

Subsidized Relocation and the Willingness to Move Evidence from the Targeted Poverty Alleviation Project (TPAP) in China

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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	Continually increase	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	Ministry of Finance, 2016

The TPAP is government-subsidized, voluntary relocation program

Time period: 2016-2020

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

Purposes: Poverty reduction & environmental restoration

Subsidy: Government-built apartment or in-kind benefits

Relocation methods: Scatter- & cluster- site relocation

Relocation distance: on average 97 minutes'
walking distance, round-trip

Voluntary or involuntary: Voluntary



Research questions

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 visit frequency after relocation?
3. What are the other factors that associated with their visit frequency?

A theoretical revisit

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

Neoclassical Economics : Individual’s cost-benefit calculation

(Todaro, 1969; Todaro & Maruszko, 1987; Massey & Espinosa, 1997)

New Economics of Labor Migration : Unbalanced market, relative deprivation, human capital (Massey et al., 1998)

Gerontology: Aging in place, retirement migration (Wiles et al., 2011)

Migration system: incorporates structural constraints and the agency of the actors (Bakewell, 2014; Cooke & Bélanger, 2006)

Previous studies on government-driven relocation

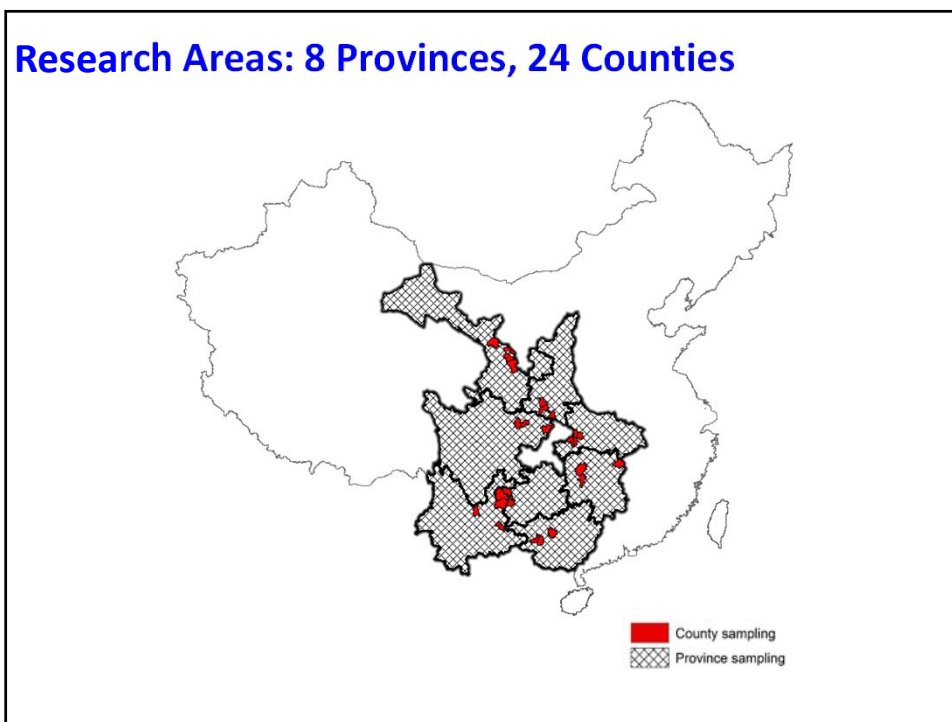
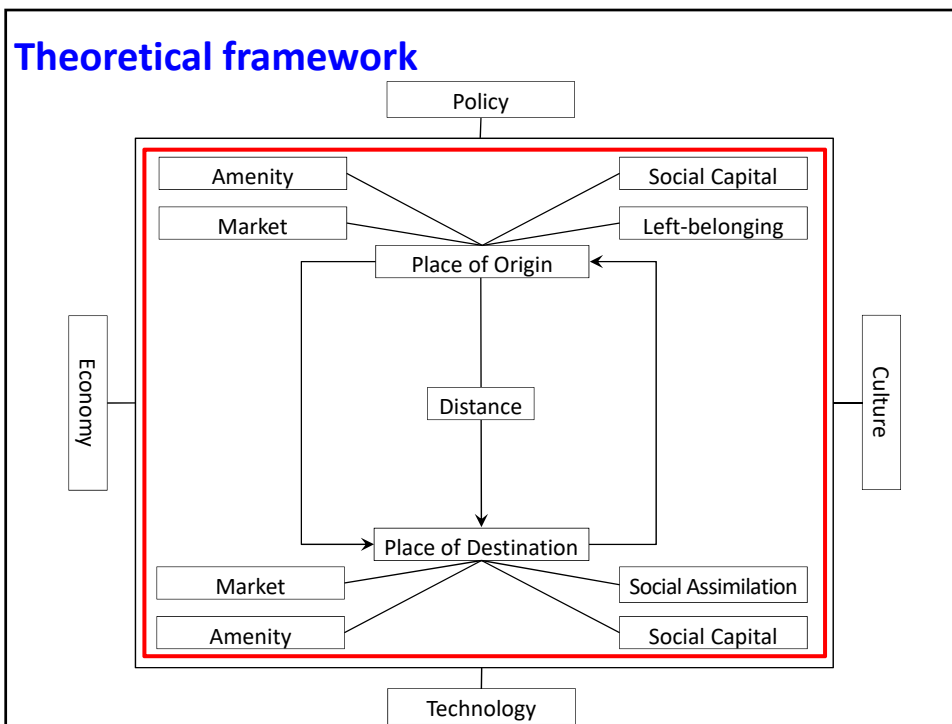
Government-driven relocation studies focus on their impacts on:

