

The Effect of Informal Caregiving on Labor Market Outcomes in South Korea

February 26, 2009

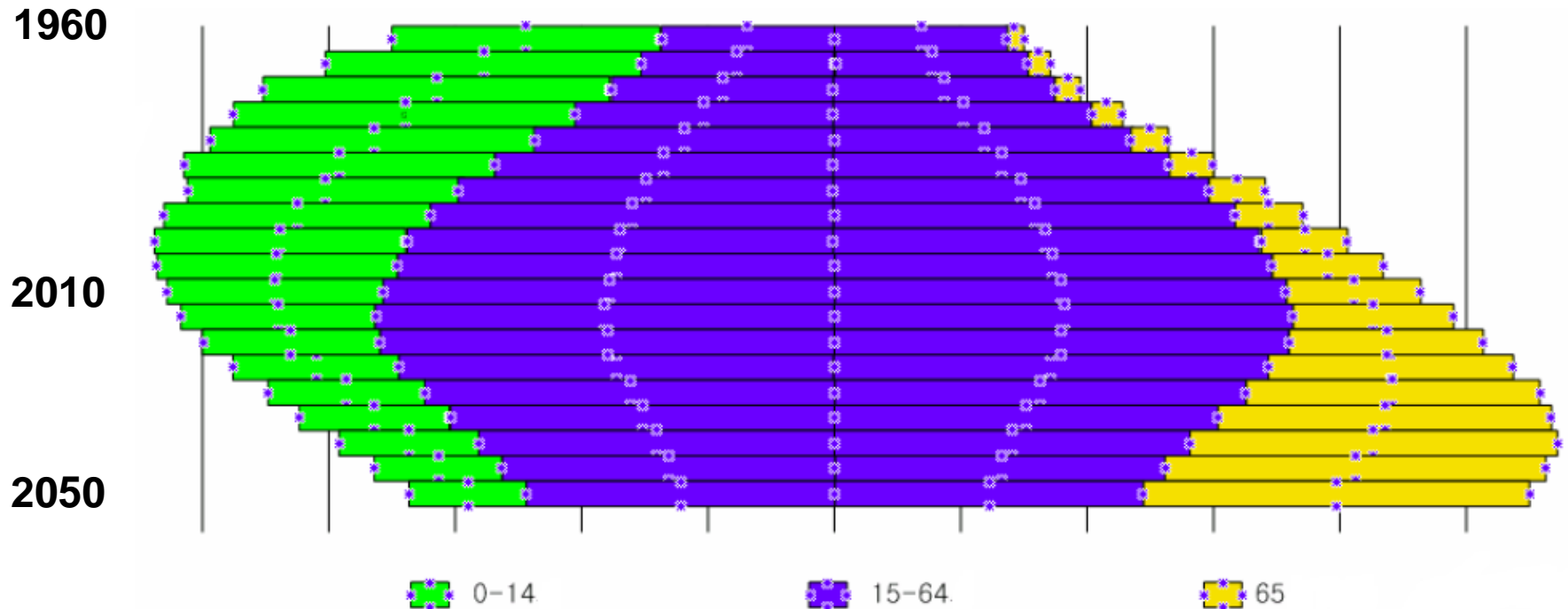
Young Kyung Do

Shorenstein Asia-Pacific Research Center

Stanford University

Acknowledgements: I thank Edward Norton, Sally Stearns, Courtney Van Houtven, Michelle Mayer, Peggye Dilworth-Anderson, and Karen Eggleston for their guidance and help. The Korea Labor Institute provided data, funding, and useful comments.

Demographic transition in S. Korea: 1960-2050

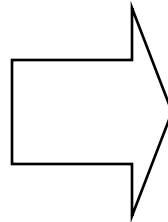


Source: Korea National Statistical Office (2006)

Old-age Dependency Ratio

65+

15-64



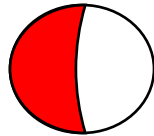
14.8% (2008)

48.9% (2036)

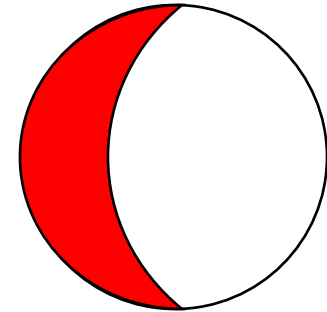
72% (2050)

