

Subsidized Relocation and the Willingness to Move

The First Look at the Targeted Poverty Alleviation Project (TPAP) in China

Shuai Zhou^a, Guangqing Chi^a

Brian Thiede^a, Zhen Lei^a, and Huangguang Qiu^b

a. Pennsylvania State University

b. Renmin University of China

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The TPAP is an unprecedented government-subsidized, voluntary relocation program

Time period: 2016-2020

Population involved: 10 million poor population (annual income < ¥ 2736 ≈ \$400)

Purposes: Poverty reduction & environmental restoration

Subsidy: Government-built apartment (without property rights) or in-kind benefits

Relocation methods: Scatter- & cluster- site relocation

Voluntary or involuntary: Voluntary

Government-driven relocations are employed to deal with employment insecurity, concentrated poverty, and climate change

Country	Program/Year	Population Involved	Purposes	Reference Details
U.S.	Mississippi Labor Mobility Project (MLMP) 1966-1972	2500 individuals and their families	Employment security	Charles F. Mueller, 1981
Britain	Resettlement/Employment Transfer Scheme (ETS) 1966-1973	68,166 workers	Employment security	Beaumont, 1976
U.S.	Housing Opportunities for People Everywhere (HOPE VI) 1992-present	unknown	Poverty deconcentration and community reconstruction	Popkin et al., 2004
U.S.	Move To Opportunity (MTO) 1994-1998	4604 households	Poverty deconcentration and community reconstruction	Ludwig et al., 2013
China	Three Gorges Dam (TGD) 1994-2003	6 million people	Integrated water project	Gleick & Cooley, 2009
Brazil	Rural Settlement and Agrarian Reform Program (RSARP) 1995-2010	924,263 households	Agrarian reform and forest restoration	Peres & Schneider, 2012
France	National Urban Renewal Program (NURP) 2003-2011	100 000 households	Urban renewal and development	Lelevrier, 2013
China	Targeted Poverty Alleviation Project (TPAP) 2016-2020	55 million population (10 million through relocation)	Poverty reduction and environmental restoration	Chinese Academy of Fiscal Sciences Ministry of Finance, 2016

Push-Pull, Neoclassical Economics, and New Economics of Labor Migration



P-P: Migration “laws” (Ravenstein, 1885; Lee, 1966)

NE: Individual’s cost-benefit calculation (Todaro, 1969; Todaro & Maruszko, 1987; Massey & Espinosa, 1997)

NELM: Unbalanced market, relative deprivation, human capital
(Massey et al., 1998)

Migration System approach incorporates structural constraints and the agency of the actors

Migration system approach incorporates structural constraints and the agency of the actors into one framework, and brings forward one major advance by:

- ✓ recognizing, at least theoretically, the role of feedback processes in shaping the migration process (Bakewell, 2014)

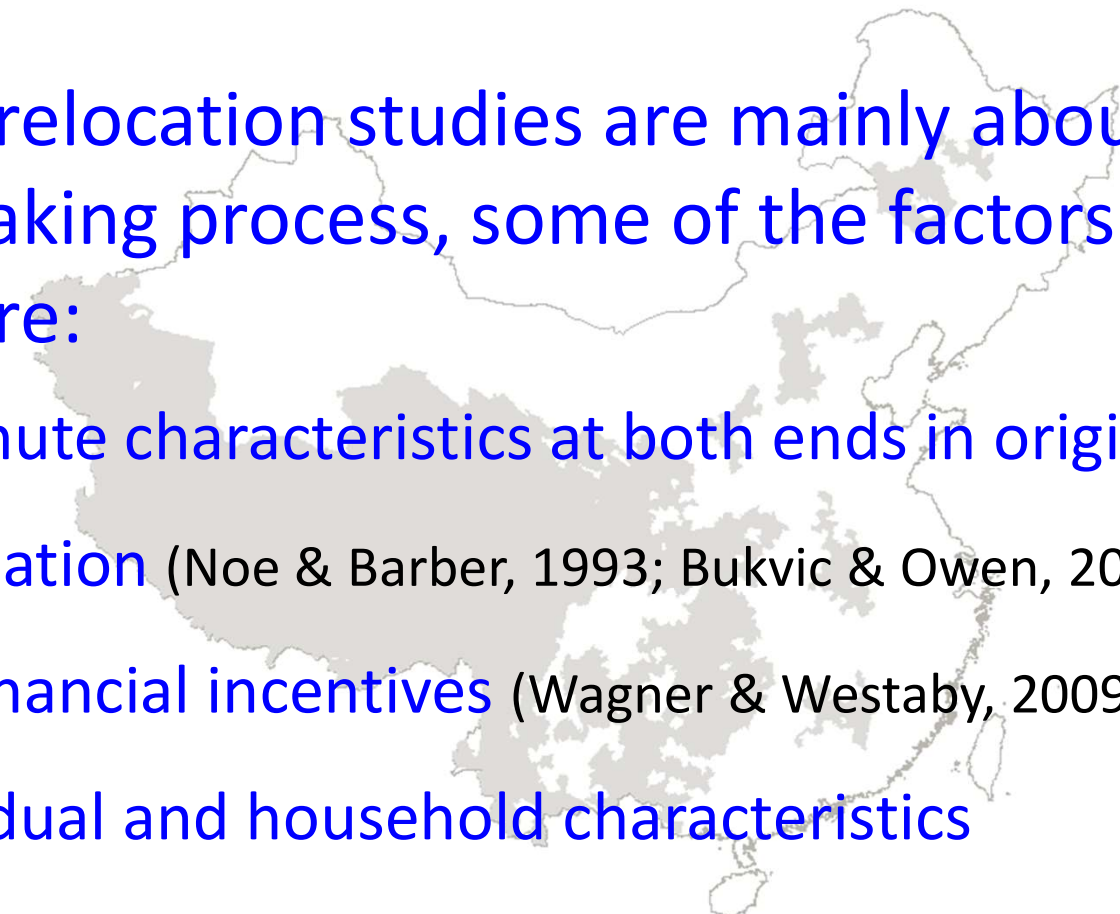
and,

- ✓ bridging the micro-macro gap by filling it up with the interactions and feedback mechanisms between social actors and the broader environment (Cooke & Bélanger, 2006)

Previous studies focus on different aspects of government- and self- driven relocation, respectively

Government-driven relocation studies focus on the effects of the relocation program on:

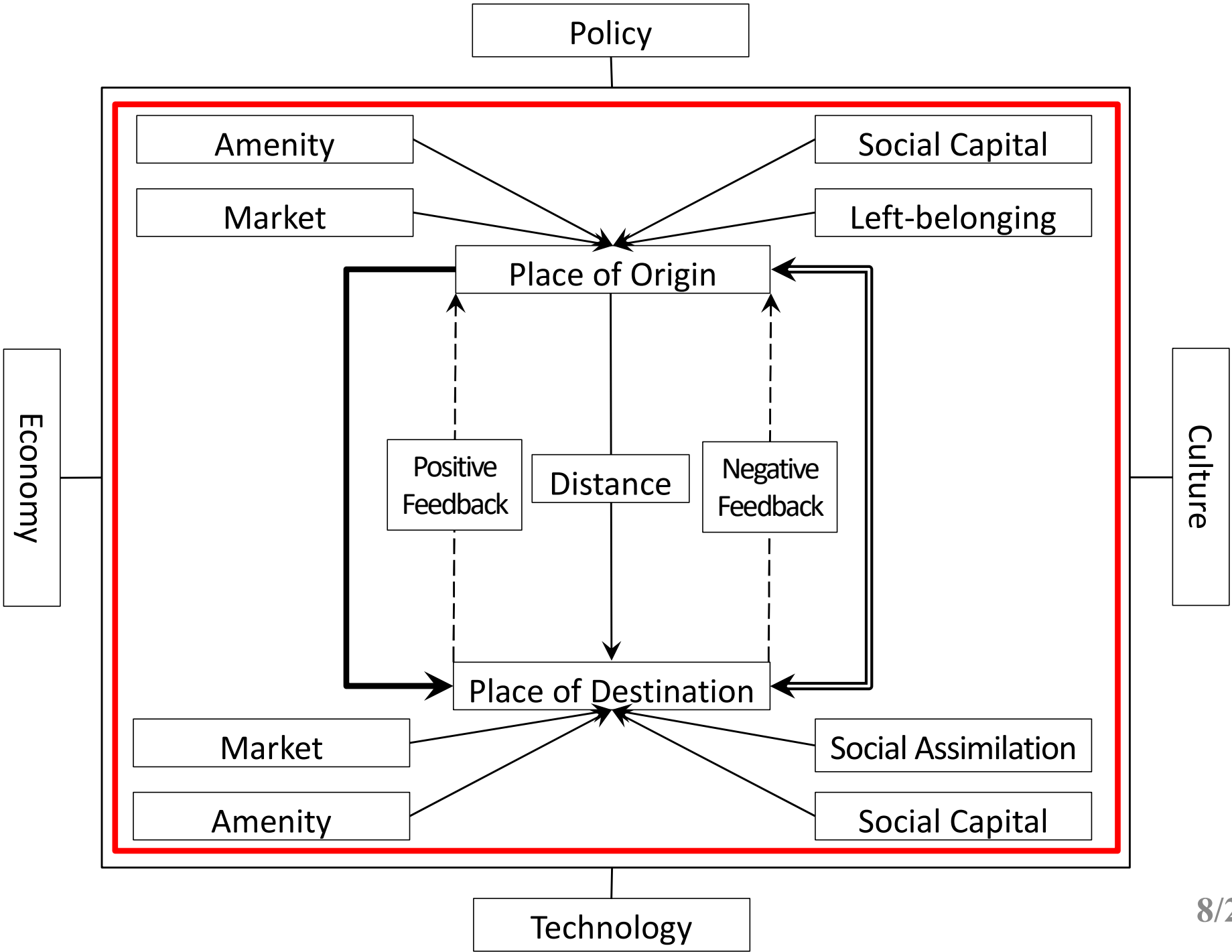
- ❖ **Poverty reduction** (Black et al., 1975; Beaumont, 1977)
- ❖ **Community reconstruction** (Goetz, 2002; Jourdan et al., 2013)
- ❖ **Social networks** (Chaskin, 2013; Wu et al., 2016)
- ❖ **Educational achievement** (Ladd & Ludwig, 1997; Byck et al., 2015)