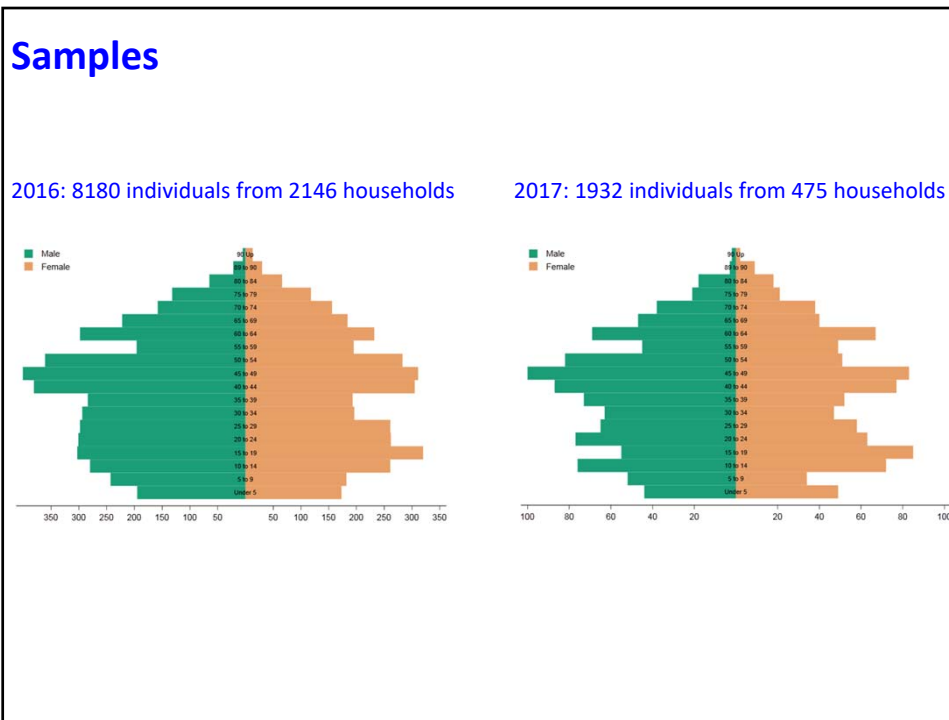
Poverty reduction (Black et al., 1975; Beaumont, 1977)