Some refinements, and Research question

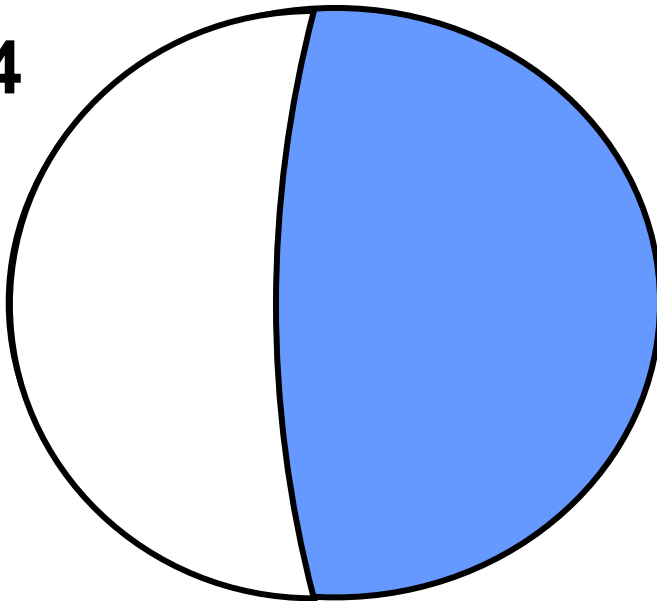
65+



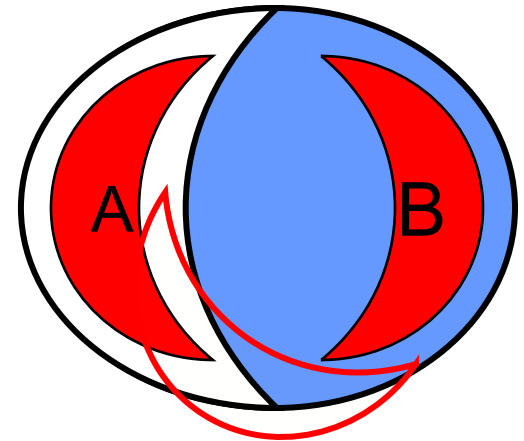
Disability rate ↓



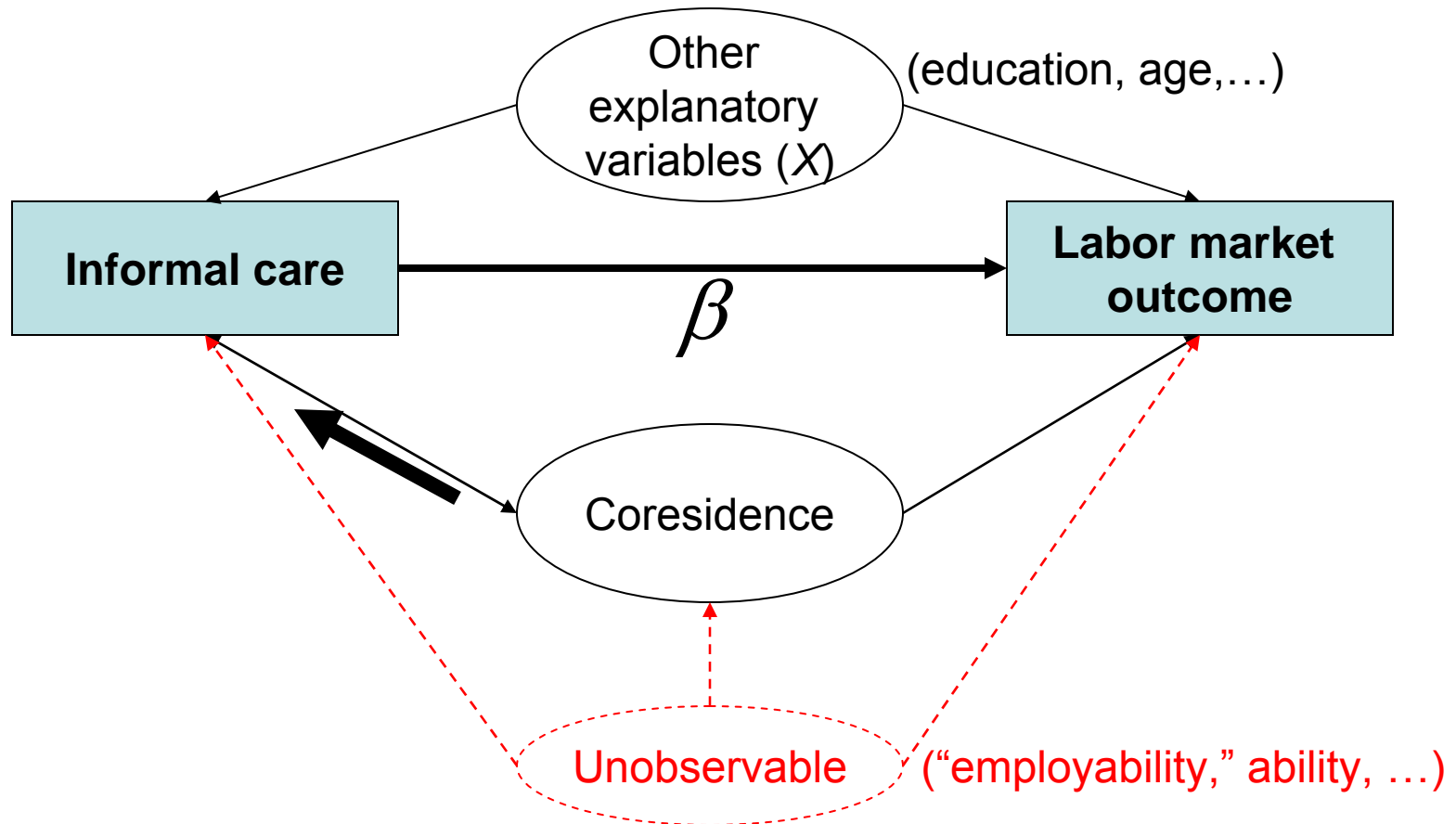
15-64



Labor force participation (LFP) rate ↑



Empirical framework



$$\text{LaborMarketOutcome} = \beta \text{InformalCare} + \gamma \text{Coresidence} + \delta X + \varepsilon$$



Overview of methods

- Test for endogeneity between *ex ante* co-residence and LFP
 - Bivariate probit model
 - IVs: *# brothers, # sisters, eldest son*
 - Is co-residence jointly decided with LFP?
 - Yes for Younger Adult Child (25-44)
 - No for Midlife Adult Child & Respondent (45-64)
- IV approach for main models
 - Separate analysis Younger Adult Child by co-/extra-
 - Probit or OLS vs. IV probit or IV-2SLS
 - IVs: functional limitations of family members