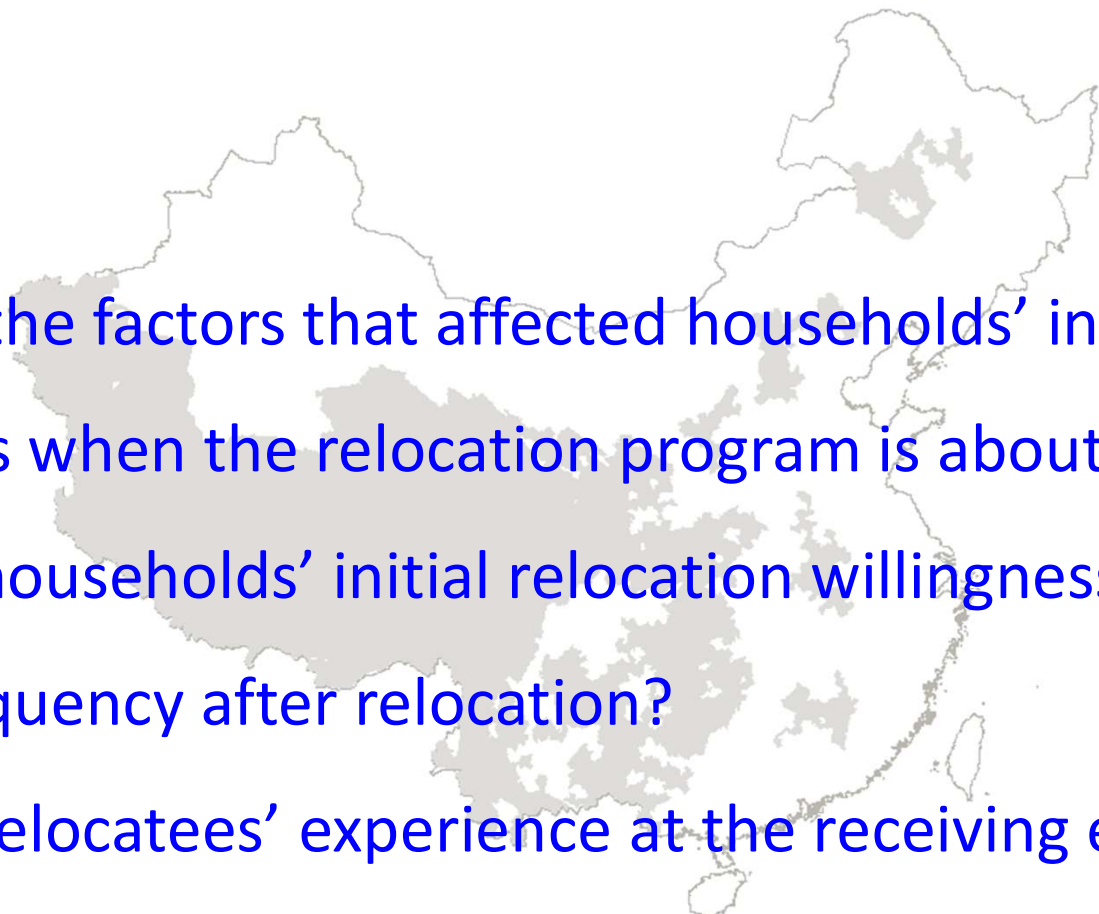
Self-driven relocation studies are mainly about the decision-making process, some of the factors that were identified are:

- ❖ Commute characteristics at both ends in origin and destination (Noe & Barber, 1993; Bukvic & Owen, 2017)
- ❖ The financial incentives (Wagner & Westaby, 2009)
- ❖ Individual and household characteristics
- ❖ Spouse effect (Eby & Russell, 2000; Ullrich et al., 2015)
- ❖ Natural amenities (Chi, 2010, 2012, Chi & Marcouiller, 2011, 2012, 2013a, 2013b)

