioral outcomes
  - Binary indicators related to ownership of economic assets and healthy practices, measures of food security and household composition
  - Exploit a sharp age cutoff for eligibility of the program
  - assumption that individuals very close to allowance eligibility (in their late 60s) are comparable to those who just became eligible (in their early 70s).

Preview of Results

- 64.4% increase in the likelihood of receiving financial assistance among the elderly
- No impact on enhancing access to most physical assets (including ownership of bank account) and improving food consumption
- Female senior citizens eligible for the allowance are 8.8% more likely to eat fewer meals induced by inadequate resources and 5.3% more likely to sleep hungry in response to inadequate food
- Old age allowance program eligibility affected household size, which likely exacerbated gender disparities in behavioral measures of food security

Contributions

- First article to rigorously examine the impact of an old age allowance program on economic and behavioral outcomes related to food consumption in a developing country setting
- Literature on linkage between access to social assistance programs and the composition of the household (Edmonds et al., 2005; Ambler, 2016; Hamoudi and Thomas, 2016)

Background

- Fiscal cost of social protection programs constitutes almost 2.5% of Nepal's annual GDP
- The Social Security Allowance (SSA) program began in 1994 with the introduction of the old age allowance for those 75 years and over for 100 Rupees a month
- The SSA includes five schemes: old age allowance, single women allowance, disability allowance, endangered ethnicity allowance and child nutrition grant
- In 2008, the government changed the eligibility criterion from 75 to 70 years of age.
    - Monthly payment of 3000 Rupees for all residents aged 70 and over, including a monthly medical allowance of 1000 Rupees

Research Design

$$Y_{ijt} = \alpha + \beta_1 \mathbf{1}\left(Age_{ijt} \geq 70\right) + \beta_2 \mathbf{1}\left(Age_{ijt} \geq 70\right) X \left(Age_{ijt} - 70\right) + \beta_3 \mathbf{1}\left(Age_{ijt} < 70\right) X \left(Age_{ijt} - 70\right) + \theta \mathbf{X}_{ijt} + \delta_j + \epsilon_{it} \quad (1)$$

- Y_{ijt} is an outcome variable for an individual i in district j in year t

- $\mathbf{1}\left(Age_{ijt} \geq 70\right)$ indicates that the individual is at least 70 years old and is therefore eligible for the old age allowance program

- $\mathbf{X}_{ijt}$ is a vector of controls such as gender and location type

- δ_j captures district fixed effects and β_1 identifies the causal effect of program eligibility on outcomes of interest at age 70

Summary Statistics

Characteristics	Observations	Mean	Standard Deviation	Minimum	Maximum
	(1)	(2)	(3)	(4)	(5)
		Panel A: National Living Standards Survey, 2010			
Age	1,328	33.494	25.289	0	99
Male	1,328	0.472	0.499	0	1
Rural	1,252	0.854	0.353	0	1
Household size	935	5.23	2.64	1	26
Married	1,063	0.525	0.500	0	1
High Caste	1,328	0.227	0.419	0	1
Received allowance	1,328	0.579	0.494	0	1

Summary Statistics

Characteristics	Observations	Mean	Standard Deviation	Minimum	Maximum
	(1)	(2)	(3)	(4)	(5)
	Panel B: Demographic and Health Surveys, 2011 and 2016				
Owns a mobile phone	98,855	0.851	0.356	0	1
Owns a watch	98,855	0.722	0.448	0	1
Owns a bank account	98,855	0.667	0.471	0	1
Never smokes	98,855	0.461	0.498	0	1
Slept last night	98,855	0.954	0.210	0	1
Never worried about not having enough food in the past 12 months	98,855	0.505	0.500	0	1
Never not able to eat preferred foods because of lack of resources in the past 12 months	98,855	0.523	0.499	0	1
Never ate a limited variety due to lack of resources in the past 12 months	98,855	0.545	0.498	0	1
Never ate smaller meals because there was not enough food in the past 12 months	98,855	0.789	0.408	0	1
Never ate fewer meals in a day because of lack of resources in the past 12 months	98,855	0.850	0.357	0	1
Never no food to eat because of lack of resources in the past 12 months	98,855	0.887	0.317	0	1
Never went to sleep hungry because there was not enough food in the past 12 months	98,855	0.931	0.254	0	1
Food deficiency caused by financial problems	49,791	0.514	0.500	0	1