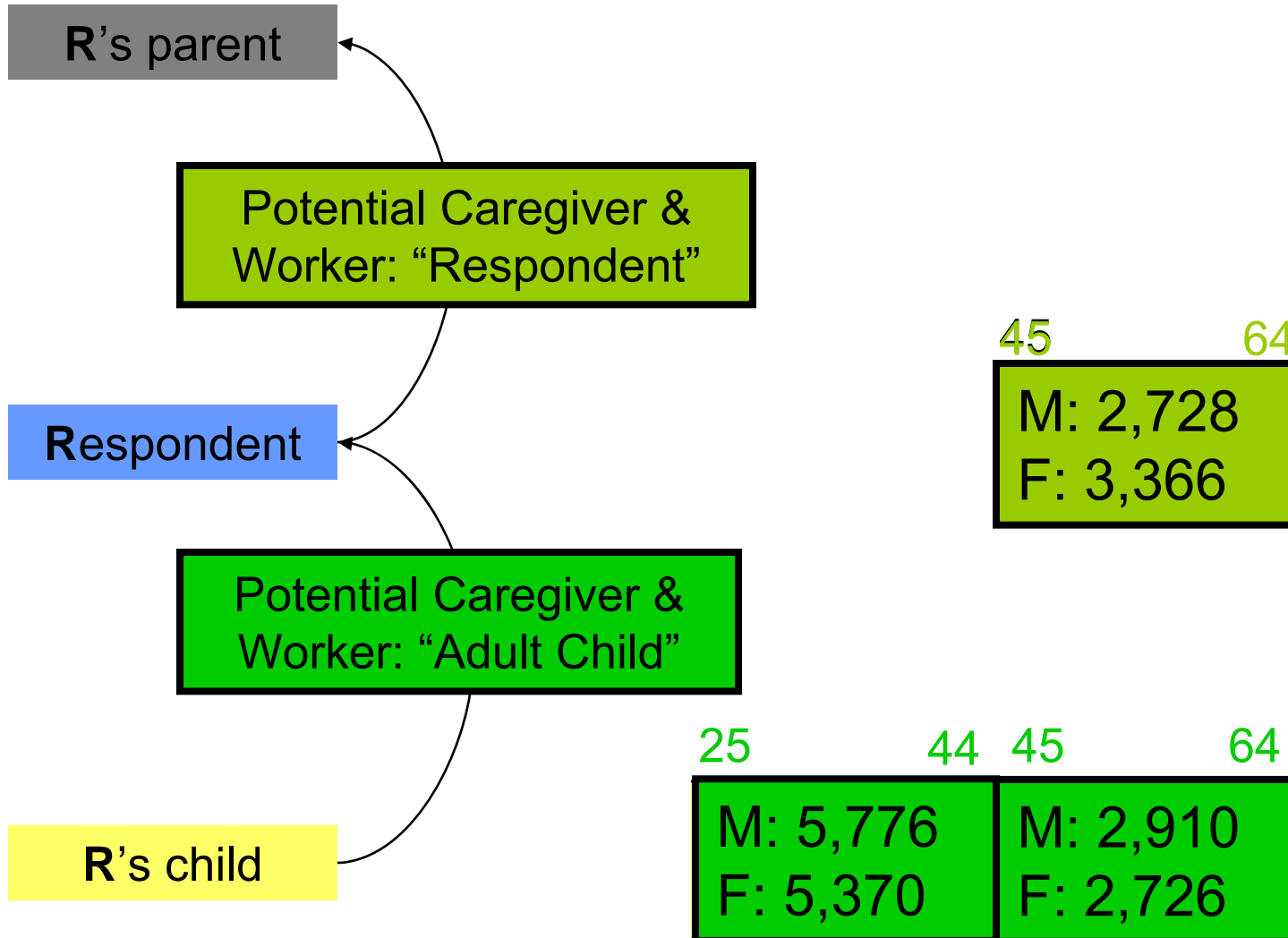
Data: KLoSA

Korean Longitudinal Study of Aging, 1st wave (2006)

- Internationally comparable
 - to US Health and Retirement Study (HRS)
- Nationally representative
 - Community-dwelling adults 45+ ($N=10,254$)
- Detailed information on respondents as well as their parents, adult children, and siblings (informal care, intergenerational transfers)



Sample construction





Variables

- Dependent variable: Labor market outcomes
 - **Labor force participation** [Adult Child sample only]
 - **Any market work** (employed + self-employed + unpaid work for family business)
 - If yes, **weekly hours worked**
 - **Any employed work** (employed)
 - If yes, **hourly wage rate**
- Main independent variable: Informal care intensity
 - Continuous: **Log(1+weekly hours of care)**
 - Dummy: (No informal care), **Less intensive care**, **More intensive care**
- Other explanatory variables
 - Own characteristics
 - Parent characteristics

Results (1) (Adult Child sample)

- Dependent var.: Labor force participation (1 vs. 0)
- Key independent var.: $\log(1+\text{weekly hours of care})$

Male		Female	
Younger	Midlife	Younger	Midlife
Extra-residential <i>Standard Probit</i> (n.s.)	<i>IV Probit</i> +0.082*	Extra-residential <i>Standard Probit</i> (-)*	<i>IV Probit</i> -0.983*
Co-residential <i>Standard Probit</i> (n.s.)	cf. Probit -0.015 (n.s.)	Co-residential <i>Standard Probit</i> (-)*	cf. Probit -0.087 (n.s.)

* $p < 0.05$

Results (2) (Respondent sample, All standard models)

	Male	Female
Weekly care hours =0		
	Reference	Reference
0 < Weekly care hours < 10		
Pr(Any market work)	0.010	0.060
$E(\text{weekly hours worked} \mid \text{hours} > 0)$	5.458	- 12.230
Pr(Any employed work)	- 0.025	0.060
$E(\text{hourly wage rate} \mid \text{wage} > 0)$	0.415	- 0.034
Weekly care hours \geq 10		
Pr(Any market work)	- 0.117	- 0.152*
$E(\text{weekly hours worked} \mid \text{hours} > 0)$	- 1.437	- 0.833
Pr(Any employed work)	0.004	- 0.082*
$E(\text{hourly wage rate} \mid \text{wage} > 0)$	0.367	- 0.165*