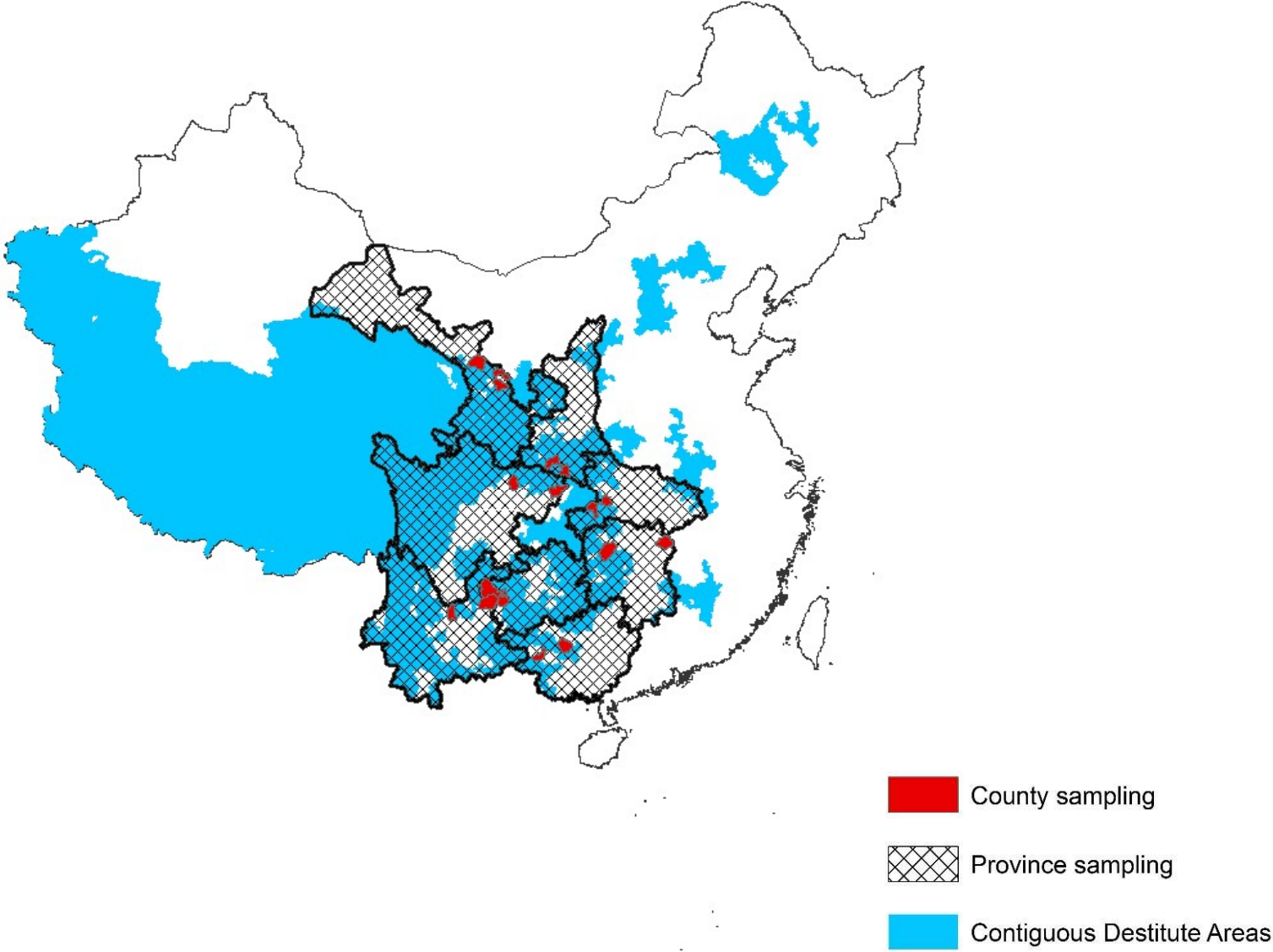
Theoretical framework



Research questions

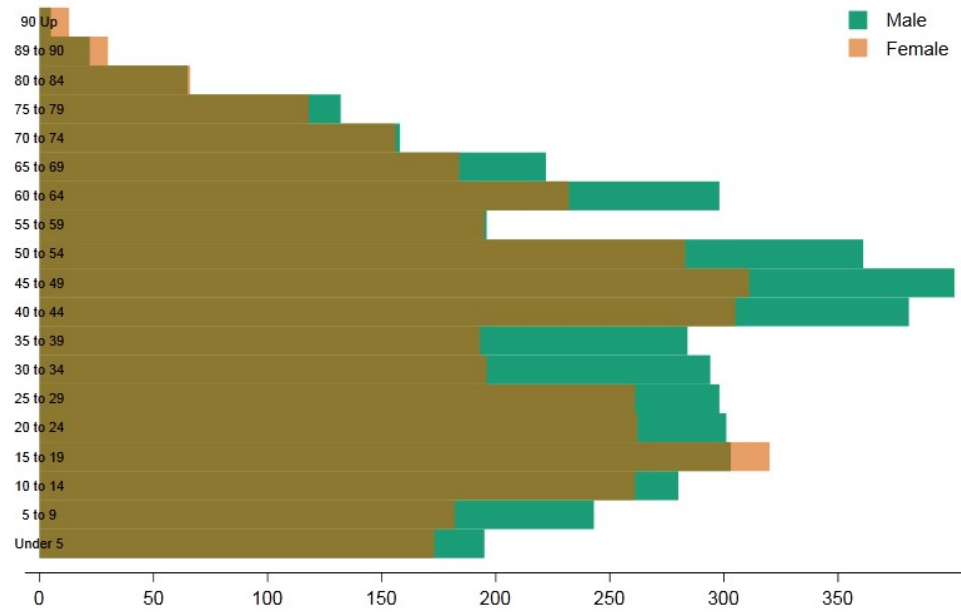
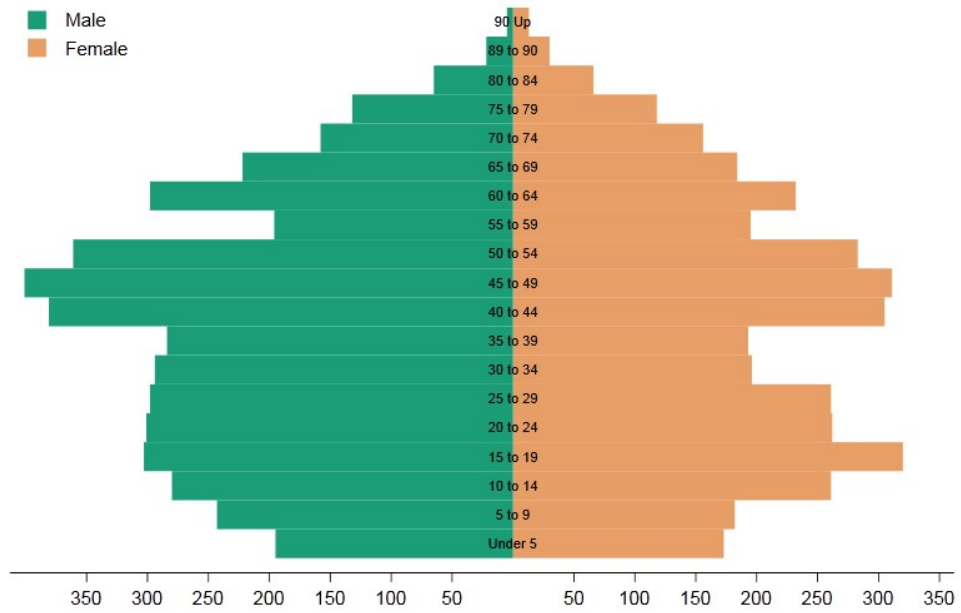
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1. What are the factors that affected households' initial relocation willingness when the relocation program is about to begin?
 2. Does the households' initial relocation willingness affect their return frequency after relocation?
 3. Does the relocatees' experience at the receiving end affect their return frequency?

Research Areas

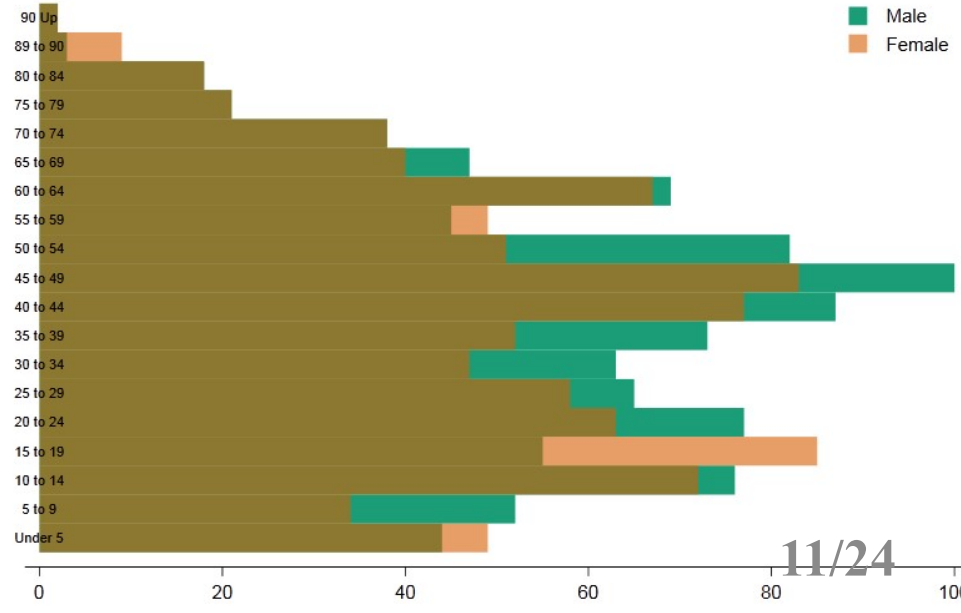
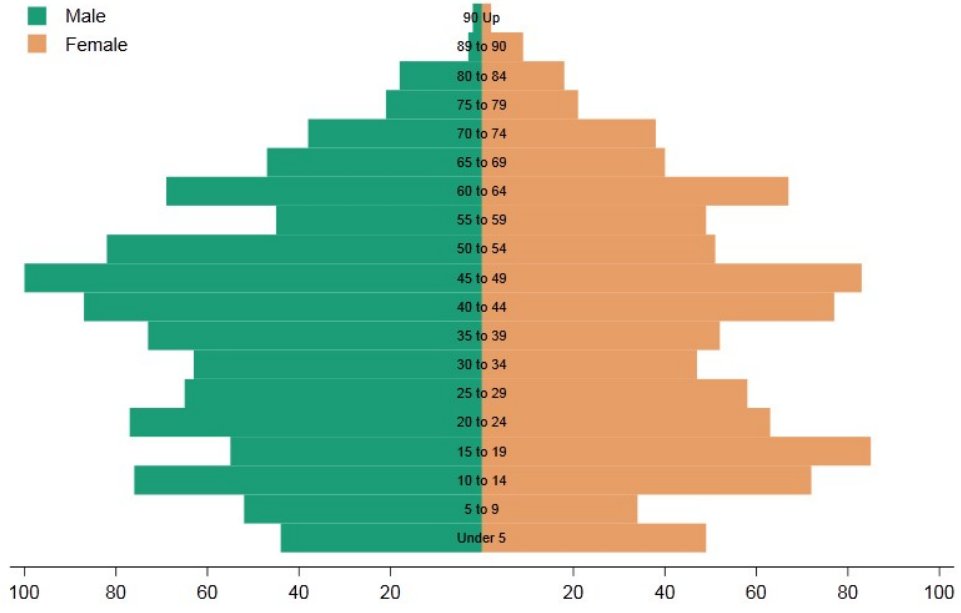


