Determinants of Regional Disparities in Older Adult-Child Coresidence in China

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1. Introduction:

Population aging is progressing rapidly across much of the world, occurring alongside significant socioeconomic changes. These shifts raise critical concerns about the capacity of the care systems, as well as changes within households and their implications for the elderly.

One prominent area of inquiry is the living arrangements of older adults, particularly coresidence with their children. A growing body of literature has documented significant variations in intergenerational coresidence patterns across different societies, reflecting diverse family systems, cultural norms, demographic profiles, and socioeconomic conditions. However, despite these valuable insights, efforts to systematically analyze regional patterns and their drivers have been limited.

Comparative studies often focus on cross-national comparisons, overlooking significant sub-national differences. Examining intergenerational coresidence at more granular levels can help refine our understanding of these patterns and provide region-specific insights for policy interventions and service planning. Although advanced methods like spatial econometric models have been developed to explore spatial patterns, they often fail to account for both structural and compositional effects, or to disentangle micro- and macro-level determinants.

Multilevel modeling offers a more nuanced approach, incorporating both individual- and regional-level variables. This allows us to assess how regional contexts, beyond composition, influence living arrangements while controlling for individual characteristics.

Given this, the present study focuses on the regional heterogeneity of intergenerational coresidence among older adults in China—a country with traditionally high levels of intergenerational coresidence attributed to the Confucian norm of filial piety, and confronting rapid population aging, profound socio-economic changes, and widening regional disparities over past decades. China's unique demographic trajectories and complex regional landscape make it a compelling case for such an analysis.

This study utilizes data from the 2000 Chinese census, the most recent publicly available microdata, and employs multilevel models to investigate how local contexts and individual characteristics shape the living arrangements of older adults, with emphasis on prefecture-city level differences.

2. Data and Method:

We use data from the 2000 Chinese Census, accessed through the Integrated Public Use Microdata Series (IPUMS) – International, supplemented by macro-level information from the "2000 Census County Data." The geographic units of analysis are prefectures or cities

The key dependent variable is whether individuals aged 65+ live with their adult children (18+). This operationalization of intergenerational coresidence adopts a more stringent approach by focusing exclusively on older adults aged 65+, rather than the broader 60+ category, and limits coresident children to those classified as adults, thereby excluding younger dependents. The final sample is constituted of 871,123 older adults aged 65 and above, nested in 340 prefecture cities.

Individual-level variables, based on available IPUMS-I data and theoretical expectations, include gender, marital status, education, age group, rural/urban residence, and ethnicity (see Table 1 for descriptive statistics). At the prefectural level, we incorporate indicators of demographic traits, socioeconomic development, and cultural aspects to assess their impact on intergenerational coresidence (see Table 2 for details).

Table 1: Descriptive statistics of individual-level variables

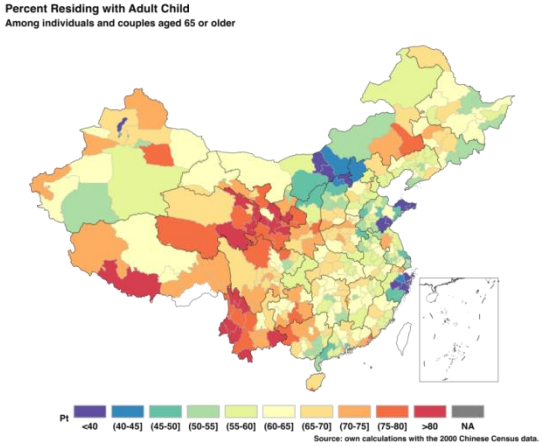
Variable	Category(%)	
Gender	Male (47.3)	Female (52.7) (ref.)
Union Status	In Union (60.3)	Not in union (39.7) (ref.)
Educational Attainment	Primary (33.3)	Less than Primary (22.2) (ref.)
	Secondary and above (4.4)	
Age Group	Age 70-74 (29.0)	Age 65-69 (26.6) (ref.)
	Age 75-79 (18.0)	
	Age 80+ (13.4)	
Residency	Urban (22.2)	Rural (77.8) (ref.)
Ethnicity	Non-Han (6.8)	Han (93.2) (ref.)