* $p < 0.05$



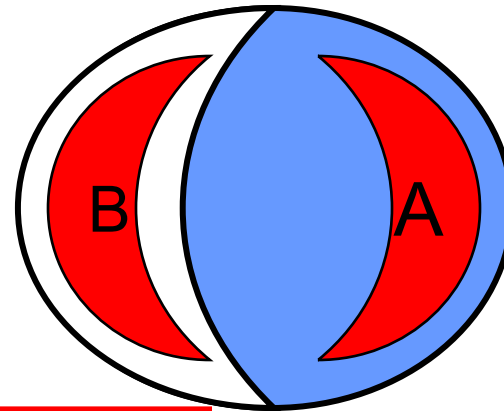
Summary

- Negative effects on female intensive caregivers' labor force participation and wage
 - Informal care has labor market opportunity costs and therefore is already an important economic issue in South Korea.
- Effect magnitudes vary by how to define LFP.
- Co-residence jointly decided with labor market prospects among *younger* generations: suggests future declines in supply of informal care

Extra slides

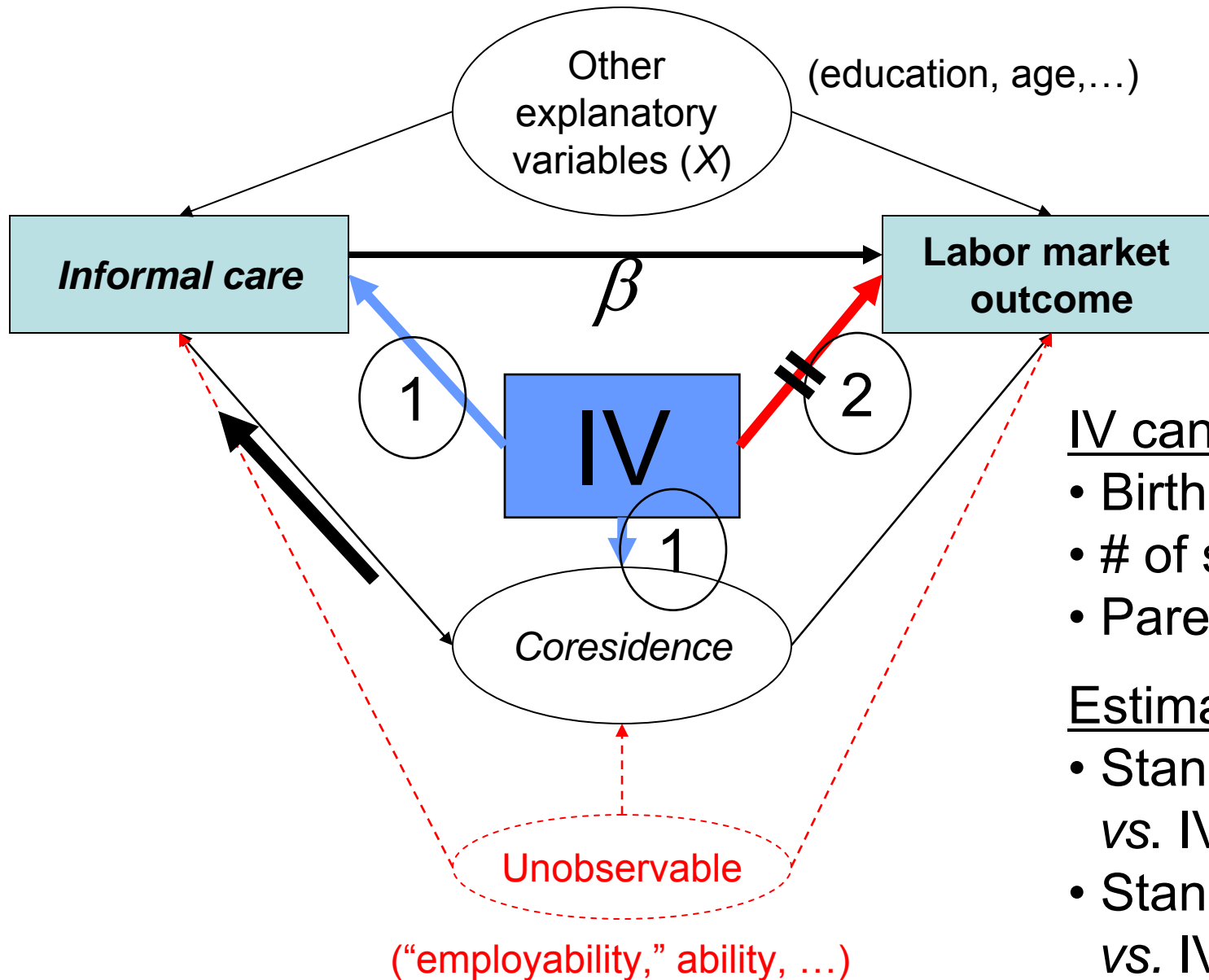
Main methodological issue

Reverse causality
Omitted variable bias



What really happened	Previous	Not working	Working
	Cause	Caregiving	Caregiving
	Current	Not working	Not working
True effect of caregiving on employment		0%	-100%
Data (cross-sectional)		Caregiving & Not working	Caregiving & Not working
Estimated effect of caregiving on employment		-100%	-100%