Sample Description

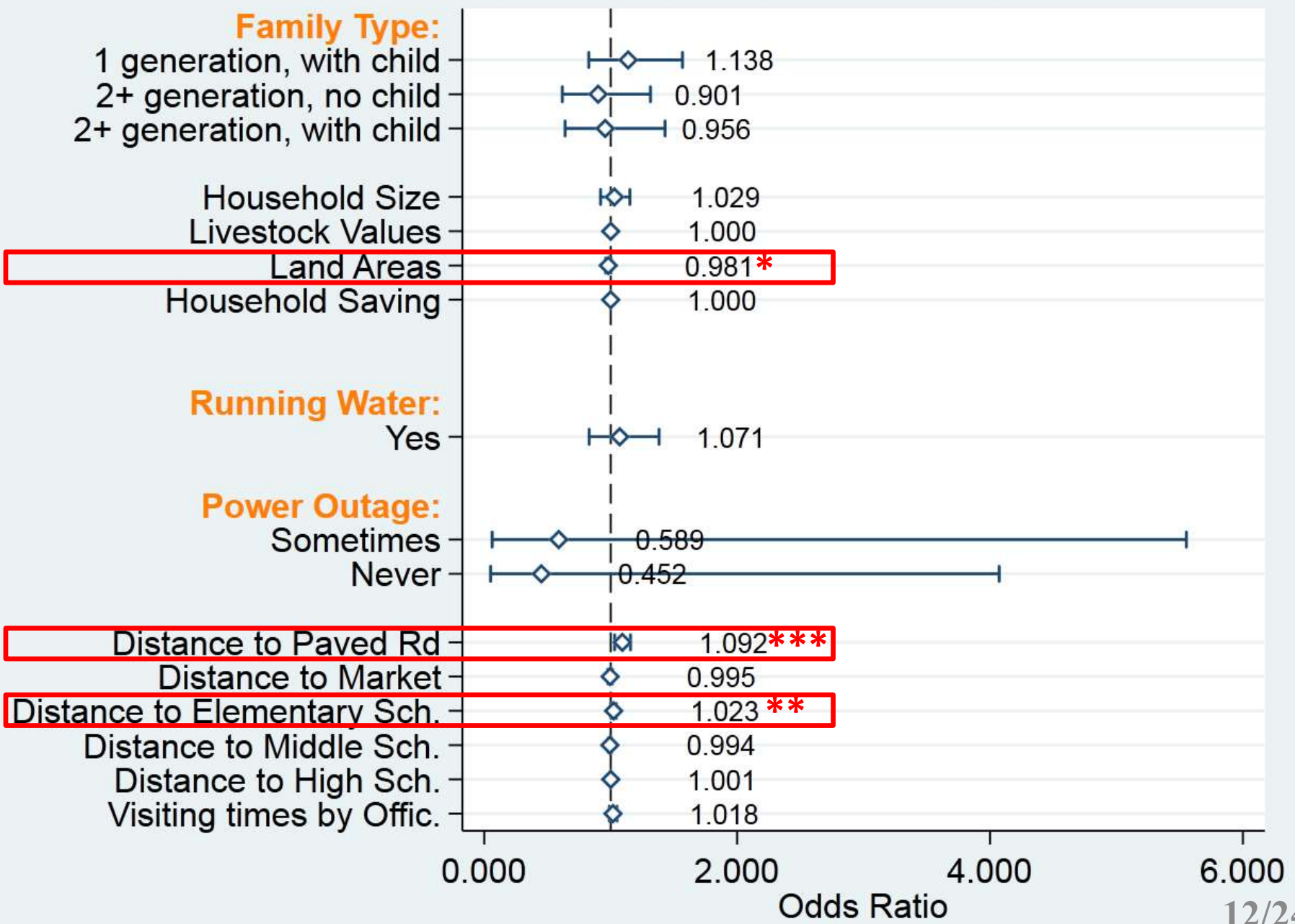
2016 Data: 8180 individuals from 2146 households



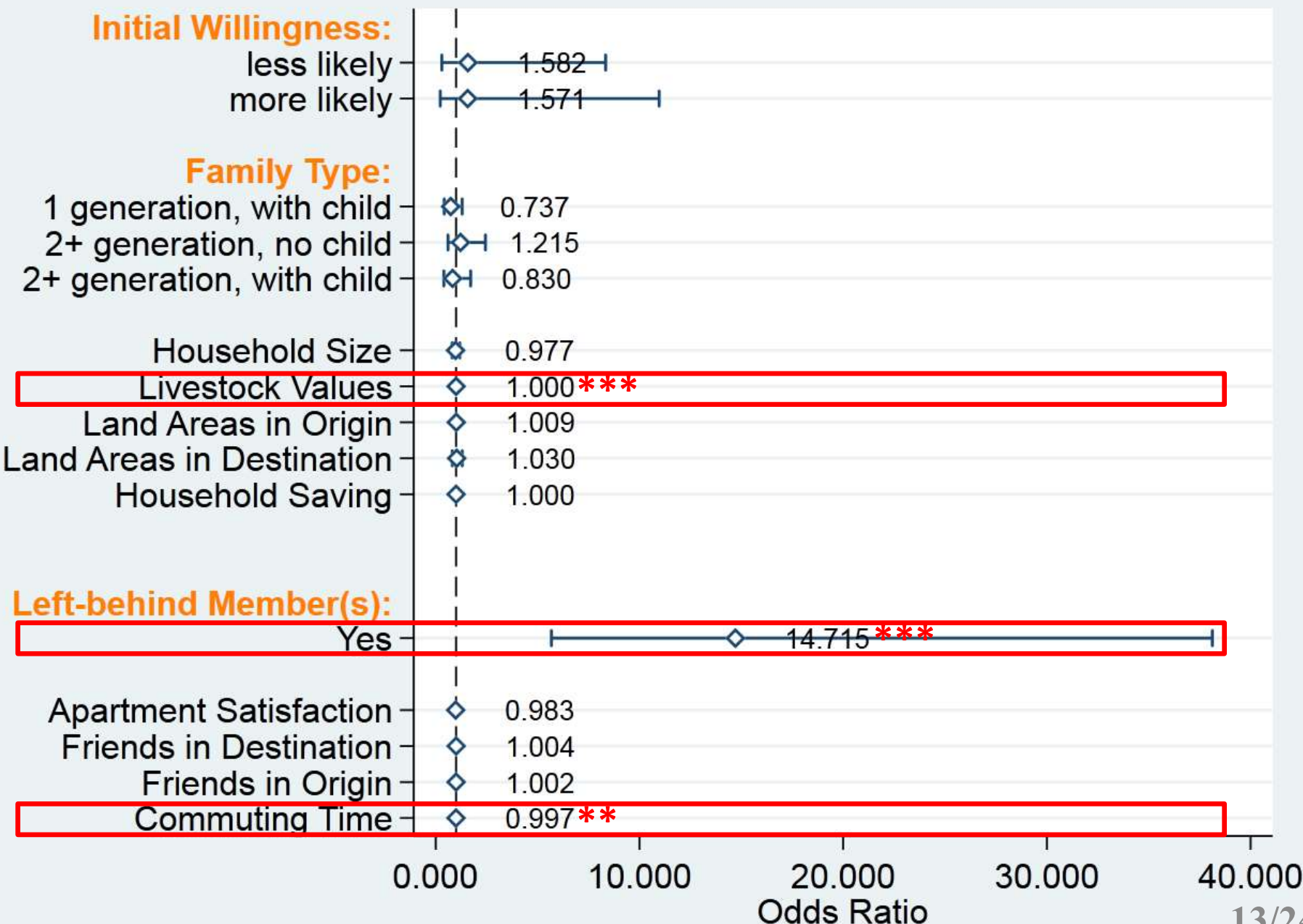
2017 Data: 1932 individuals from 475 households