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)





Variables, methods, and missing data

Variables

Initial Willingness Model		Visiting Frequency Model	
DV	Initial willingness towards relocation	DV	Visiting frequency
IVs	Demographics	IVs	Initial willingness
	Household economy		Demographics
	Community amenities		Household economy
	Familiarity with relocation policies		Social & economic support
			Relocation distance

Variables, methods, and missing data

Methods

$$\ln(Y_j') = \text{logit}[\pi(x)] = \ln\left(\frac{\pi_j(x)}{1 - \pi_j(x)}\right)$$

$$= \alpha_j + (-\beta_1 X_1 - \beta_2 X_2 - \dots - \beta_p X_p)$$

Missing data on:

Household Head and corresponding information (n=8)

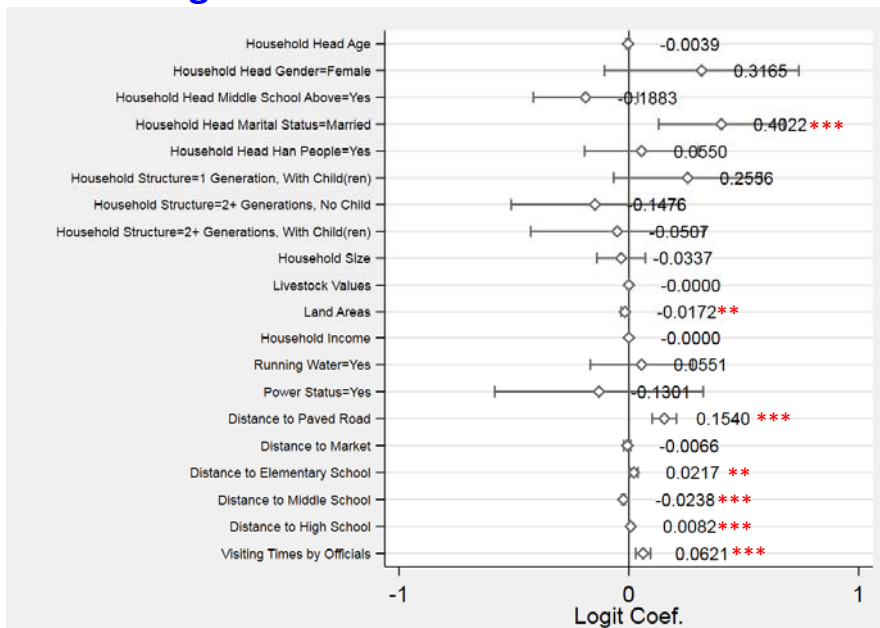
Income-related variables (n=5)