Instrumental variable (IV) approach



IV candidates

- Birth order
- # of siblings
- Parents' (I)ADL

Estimation choice

- Standard Probit vs. IV Probit
- Standard OLS vs. IV-2SLS

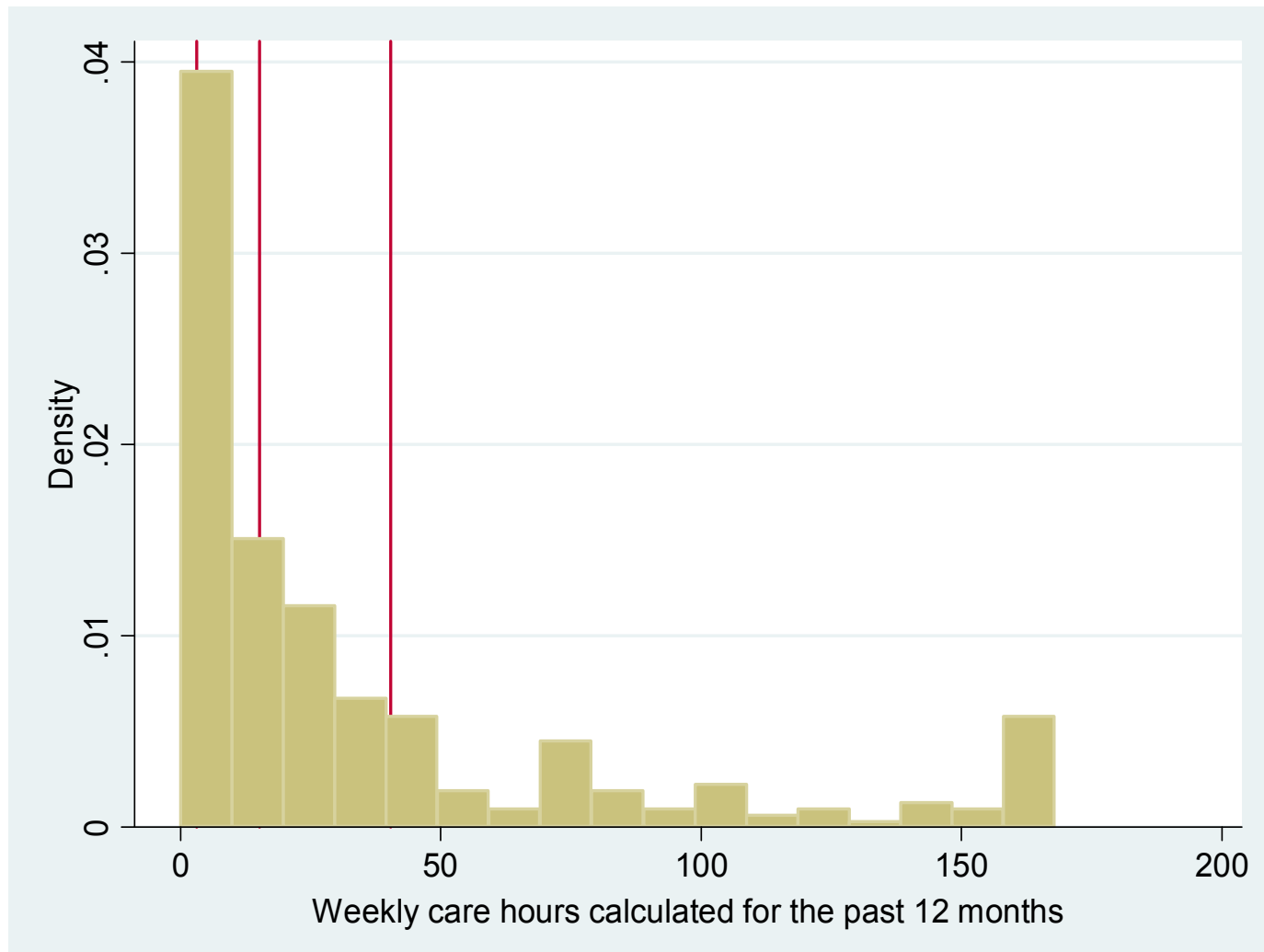
Literature

- US (1990s): child care → “parent care”
 - Wolf and Soldo (1994), Stern (1995), Ettner (1995, 1996)
 - Recognize and address the issue of selection into caregivers
- UK and other European countries
 - Carmichael and Charles (1998, 2003), Heitmueller (2006), Crespo (2006), Heitmueller and Inglis (2007), Casado *et al.*, (2007), Bolin *et al.* (2008)
 - Growing interest in gender & cultural/institutional differences