Initial Willingness Model

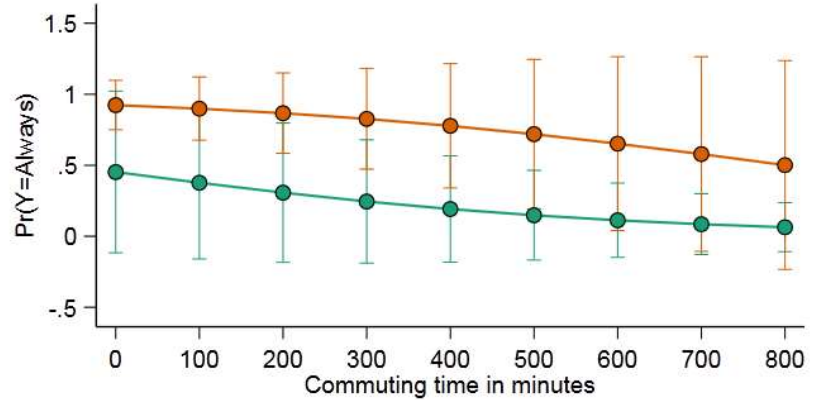
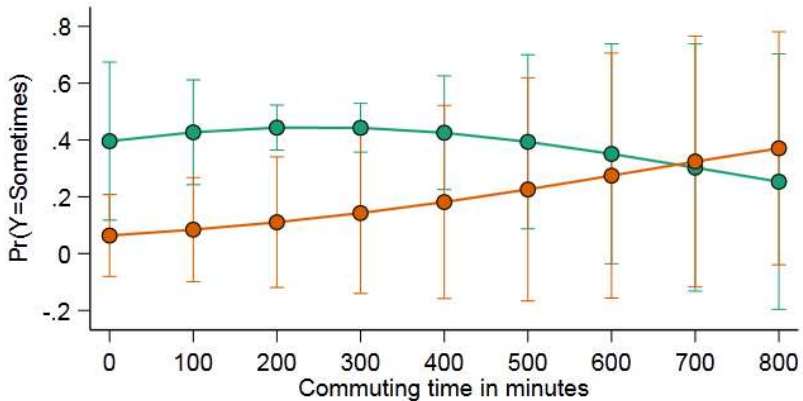
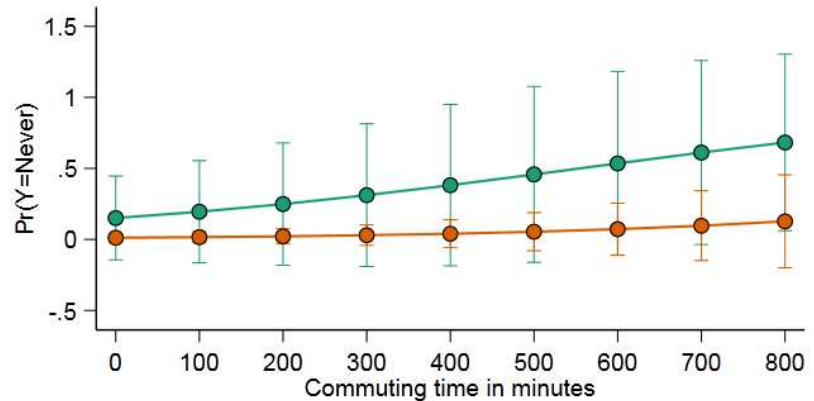


Return Frequency Model



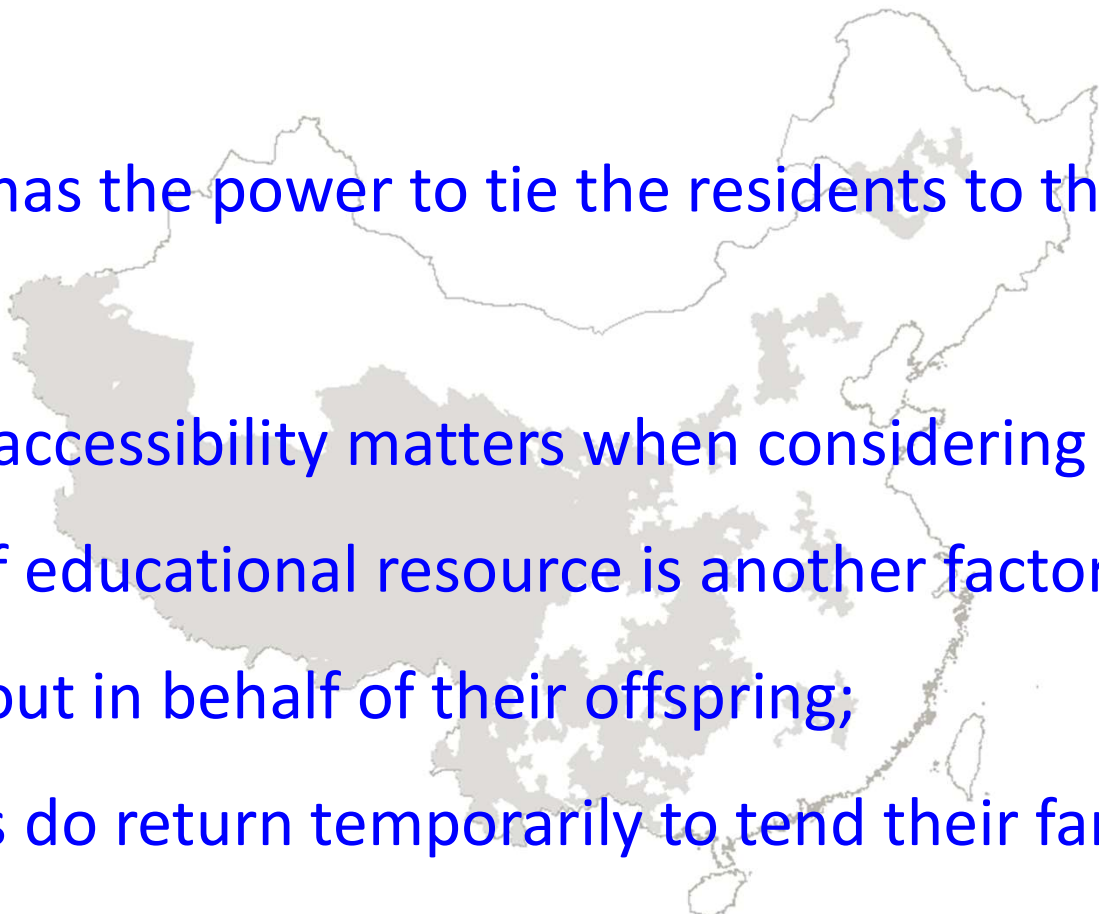
Relocateses with left-behind members return frequently, with the probability decrease slightly as the commuting time increase

Adjusted Predictions of Left-behind Members with 95% Confidence Intervals




● leftbehind=No
● leftbehind=Yes

Summary

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1. Farmland has the power to tie the residents to their places of origin;
 2. Transport accessibility matters when considering relocation;
 3. The lack of educational resource is another factor that pushes residents out in behalf of their offspring;
 4. Relocates do return temporarily to tend their family member and assets and gain agricultural income to diversify the foreseeable risks in the destinations.

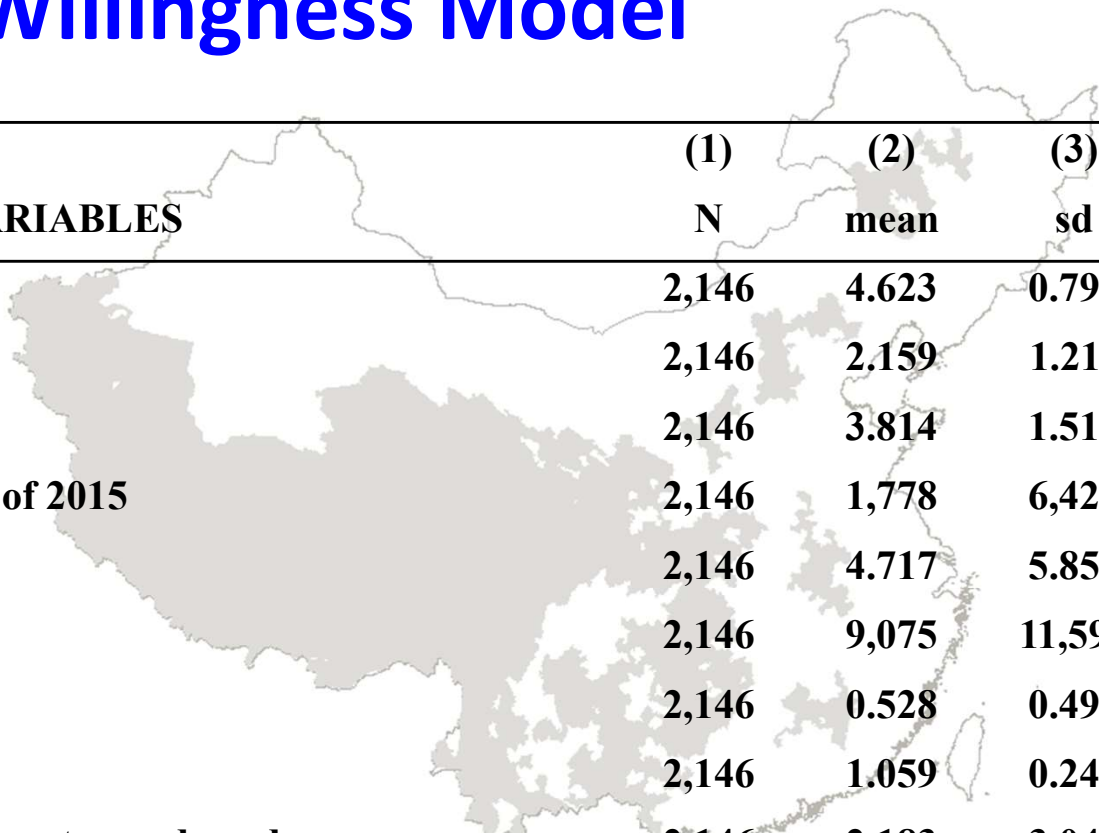
Future Study

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1. In the places of destination, will the social assimilation process and subsequent support be the issues that finally determine their migratory status in the future?
 2. Do environmental conditions improve in the places of origin after out-migration?