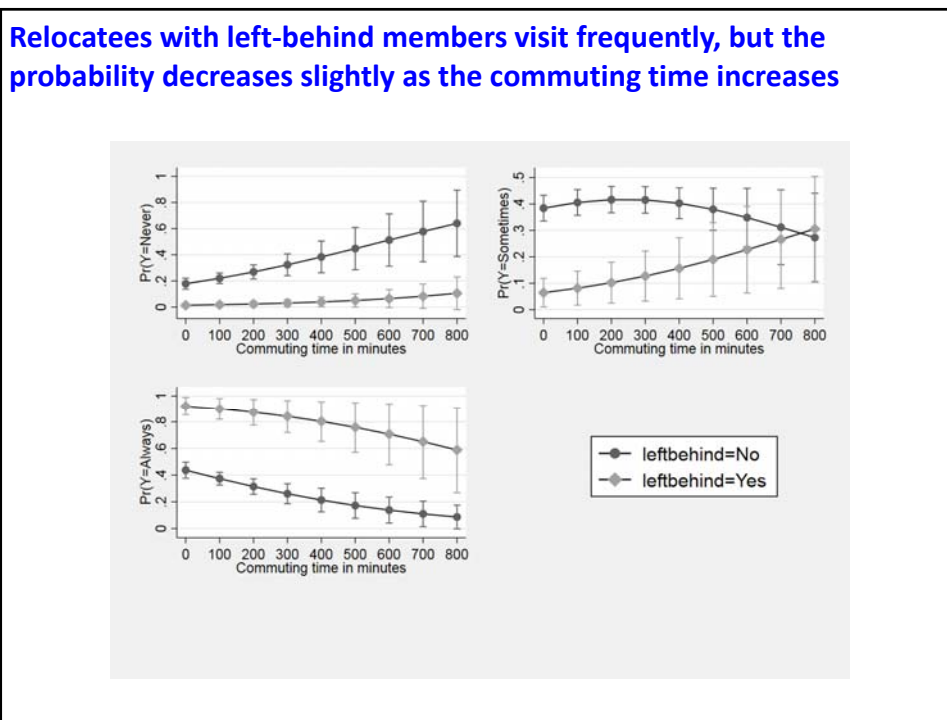
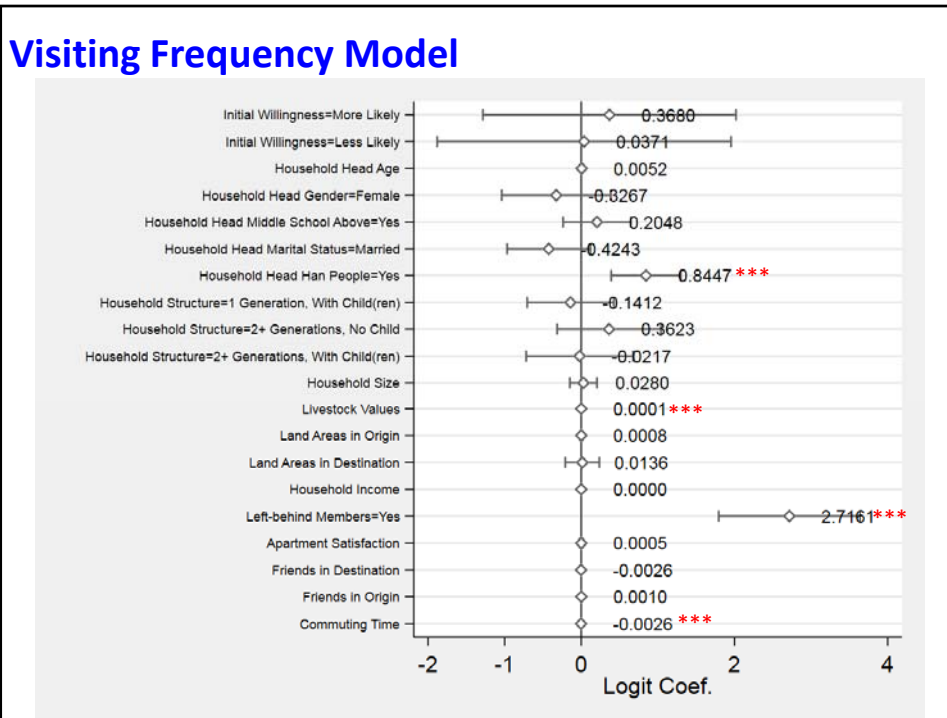
and other variables

1. Double-check the questionnaire
2. Mean-based imputation



Initial Willingness Model





Summary

1. Farmlands tie the residents to their places of origin;
2. Transportation accessibility matters when considering relocation;
3. The lack of educational resource is another factor that pushes residents out for the benefits of their children;
4. Relocates do visit temporarily to tend their family members and assets.

Limitations and next steps

Limitations:

1. Short spacing between two waves;
2. Issues in both model: did not control for distance and community characteristics (initial willingness model), and time of staying in the destination (visiting frequency model)

Next steps:

Relocation is by no means the end of the story, it is just the beginning. We want to see how this relocation project affects the relocates and their offspring through longitudinal studies, like their long-term stability, poverty status, working opportunities, health, and educational achievement.

Thanks.

