Decomposing the Urban-rural Gap in Life and Active Life Expectancies: Why Do Urban Elderly in Beijing Live Longer Healthier Lives than Their Rural Counterparts?

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Extended Abstract:

As China continues its rapid economic development, differences in social, economic, and health environment for the residents between urban and rural areas are becoming increasingly wider. Urban-rural differences in development and the subsequent gap in the quality of life has led to growing concerns among policy makers (Kahn 2004). There is, however, little research to date that examines urban-rural differences in health and mortality in China. Using estimates of life and active life expectancies, this study examines whether and how differences in urban and rural life extend to mortality and functional health experiences of older adults living in the Beijing municipality. Active life expectancy (ALE) summarizes population health by incorporating information on levels of mortality and disability, thus, is an ideal tool for comparing overall health of urban and rural residents (Saito, Crimmins and Hayward 1999).

Previous research conducted in developed countries, with few exceptions, has shown that the rural residents are advantaged with respect to life expectancy and a host of health outcomes. The rural advantage is often attributed to individual and community level psychosocial differences, such as greater levels of social support, social cohesion, and lower levels of stress associated with rural living. Less is known, however, about urban-rural differences in health and mortality in developing countries, although the few existing studies have generally suggested better health and lower mortality among urban residents due to their better access to health

services and higher socioeconomic standing compared to their rural counterparts (Montgomery et al. 2003).

In China, as in many other developing countries, older adults are substantially over represented in rural areas, and the trend in high levels of migration of younger adults from rural areas to rapidly developing urban centers further increases this imbalance. Furthermore, China's population is aging at one of the fastest rates in the world and so is its older population itself, which are expected to have far reaching effects as mortality and morbidity are becoming increasingly more concentrated at older ages (Du and Guo 2000; Poston and Duan 2000; Yi and George 2001; Yuan et al 1992). Understanding health and mortality of urban and rural elders and understanding the source of the urban-rural gap are essential for informing policy on the future resource allocation and reducing inequality.

This study has two objectives that contribute to the current state of knowledge in this field. First, we examine the extent to which the urban-rural differences in the levels of mortality and functional health in old age exist by estimating life and active life expectancies for men and women in urban and rural areas. We then examine the possible mechanisms underlying these differences by decomposing the differences into five individual-level factors that possibly explain the urban-rural gap. These factors are the levels of social support, socioeconomic characteristics, health behaviors, access to health services, and chronic health conditions, all of which have been shown to be important determinants of well-being in old age.

We will estimate ALE using a multistate lifetable method based on three waves of data (1992, 1994, and 1997) from the Beijing Multidimensional Longitudinal Study of Aging conducted by the Capital University of Medical Science in Beijing. We use a sample of 3,257 adults aged 55 and above from selected urban and rural districts of the Beijing municipality. We

define an 'active' state of functioning as the ability to perform all the following six selected tasks without any help from others: eating, dressing, getting on and off a bed, bathing, walking 300 meters, and walking up and down a flight of stairs. An 'inactive' state is defined as requiring some help from others in performing at least one of the tasks. We calculate transition rates across these health states and dying between the survey waves using hazard models, then estimate and decompose expected years of life and expected years of active life using a SAS program written by Mark Hayward and his colleagues at Pennsylvania State University (See Tables 1 and 2 for information on functional limitation transitions and descriptive statistics of all the variables included in the analysis).

Preliminary findings from the first part of the analyses are presented in Figure 1. The figure presents a series of urban versus rural comparisons for life expectancy, ALE, and the proportion of remaining life spent in active state by age and gender for those aged between 55 and 85. Urban elders are advantaged in all these respects. For instance, a 55-year-old urban woman is expected to live about three years longer than her rural counterpart and she is expected to live about four and a half more active years. Put in a different way, a 55 year-old rural woman can expect the same number of active years as can a 60 year-old urban woman. The differences among men are slightly greater. Urban adults are also advantaged in the percent of remaining life spent in an active state. For instance, a 55 year-old urban woman can expect that about 90% of her remaining years of life will be lived in a functionally active state versus 80% for her rural counterpart. The difference among men is smaller.

We also find age variations in our results where the differences in life and active life expectancy narrows with age while the percent of time active widens. This means that urban-rural differences in life expectancy converge more rapidly than differences in active life. For

instance, by age 80 there is only about a half year life expectancy advantage for urban women, while there remains a nearly two and a half year active life advantage. Similarly, the percent of time active declines more rapidly for rural women, and by age 80 the gap is more than 20 percentage points. Although urban men have a smaller advantage over their rural counterparts with respect to percent of active life, the percent does still widen with advancing age, and by age 80, an urban man has an advantage of more than 10 percentage points.

In the second part of our analyses, we will explore mechanisms underlying these urban-rural differences in life and active life expectancies by decomposing them into five components mentioned earlier. Our preliminary results suggest that socioeconomic status and access to health services account for the largest portion of the urban versus rural residence among all the factors examined. Further analyses show that within these components, income and insurance are particularly important individual-level factors. Social support and health behaviors explain a large portion of the urban-rural differences in life expectancy but do less to explain the differences in active life expectancy. These results differ somewhat from those found in the West, not only in the importance of social support in explaining health differences between residential areas, but also in the direction of the effects. For example, adjusting for socioeconomic status in the United States typically increases the rural advantage. We will further explore our decomposition results by examining the patterns by age and gender and discuss the consequences of our results for urban-rural inequality in health and mortality in developing countries.