Relocation is by no means the end of the story,
It is just the beginning...

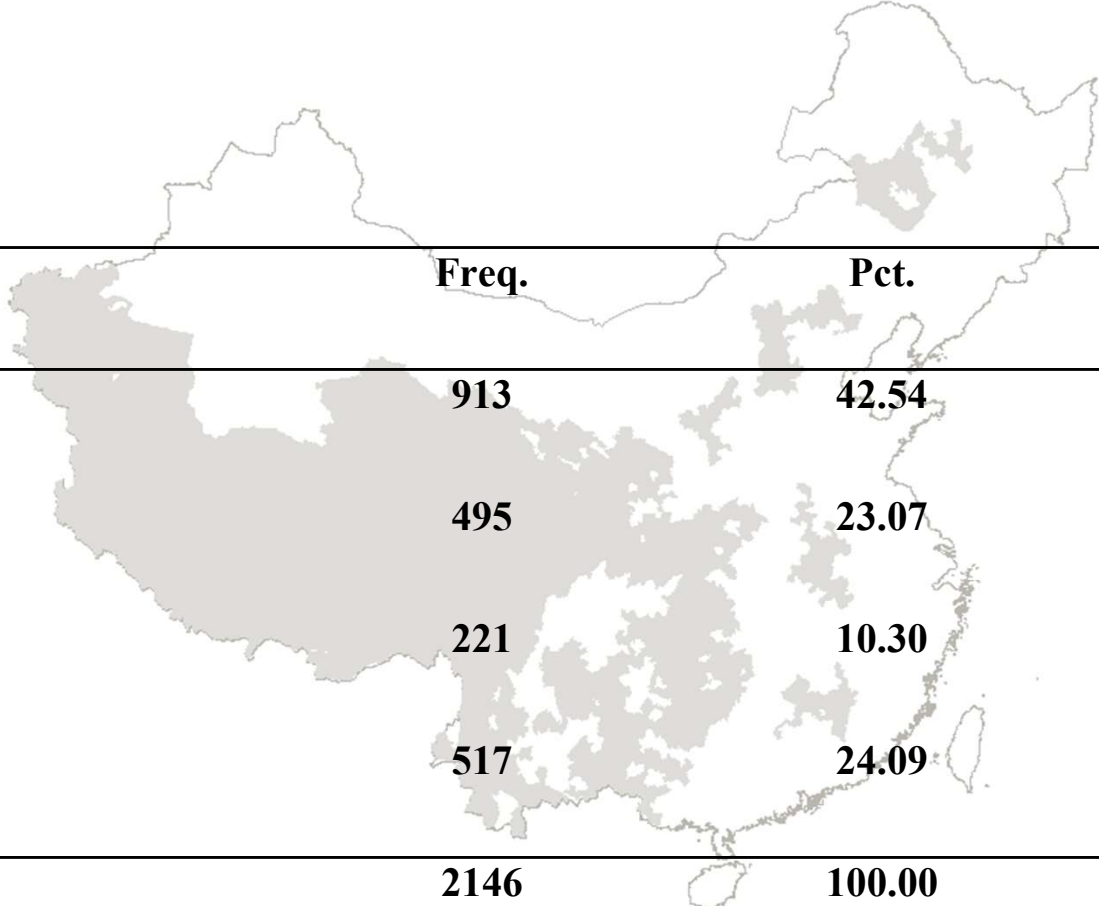
Full draft is available upon request

Appendix 1: Summary Statistics of Variables in Initial Relocation Willingness Model



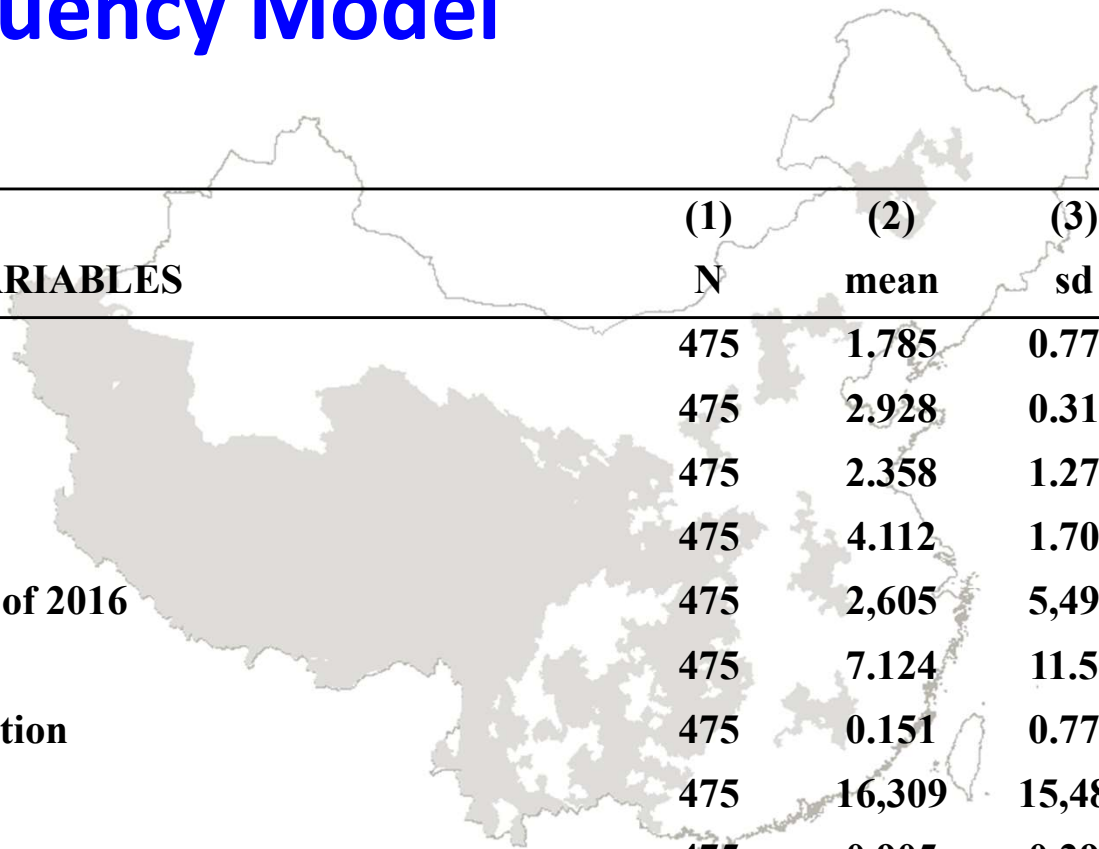
VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Dependent variable	2,146	4.623	0.791	1	5
Family type	2,146	2.159	1.211	1	4
Household size	2,146	3.814	1.519	1	10
Livestock values (Yuan) as of 2015	2,146	1,778	6,424	0	185,500
Land areas (Mu)	2,146	4.717	5.858	0	75
Household income (Yuan)	2,146	9,075	11,590	-127,201	215,500
Running water	2,146	0.528	0.499	0	1
Power outage	2,146	1.059	0.248	1	3
Distance (Kilometer) to nearest paved road	2,146	2.183	3.047	0	30
Distance (Kilometer) to nearest market	2,146	10.78	7.583	0	35
Distance (Kilometer) to nearest elementary school	2,146	7.146	7.347	0.0200	90
Distance (Kilometer) to nearest middle school	2,146	16.00	12.60	0.0300	110
Distance (Kilometer) to nearest high school	2,146	54.25	38.18	1	190
Visiting times by officials	2,146	4.469	4.324	0	50