Table 2: Descriptive statistics of regional-level variables

Name	Mean	St.Dev.	Min	Max	N
Demographic					
Percent Elderly	6.7%	1.626	1.3%	12.6%	340
Net Migration Rate	0.005	0.111	-0.415	0.826	340
Socio-economic					
Agricultural Employment	53.5%	18.905	1.9%	83.7%	340
Cultural					
Percent Ethnic Minority	15.5%	26.0%	0.0%	98.0%	340
Gender Difference in Education	0.147	0.080	0.030	0.552	340

3. Results:

3.1 Regional disparities in levels of intergenerational coresidence among older persons



In 2000, 63% of older adults in China lived with their adult children, but regional coresidence rates ranged from 20% to 86%, with a standard deviation of 10.33. Lower rates were concentrated in economically developed eastern regions, while higher rates were seen in less developed central and western regions, reflecting broader economic disparities.

3.2 Individual and regional-level determinants

	Model 1 (Empty)	Model 2 (Individual-Level) *Predicted Change in Probability (95% CI)*	Model 3 (Full Model) *Predicted Change in Probability (95% CI)*
Individual Level			
Gender (male = 1)		−4.24% (-4.47%, -4.02%)	−4.25% (-4.47%, -4.03%)
Union (married = 1)		−15.23% (-15.47%, -15.00%)	−15.23% (-15.47%, -15.00%)
Educational attainment			
Primary and less (ref.)			
Primary		−1.90% (-2.14%, -1.66%)	−1.89% (-2.13%, -1.65%)
Secondary and above		−7.76% (-8.28%, -7.24%)	−7.75% (-8.26%, -7.23%)
Age group			
65-70 (ref.)			
70-75		0.49% (0.25%, 0.73%)	0.49% (0.25%, 0.73%)
75-80		3.11% (2.82%, 3.40%)	3.11% (2.82%, 3.40%)
≥ 80		7.13% (6.79%, 7.47%)	7.14% (6.79%, 7.48%)
Urban		−4.12% (-4.40%, -3.84%)	−4.09% (-4.37%, -3.82%)
Non-han		4.74% (4.21%, 5.26%)	4.53% (4.00%, 5.06%)
Regional Level			
Percent Elderly			−3.05% (-4.08%, -2.03%)
Agriculture Employment			3.02% (1.70%, 4.34%)
Net-migration Rate			0.63% (-0.48%, 1.74%)
Percent Ethnic Minority			0.78% (0.02%, 1.54%)
Gender Difference in Education			0.60% (-0.18%, 1.38%)
Random Effects			
τ_{00}	0.23	0.21	0.15
ICC	0.07	0.06	0.04
N	340	340	340
Observations	871123	871123	871123
Marginal R^2 / Conditional R^2	0.000 / 0.065	0.056 / 0.113	0.077 / 0.118

Multilevel logistic regression models reveal that 7% of the variation in coresidence is attributable to differences across prefectures. Individual factors, such as gender, marital status, age, education, and rural-urban residence, explain 8% of the variation. For instance, women are 4.24 percentage points more likely to live with their children than men. Higher educational attainment and urban residence decrease the likelihood of coresidence, supporting modernization theory. Additionally, our results indicate an increased probability of coresidence

driven by the growing needs of older adults, particularly reflected in the effects of marital status and age.

When regional-level variables are included in Model 3, the model explains 35% of the cross-prefecture variation in intergenerational coresidence. Factors such as the proportion of elderly residents and agricultural employment play significant roles. A one standard deviation increase in the proportion of elderly reduces the likelihood of coresidence by 3.05 percentage points (AME = -3.05%, 95% CI: -4.08%, -2.03%), while a higher share of agricultural employment increases it by 3.02 percentage points (AME = 3.02%, 95% CI: 1.70%, 4.34%).

Regional factors such as net migration rates and gender gaps in education (used as a proxy for patriarchal culture) did not significantly affect coresidence. However, regions with higher proportions of ethnic minorities showed a slight increase in the likelihood of coresidence.

The relative reduction in variance in the random intercept suggests that the most influential factors driving regional variability in intergenerational coresidence are the proportion of elderly residents and the level of agricultural employment. These findings support modernization theory but also underscore the significant demographic impact of aging on household structures. With the global aging process accelerating, more research and policy attention is needed to address regional disparities, especially in less-developed areas facing faster aging, out-migration, and underdeveloped eldercare systems.

4. Future Extension

In the coming months, we plan to extend the current analysis in the following ways:

- Incorporating additional regional-level indicators: This includes dialects (as a proxy for cultural differences within the Han majority), housing market conditions, eldercare systems (e.g., proportion of pension recipients), fertility levels, and mean age at marriage. These variables aim to further explain the 65% of the regional variance that remains unexplained.
- Perspectives from younger generations: Rising work demands, childcare responsibilities, and skyrocketing housing prices drive younger couples to rely on their parents for household support and childcare, often through co-residence. These dynamics will be included in the analysis to better understand the drivers of intergenerational coresidence in different regions.