TRANSIT SERVICES FOR THE ELDERLY AND PREVENTIVE HEALTHCARE ATTAINMENT MICHIGAN STATE UNIVERSITY Authors: Weijing Wang*, Zeenat Kotval-K [Urban and Regional Planning], Linda Keilman [College of Nursing]

I Introduction

This study examines the impact of the provision (and aspects related to the provision) of specialized transit services for the elderly population (i.e. population aged 65 years old and above) on the attainment of preventive healthcare services in selected cities across the state of Michigan. Previous research suggests that the elderly population have an increasing need for healthcare and visits to doctor's offices as they age. However, until recently, health-specific data at the geographical level smaller than the city was hard to obtain for research within the social sciences.

Utilizing the data from the 500 Cities project, this study conducted a census tract level analysis in Michigan to investigate the relationship between transit services for the elderly and preventative healthcare attainment. The results indicate that the provision of transit services specifically for the elderly has significant effects on the attainment of preventive healthcare services.

II Selected Background Literature

1) Population aging has become an imperative issue in the United States, which brings new challenges to current transit systems.

2) The elderly population have decreasing health conditions, which consequently causes a significant increase in the need of medical appointments (Smith, et al., 2017; Yang, et al., 2015).

3) A lack of suitable transit services for the elderly results in decreased preventive healthcare attainments, and health outcomes as well (Wallace, Hughes-Cromwick, Mull, & Khasnabis, 2005).

4) The current transit system is not appropriately designed to serve the elderly population, and the transit service specifically for the eldely is under-supplied (Kotval-K, 2017; Thakuriah, et al., 2011).

IV Results

Regression Outcomes

	Source	SS		df	MS Nur		nber of obs	=	
							F(5, 680)	=	335
	Model	23975	.2083	33507680	4795.04	165	Prob > F	=	
	Residual	9732.2	21307		14.312078		R-squared	=	0.7
						Adj	R-squared	=	0.7
	Total	33707	.4213	685	49.2079	143	Root MSE	=	3.7
Elderly who have attained preventive healthcare services (%	Coef.		Std. E	Err.	t	P>t	[95% Conf.	In	terva
Door-to-door services	2.773548		0.3431001		8.08	0.000	2.099885		3.447
Population who do not own a car (%)	-0.1222197		0.0161738		-7.56	0.000	-0.1539762	-0.	.0904
Poverty rate among the elderly (Natural Log)	-2.913338		0.4596295		-6.34	0.000	-3.815802	-2	2.010
Non-whites among the elderly (%)	-0.0744632		0.00	50189	-14.84	0.000	-0.0843176	-0.	.0646
Elderly who have disabilities (%)	-0.0596006		0.01	22009	-4.88	0.000	-0.0835566	-0.	.0356
_cons	38.26877		0.55	71951	68.68	0.000	37.17474		39.3

III Method



Miles
0 10 20 40

HithPctMean

35.00 - 36.69 Michigan

22.01 - 30.00

30.00 - 35.00

16 Cities in the State of Michigan

Data Sources

500 Cities: Local Data for Better Health Transit Agent Websites for Each City American FactFinder, and Social Explore

Regression Model

Multi- linear Regression Model

Main Findings

686 5.03	1) Door-to-door services and economic status have significant effects on the elderly's preventive healthcare attainments.
0 7113 7092 7831	2) The percentage of the elderly who attain preventive healthcare services in the census tracts where door-to-door services are provided, is 2.77 percent higher than the census tracts where door-to-door services are not available.
al] 7211 4631	3)The percentage of the elderly who attain preventive healthcare services decreases by a 2.91 percent as the poverty rate among the elderly increases by a one percent.
0874 6089	4) Car ownership, race, and disability rate among the elderly are negatively related to the elderly's preventive healthcare
6446 3628	who do not own a car is associated with a 0.12 percent decrease in the elderly who attain preventive healthcare services.

V Case Study in Lansing

Why Lansing

1) The percentage of the elderly who attain clinical preventive healthcare is lower than many counterparts (28.99% in Lansing compared to 36.69% in Livonia), which is worthy of attention.

2) The city of Lansing has experienced a rapid rise in the size and share of the elderly population. Specifically, the population aged 65 years old and above increased by 17.11 percent from 2010 to 2017, which accounts for 7.1 percent of the total population in 2017.

3) The current public transit system poorly serves the elderly.



Current Transit Services

1) Public Transit: Capital Area Transportation Authority (CATA)

Public Transit Services, Poverty Ratio, and Healthcare Attainment



1.1) The high accessibility to public transits is related to the high percentage of the elderly who attain preventive healthcare. 1.2) A low poverty ratio is related to a high percentage of the elderly who attain preventive healthcare.

- 2) Program of All-Inclusive Care for the Elderly (PACE)
- 3) CATA's Spec-Tran Services

3.1) Service Areas: three-quarters of a mile beyond CATA's fixed routes

VI Case Study in Lansing- Continued

3.2) Service Hours: same as CATA's fixed routes

3.3) Service fees: \$2.50 for each one-way ride

3.4) Reservations: by calling between 8 AM and 5 PM to schedule rides up to 14 days in advance; not available on a same-day basis

Key Notes from the Interview

with the Tri-County Office on Aging in Lansing

1) Many elderly populations do not know what transit services are available to them.

1.1) Suggests a need to educate the elderly and to promote the current transit services.

2) Requiring in-advance reservations is a big barrier.

2.1) Suggests that the current transit system is not appropriate as the elderly have an increasing need for medical appointments.

VII Takeaways

1) Transit needs vary by different age groups.

2) The provision of door-to-door services for the elderly significantly improves their healthcare attainments.

3) Transit services specifically for the elderly need to be further improved, especially for the low-income elderly population.

4) The fixed-route public transit system is limited and unsuitable for the elderly to attain preventive healthcare because of fixed schedules, walking distances, and poorly provided waiting spots.

5) The complicated document filing process and in-advance reservation requirements in the current on-demand transit system are huge barriers for the elderly to attain preventive healthcare.

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