Appendix 2: Family type table in 2016 data



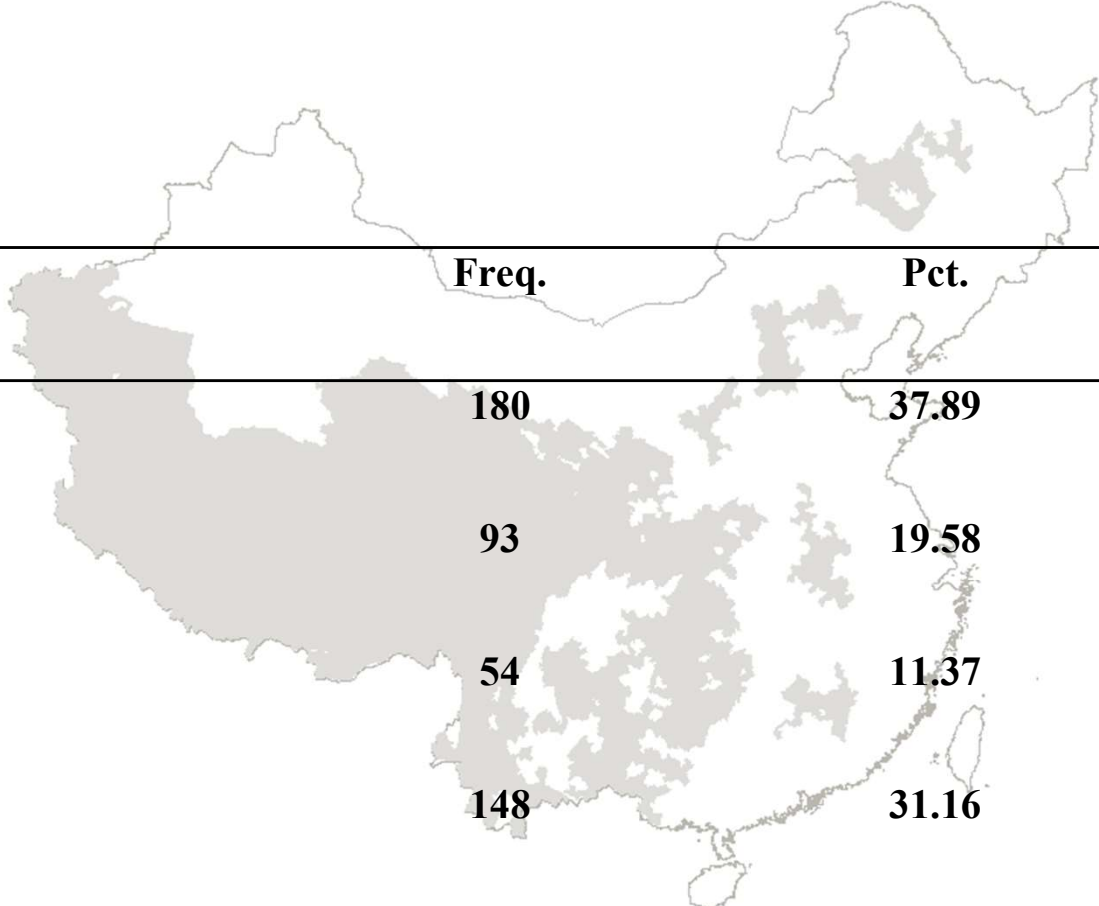
	Freq.	Pct.	Cumpct.
1 generation, no child	913	42.54	42.54
1 generation, with child	495	23.07	65.61
2+ generation, no child	221	10.30	75.91
2+ generation, with child	517	24.09	100.00
Total	2146	100.00	

Appendix 3: Summary Statistics of Variables in Return Frequency Model



VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Dependent variable	475	1.785	0.777	1	3
Initial willingness	475	2.928	0.317	1	3
Family type	475	2.358	1.271	1	4
Household size	475	4.112	1.708	1	11
Livestock values (Yuan) as of 2016	475	2,605	5,497	0	50,000
Land areas (Mu) in origin	475	7.124	11.52	0	221.4
Lang areas (Mu) in destination	475	0.151	0.779	0	8
Household income (Yuan)	475	16,309	15,487	-20,500	138,025
Left-behind members	475	0.905	0.293	0	1
Apartment satisfaction in destination	475	52	7.678	24	60
Number of friends in destination	475	13.74	20.25	0	136
Number of friends in origin	475	26.05	31.27	0	250
Commuting time in returning (Minute)	475	96.95	132.4	0	840

Appendix 4: Family type table in 2017 data



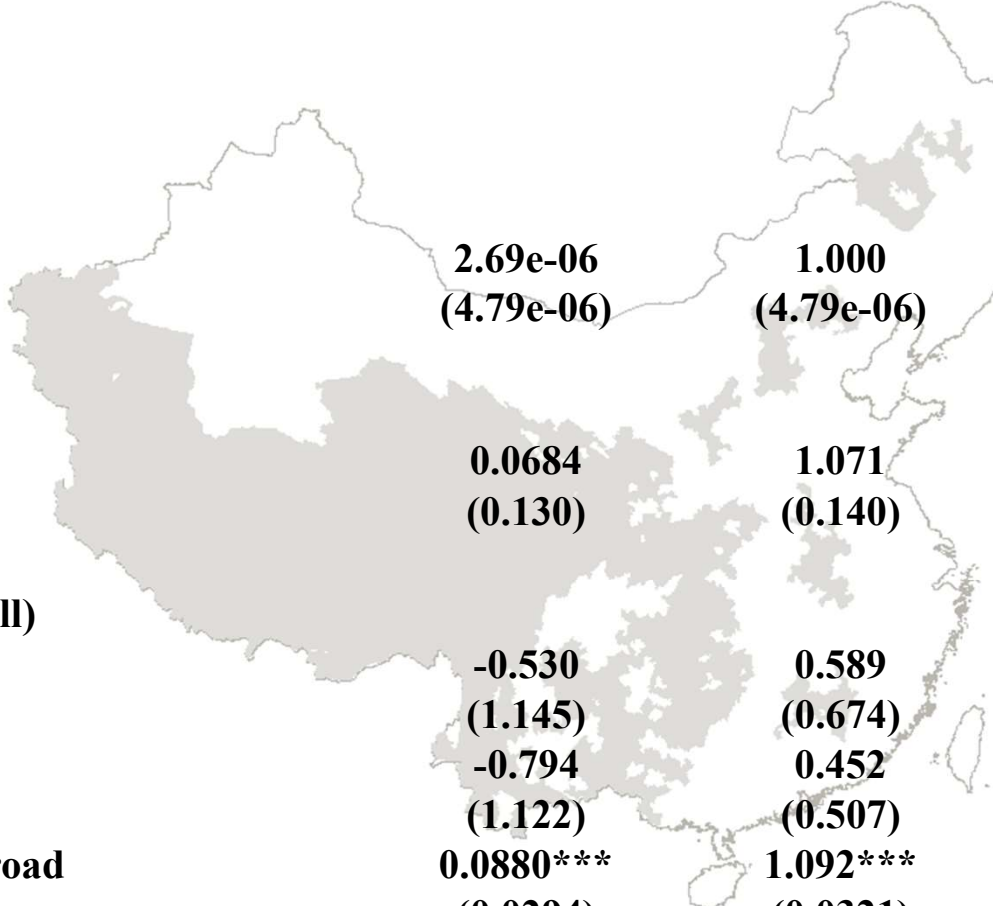
	Freq.	Pct.	Cumpct.
1 generation, no child	180	37.89	37.89
1 generation, with child	93	19.58	57.47
2+ generation, no child	54	11.37	68.84
2+ generation, with child	148	31.16	100.00
Total	475	100.00	