- Lilly *et al.* (2007): systematic review
 - Thirty five papers all from North America and Europe
 - List key issues and research agenda

Contributions and focus of this study

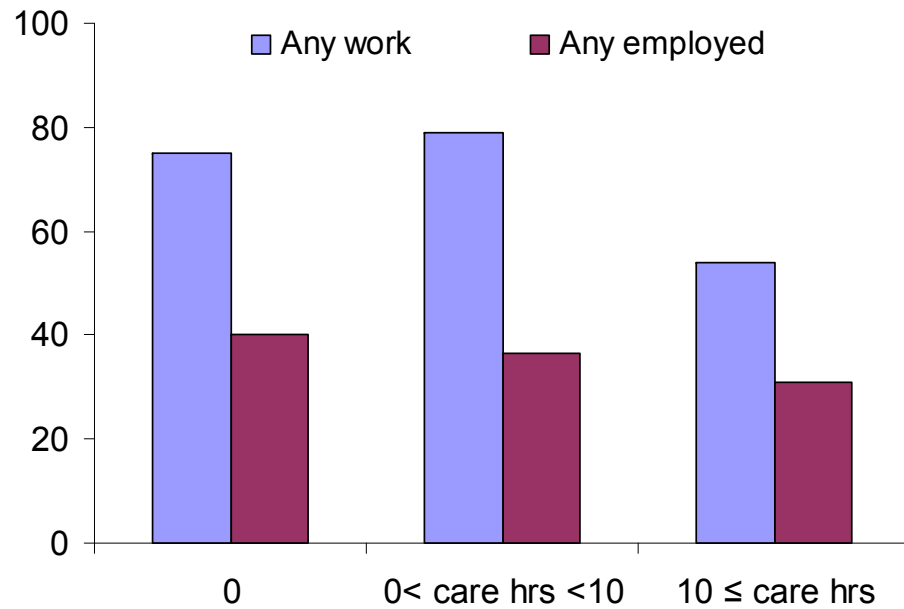
- Study from an Asian country using new data
- Account for key issues in the cultural/institutional setting
 1. *ex ante* co-residence: might matter
 2. Endogeneity of informal care: might differ, and vary by gender
 3. Large informal labor sector (self-employed, unpaid work for family business): magnitudes might differ by definition of LFP

Distribution of care hours among caregivers



Observations with care hours >0 (3.07%) in the Respondent sample (45-64)