Main Results

	Dependent variable: Binary indicator of receiving payment							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conventional	0.558***	0.376***	0.531***	0.531***	0.558***	0.531***	0.412***	0.568***
	(0.171)	(0.101)	(0.168)	(0.168)	(0.171)	(0.161)	(0.113)	(0.151)
Bias-corrected	0.644***	0.380***	0.626***	0.626***	0.642***	0.600***	0.413***	0.625***
	(0.171)	(0.101)	(0.168)	(0.168)	(0.171)	(0.161)	(0.113)	(0.151)
Robust	0.644***	0.380***	0.626***	0.626***	0.642***	0.600***	0.413***	0.625***
	(0.209)	(0.116)	(0.205)	(0.205)	(0.210)	(0.189)	(0.124)	(0.165)
Triangular Kernel	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1328	1328	1328	1328	1328	1328	1328	1328
Order Loc. Poly. (p)	1	1	1	1	1	1	1	1
Order Bias (q)	2	2	2	2	2	2	2	2
BW Loc. Poly. (h)	7.009	18.253	6.069	6.069	7.009	5.536	14.417	4.793
BW Bias (b)	13.732	31.946	12.324	12.324	13.732	13.732	31.946	12.324

Main Results across Gender

	Panel A: Females Only							
	Dependent variable: Binary indicator of food security							
	Never worried	Eat preferred	Eat unlimited	No smaller meals	No fewer meals	Food available	Never slept hungry	Food deficiency
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conventional	-0.081	-0.026	-0.061	-0.022	-0.075**	-0.072**	-0.048**	0.034
	(0.057)	(0.053)	(0.048)	(0.033)	(0.033)	(0.029)	(0.020)	(0.080)
Bias-corrected	-0.096*	-0.027	-0.074	-0.018	-0.088***	-0.080***	-0.053***	0.030
	(0.057)	(0.053)	(0.048)	(0.033)	(0.033)	(0.029)	(0.020)	(0.080)
Robust	-0.096	-0.027	-0.074	-0.018	-0.088**	-0.080**	-0.053**	0.030
	(0.066)	(0.061)	(0.053)	(0.038)	(0.037)	(0.033)	(0.023)	(0.094)
Triangular Kernel	✓	✓	✓	✓	✓	✓	✓	✓
Observations	53108	53108	53108	53108	53108	53108	53108	26516
Order Loc. Poly. (p)	1	1	1	1	1	1	1	1
Order Bias (q)	2	2	2	2	2	2	2	2
BW Loc. Poly. (h)	6.530	8.590	7.723	6.838	4.527	4.898	4.977	6.854
BW Bias (b)	10.486	12.406	12.936	10.925	9.265	9.600	9.152	10.146

Main Results across Gender

Panel B: Males Only

Dependent variable: Binary indicator of food security

	Never worried (1)	Eat preferred (2)	Eat unlimited (3)	No smaller meals (4)	No fewer meals (5)	Food available (6)	Never slept hungry (7)	Food deficiency (8)
Conventional	0.010	0.032	-0.005	-0.007	-0.005	-0.006	-0.000	0.035
	(0.049)	(0.051)	(0.058)	(0.040)	(0.026)	(0.029)	(0.022)	(0.067)
Bias-corrected	0.002	0.026	-0.002	-0.019	-0.010	-0.007	-0.001	0.046
	(0.049)	(0.051)	(0.058)	(0.040)	(0.026)	(0.029)	(0.022)	(0.067)
Robust	0.002	0.026	-0.002	-0.019	-0.010	-0.007	-0.001	0.046
	(0.057)	(0.060)	(0.069)	(0.047)	(0.029)	(0.037)	(0.025)	(0.079)
Triangular Kernel	✓	✓	✓	✓	✓	✓	✓	✓
Observations	45747	45747	45747	45747	45747	45747	45747	23275
Order Loc. Poly. (p)	1	1	1	1	1	1	1	1
Order Bias (q)	2	2	2	2	2	2	2	2
BW Loc. Poly. (h)	7.067	7.119	5.747	6.231	10.297	5.680	7.548	8.041
BW Bias (b)	10.996	10.859	8.624	10.511	17.214	9.631	11.433	12.424

Role of potential channels

	Dependent variable:						
	Household Size					Household Head is Male	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Conventional	0.466*	0.255	0.524*	0.310*	0.010	-0.006	0.011
	(0.245)	(0.167)	(0.281)	(0.172)	(0.023)	(0.019)	(0.025)
Bias-corrected	0.556**	0.319*	0.590**	0.342**	0.015	-0.004	0.015
	(0.245)	(0.167)	(0.281)	(0.172)	(0.023)	(0.019)	(0.025)
Robust	0.556**	0.319*	0.590*	0.342*	0.015	-0.004	0.015
	(0.274)	(0.177)	(0.304)	(0.177)	(0.026)	(0.021)	(0.027)
Triangular Kernel	✓	✓	✓	✓	✓	✓	✓
Observations	98855	98855	98855	98855	98855	98855	98855
Order Loc. Poly. (p)	1	1	1	1	1	1	1
Order Bias (q)	2	2	2	2	2	2	2
BW Loc. Poly. (h)	4.168	18.122	3.249	14.125	7.001	12.574	5.457
BW Bias (b)	8.183	34.005	8.183	34.005	13.026	26.377	13.026

Concluding Remarks

- Economic impact of a nationwide old age allowance program
- Heterogeneity across gender
- Household size is a key demographic factor

Thank You!

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