Figure 1: Comparing urban and rural estimates of life, active life, and percent of life active, separately for women and men

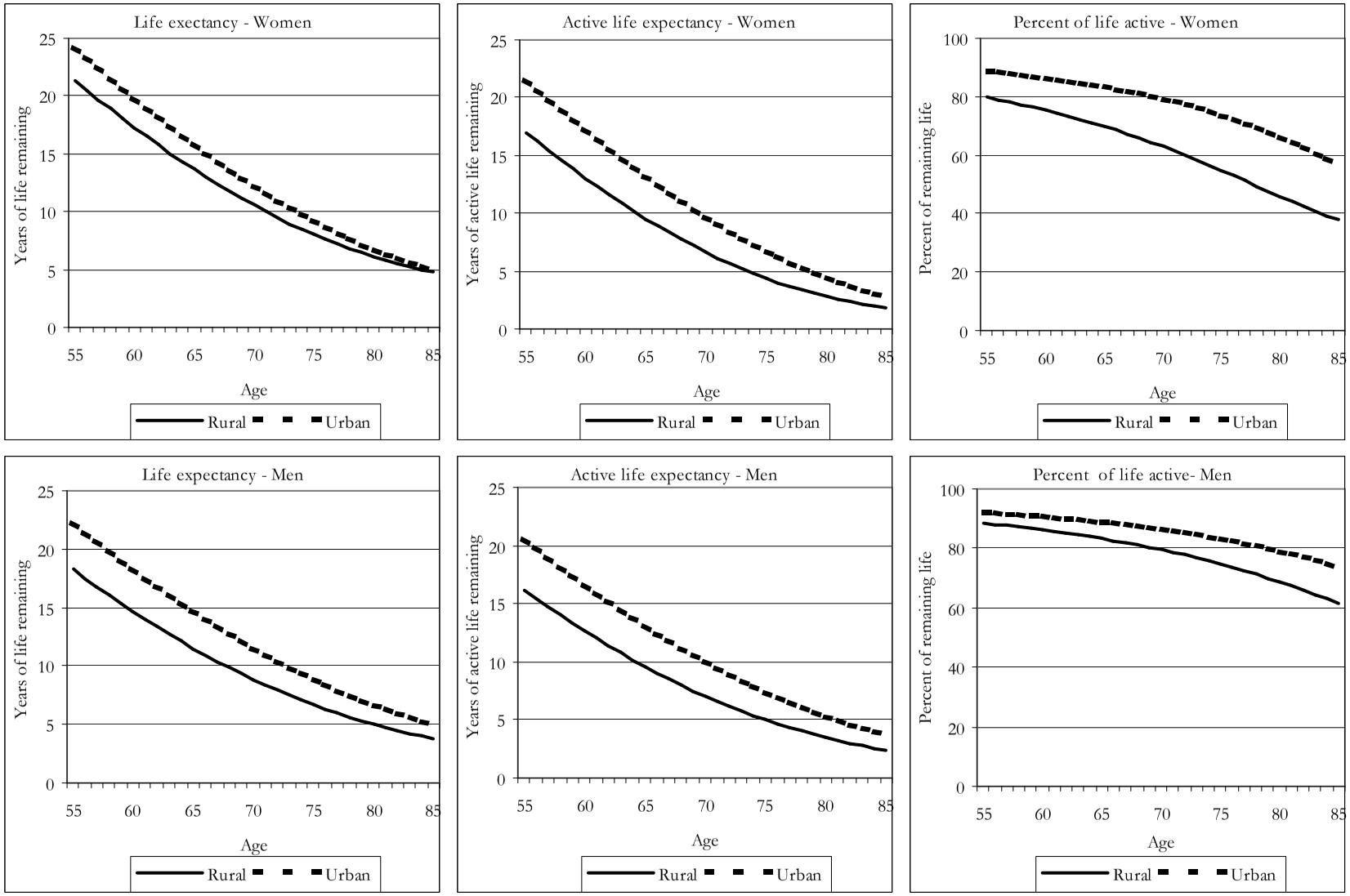

Table 1: Distribution of functional limitation transitions

		ORIGINATING STATUS	
	N	No limitations (N=5378)	Has limitations (N=579)
OUTCOME STATUS			
- No limitations	4480	80.8	23.5
- Has limitations	564	6.6	36.1
- Died prior to follow-up	503	5.8	32.8
- Lost to follow-up	410	6.8	7.6
Total	5957	100.0	100.0

Table 2: Variable descriptions[a,b]

	Rural (N=2954)	Urban (N=3004)
Has a functional limitation	12.7	6.9
Average Age	65.9	65.3
% Female	49.6	50.4
% Origin is Wave 2	44.5	46.1
Social Support		
% Married	71.3	79.9
% Reporting harmonious family relations	86.6	88.8
% Reporting a confidant	67.6	83.8
Living arrangement		
- % Living alone or with spouse only	34.7	27.4
- % With children	59.3	62.8
- % With others	6.1	9.8
Socioeconomic Characteristics		
% With education	27.3	73.6
% With white collar/non heavy labor occupation	3.5	41.2
% Currently working	39.2	30.0
Log of average monthly income	3.3	5.5
Health behaviors		
% Ever smoked	48.4	41.4
% Ever drank	39.8	22.7
% Eats fruits and vegetables daily	27.6	63.6
Access		
% With insurance	10.6	89.7
% With difficulty paying for doctor	34.6	7.7
% Satisfied with medical care	77.9	76.5
Chronic health conditions		
% With life threatening condition	26.6	45.0
% With debilitating condition	25.0	45.8

[a]The results shown in this table are from data that stack information from Waves 1 and 2. These waves are considered as time of origin for transition models.
[b]All comparison between urban and rural samples are significant to a .01 level, except for % female, % origin is Wave 2, and % satisfied with medical care, where $p > .10$.