Labor force participation rate (%) by informal care intensity and gender



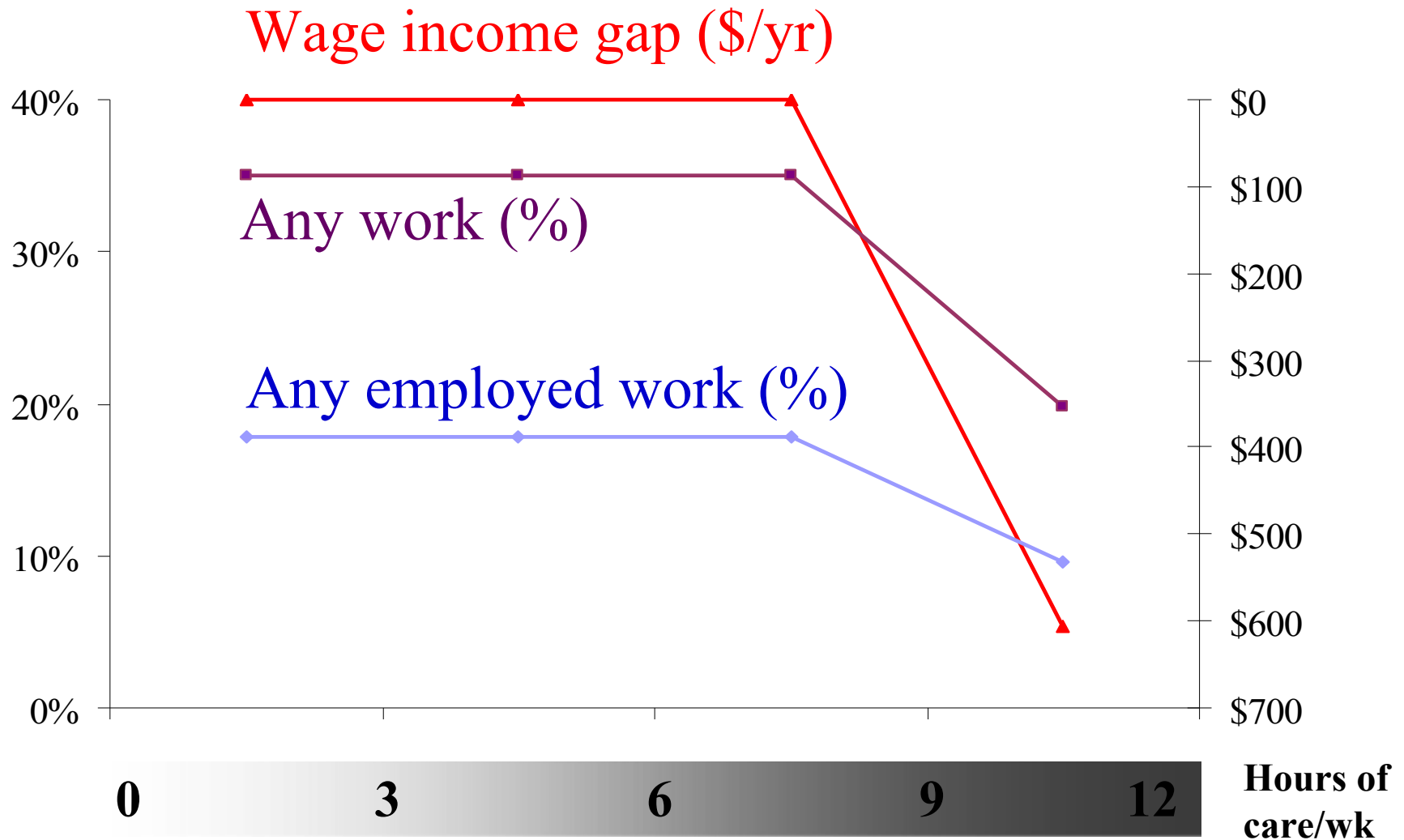
Male



Female

Respondent sample (45-64)

Effects of caregiving on female labor market outcomes



Limitations

- Cross-sectional data (→ Longitudinal data)
 - Better control for individual heterogeneity
 - Long-term effects
 - Snapshot → Policy impacts and trends
- Possible heterogeneous effects
 - e.g. Married vs. unmarried

Directions for future research

- **Use longitudinal data (2006 & 2008) from KLoSA**
 - Impacts of public long-term care insurance (July 2008)
- **In-depth analysis and exploration of related issues**
 - Duration vs. Intensity
 - Married vs. unmarried
 - Trajectory: contribution to old-age poverty in women
 - Economic behavior: intergenerational transfer
- **Comparative and cross-cultural**
 - Japan: Nihon University Japanese Longitudinal Study on Aging (1999 & 2001: Public LTCI implemented in 2000)
 - European countries (SHARE)
 - Asian Americans (?)