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

Variable	Obs.	Mean	Std. Dev.	Min	Max
Initial Willingness	2,146	4.623486	0.791498	1	5
Household Type	2,146	2.159366	1.211348	1	4
Household Size	2,146	3.814073	1.518927	1	10
Livestock Value	2,146	1778.122	6423.901	0	185500
Land Area	2,146	4.71664	5.857931	0	75
Household Income	2,146	9074.505	11590.48	-127201	215500
Running Water	2,146	0.528425	0.4993077	0	1
Power Outage	2,146	0.943616	0.2307155	0	1
Distance to Nearest Paved Road	2,146	2.182977	3.047162	0	30
Distance to Nearest Local Market	2,146	10.7846	7.582908	0	35
Distance to Nearest Primary School	2,146	7.145986	7.346653	0.02	90
Distance to Nearest Middle School	2,146	15.99575	12.60285	0.03	110
Distance to Nearest High School	2,146	54.24901	38.17531	1	190
Visiting Times By Officials	2,146	4.468779	4.324075	0	50
Household Head Age	2,146	52.95387	12.50452	10	89
Household Head Gender	2,146	1.069897	0.2550336	1	2
Household Head Achieved Middle School	2,146	0.2940354	0.4557141	0	1
Household Head Han People	2,146	0.6989748	0.4588105	0	1
Household Head Marital Status	2,146	0.7879776	0.4088359	0	1

Appendix 2: Summary Statistics of Variables in Visiting Frequency Model

Variable	Obs.	Mean	Std. Dev.	Min	Max
Visiting Frequency	475	2.214737	0.776904	1	3
Initial Willingness	475	2.021053	0.233256	1	3
Household Type	475	2.357895	1.270534	1	4
Household Size	475	4.111579	1.708187	1	11
Livestock Value	475	2604.632	5497.228	0	50000
Land Area in Origin	475	7.124189	11.52477	0	221.4
Land Area in Destination	475	0.151158	0.779439	0	8
Household Income	475	16308.69	15487.45	-20500	138025
Left-behind Member	475	0.094737	0.29316	0	1
Housing Satisfaction	475	51.49053	8.166091	14	60
Friends in Destination	475	13.73895	20.24719	0	136
Friends in Origin	475	26.05474	31.27274	0	250
Commuting Time	475	96.94613	132.432	0	840
Household Head Age	475	53.21053	12.08906	20	87
Household Head Gender	475	1.077895	0.268288	1	2
Household Head Achieved Middle School	475	0.246316	0.431319	0	1
Household Head Marital Status	475	0.806316	0.395601	0	1
Household Head Han People	475	0.772632	0.419574	0	1

Appendix 3: Model Diagnostics

Initial Willingness Model		Visiting Frequency Model	
	ologit		ologit
Log-likelihood		Log-likelihood	
Model	-1572.507	Model	-458.391
Intercept-only	-1662.313	Intercept-only	-504.275
Chi-square		Chi-square	
Deviance(df=2122)	3145.013	Deviance(df=453)	916.781
LR(df=20)	179.612	LR(df=20)	91.769
p-value	0	p-value	0
R2		R2	
McFadden	0.054	McFadden	0.091
McFadden(adjusted)	0.04	McFadden(adjusted)	0.047
McKelvey & Zavoina	0.154	McKelvey & Zavoina	0.222
Cox-Snell/ML	0.08	Cox-Snell/ML	0.176
Cragg-Uhler/Nagelkerke	0.102	Cragg-Uhler/Nagelkerke	0.2
Count	0.756	Count	0.526
Count(adjusted)	-0.002	Count(adjusted)	0.167
IC		IC	
AIC	3193.013	AIC	960.781
AIC divided by N	1.488	AIC divided by N	2.023
BIC(df=24)	3329.126	BIC(df=22)	1052.374
Variance of		Variance of	
e	3.29	e	3.29
y-star	3.888	y-star	4.23
Mean VIF	1.3	Mean VIF	1.33