Appendix 5: Relocation Willingness and Return Frequency

Frequency Models

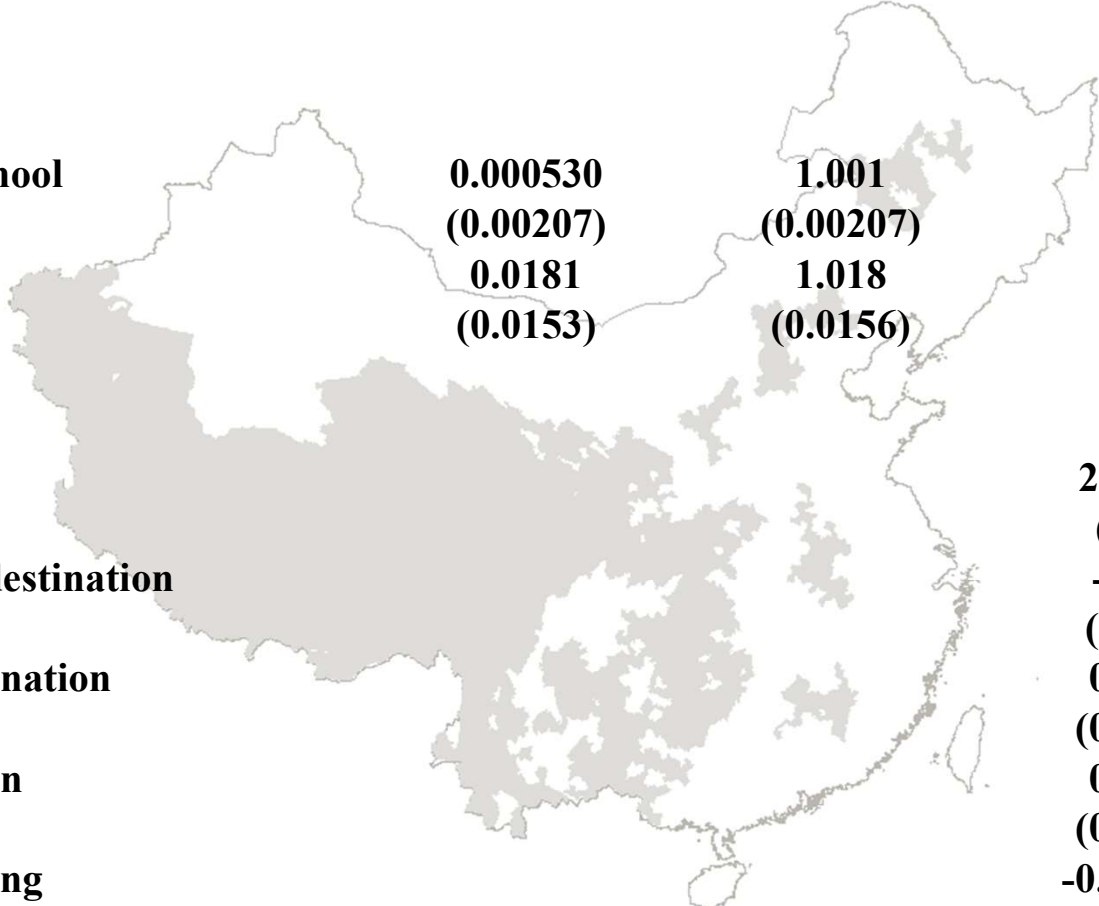
Explanatory variable	Relocation Willingness Model		Return Frequency Model	
	(1) Logit Coeff	(2) Odds Ratio	(3) Logit Coeff	(4) Odds Ratio
Initial Willingness (base group: undecided)				
Less likely to move			0.459 (0.848)	1.582 (1.342)
More likely to move			0.452 (0.992)	1.571 (1.558)
Family type (base group: one generation, no child)				
One generation, with child(ren)	0.129 (0.163)	1.138 (0.186)	-0.306 (0.289)	0.737 (0.213)
Two+ generations, no child	-0.104 (0.193)	0.901 (0.174)	0.195 (0.356)	1.215 (0.432)
Two+ generations, with child(ren)	-0.0447 (0.205)	0.956 (0.196)	-0.186 (0.370)	0.830 (0.307)
Household size	0.0288 (0.0573)	1.029 (0.0590)	-0.0236 (0.0978)	0.977 (0.0956)
Livestock values as of 2015	-4.68e-06 (6.87e-06)	1.000 (6.87e-06)		
Livestock values as of 2016			9.67e-05*** (2.40e-05)	1.000*** (2.40e-05)
Land areas	-0.0194* (0.0113)	0.981* (0.0111)		

Appendix 5: Relocation Willingness and Return Frequency Models (to be continued)



Land areas in origin			0.00905 (0.0123)	1.009 (0.0124)
Land areas in destination			0.0297 (0.120)	1.030 (0.123)
Household income	2.69e-06 (4.79e-06)	1.000 (4.79e-06)	5.32e-06 (8.73e-06)	1.000 (8.73e-06)
Running water (dummy variable)				
Yes	0.0684 (0.130)	1.071 (0.140)		
Power outage (base group: No power at all)				
Sometimes	-0.530 (1.145)	0.589 (0.674)		
Never	-0.794 (1.122)	0.452 (0.507)		
Distance to nearest paved road	0.0880*** (0.0294)	1.092*** (0.0321)		
Distance to nearest market	-0.00465 (0.00929)	0.995 (0.00925)		
Distance to nearest elementary school	0.0230** (0.0105)	1.023** (0.0108)		
Distance to nearest middle school	-0.00612 (0.00633)	0.994 (0.00629)		

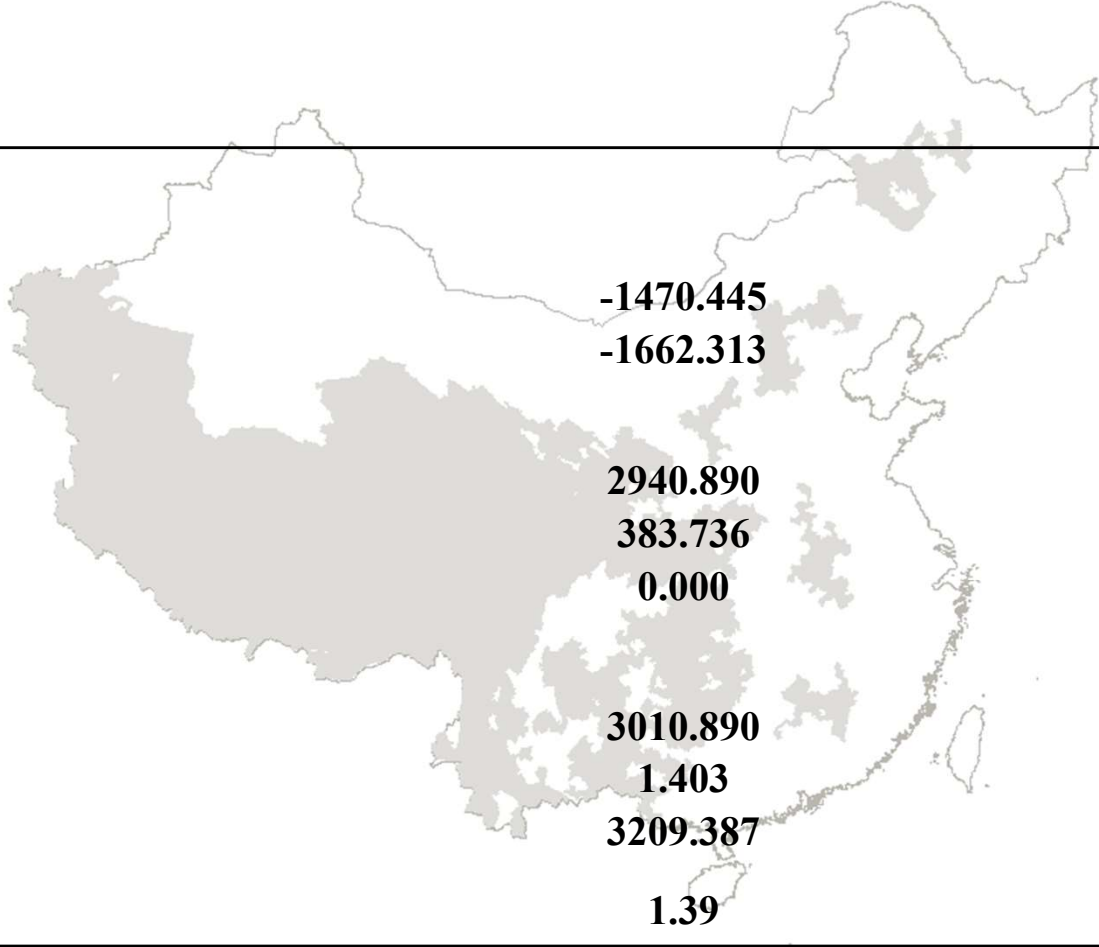
Appendix 5: Relocation Willingness and Return Frequency Models (to be continued)



	Controlled	Controlled
Distance to nearest high school	0.000530 (0.00207)	1.001 (0.00207)
Visiting times by officials	0.0181 (0.0153)	1.018 (0.0156)
Left-behind members (dummy variable) Yes		2.689*** (0.486)
Apartment satisfaction in destination		14.71*** (7.147)
Numbers of friends in destination		-0.0174 (0.0141)
Numbers of friends in origin		0.983 (0.0138)
Commuting time in returning		0.00413 (0.00484)
		1.002 (0.00324)
		-0.00312** (0.00126)
County effect	Controlled	Controlled
Observations	2,146	474

Appendix 5: Relocation Willingness and Return Frequency Models (to be continued)

Diagnostics



Log-likelihood		
Model	-1470.445	-434.025
Intercept-only	-1662.313	-503.434
Chi-square		
Deviance	2940.890	868.049
LR	383.736	138.818
p-value	0.000	0.000
IC		
AIC	3010.890	928.049
AIC divided by N	1.403	1.958
BIC	3209.387	1052.886
Mean VIF	1.39	1.35

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1