Intergenerational Transfers and Elderly Welfare during the Era of Mobile Communication

Yiyue Huangfu, University of Wisconsin- Madison

Much of Southeast Asia relies on familial exchange to support the health and welfare of aging cohorts. In Indonesia, over half of elders received transfers from adult children. Connectivity between non coresident family members is of increasing importance because urbanization gave rise to migration and family dispersion. During the past two decades, the use of mobile technology spread quickly across the regions, introducing potential changes to exchange in family networks, including family support of the elders. On one hand, mobile technology may strengthen communication and the provision of support to elders. On the other, mobile communication may foster migration away from parents' homes and communities, weakening caregiving. In this study, I examined the impact of the expansion of cellular technology on elderly welfare using data from two rounds of the longitudinal Indonesia Family Life Survey that span a rapid expansion of cellular signal across the archipelago. Using data on 2,673 elderly Indonesians and their adult children, I demonstrate evidence that non coresident adult children support their aging parents through transfer. I then use georeferenced data on the cellular signal to study how transfer change as mobile technology became more widely available. I found little support on the impact of elders' cellular coverage on their receiving of transfer; but found evidence that non coresident adult children were more likely to send and send larger amount of transfer if they had better signal coverage. These findings point to important understanding of elderly welfare in relation to the connecitivity between non coresident family members.

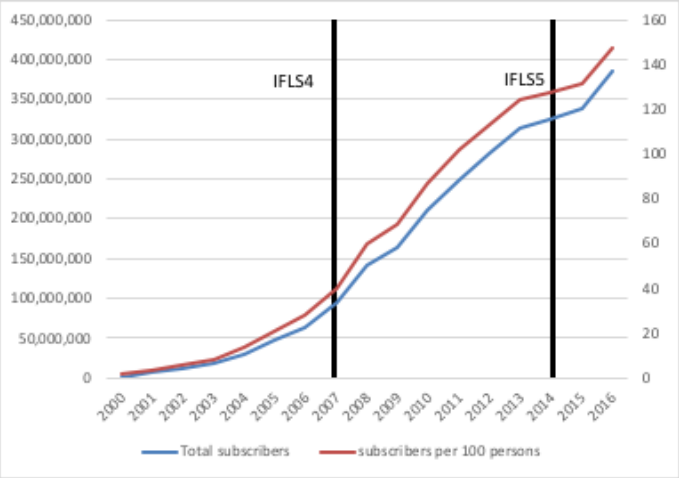
Background

Intergenerational transfer is an important way for older individuals to get help from family members. In Indonesia, the deeply rooted family cohesion and filial piety ensures the reciprocal exchanges within family (Geertz,1961,1963; Schroder-Butterfill, 2005). However, the recent trends of aging caused concern about how a younger generation that is smaller and more mobile could continue to support a growing share of older population (Bloom et al, 2011). The rapid development of the cellular communication industry provides an opportunity to preserve the connections among family members which in turn may benefit elders (Wellman and Wortley,1990). I aim to test: a. whether and to what extent is elderly supported by non coresident adult children; b. how this relationship is altered by the rapid development of telecommunication.

Intra-familial transfer provides the theoretical foundation for this analysis. Family members can be altruistically connected and share resources to support each other (Becker, 1981;1974). Evidence shows households in extended family pool resources to smooth consumption (Witoelar, 2005), support the development of children and elders (LaFave and Thomas, 2017; Frankenberg et al., 2002). It remains to be known if and to which extent are elders benefiting from these transfers.

Family members could stay connected more easily and have closer connection with each other thanks to the convenient and individualized communication device like cell phone (Ling, 2002; Wei and Ho, 2006). This improved connectivity could lead to more tightly knitted families which manifests themselves in supporting elders. Indonesia experienced rapid development of telecommunication since the beginning of last decade. As it is shown in Figure 1, the number of cell phone subscribers grew from less than 2 million in 2000 to 211 million in 2011, passing 100 subscriptions per 100 individuals (ITU,2017). This study used data from IFLS4 and IFLS5, spanning most of the rapid growth period. Due to the development disparity and the archipelagic landscape, there was considerable variation in timing and levels of cell phone communication growth. I exploited this geographical and temporal variation to study how the extended family's support for elders differ in for elders with differential telecommunication access.

Figure 1. Number of total cellular phone subscribers and subscribers per 100 persons in Indonesia



Source: International Telecommunication Union.

Methods

Data. This study uses Indonesia Family Life Survey for individual, household and family level information; and Village Potential Statistics (PODES) for village/community level information about the cell phone signal coverage. IFLS contains detailed information about respondents' demographic, socioeconomic and health conditions. Importantly, the survey contains detailed information on non coresident family members and tracked split-off and formation of households longitudinally. IFLS 4 (2007) and IFLS 5(2014) were used in the analysis. Cell signal coverage is measured at the community level by asking community heads about if the village had strong, weak or no signal coverage. PODES fielded in 2006, 2008, 2011 and 2014 were used. After matching IFLS and PODES data at the subdistrict (*kecamatan*) level, cell signal coverage is determined by the share of communities in the subdistrict with strong signal.

Study Population. Elders in the study is defined as individuals older than 55 years in 2007 and survived to 2014 since the retirement age in 2007 was 55 (McKee, 2006). Elders must have at least one non coresident adult children to be included in the study sample. I also looked at transfers from adult children's perspective. Since the data did not allow me to look at the children of those in the elders sample, I examined the transfer from adult children were individuals aged 30-55, with at least one parent alive, and did not live with parents.

Analysis. In the first step, I tested how elderly welfare is affected by transfers from non coresident children: $\theta = Tr + \boldsymbol{C} + \varepsilon$. Tr is the money value of transfers of goods and money from all non coresident children, $\boldsymbol{C}$ is an array of individual level controls, including elders' age, education, sex, own asset, coresident status, and whether they were working; ε is the error term. Next, I examined whether cell signal exposure was associated with transfer from both parents' and children's perspective through the model: $Tr = S + \boldsymbol{C} + \varepsilon$ where signal is the share of communities with strong signal in the subdistrict as mentioned before. $\boldsymbol{C}$ here include not only individual characteristics but also subdistrict characteristics to account for the possible factors affecting both signal development and transfers. I first fit a logistic regression model with dichotomous variable indicating whether parents received/children gave transfer, then an OLS regression with amount of good and monetary transfers.

Preliminary Results

Intergenerational Transfers

Table 1 demonstrates that it is common for elders to received transfers from non coresident children. In 2007 and 2014, more than 80% of elders received transfers. Money and goods were the main form of transfer. There were some elders received chores and business help from non coresident children but the proportions were small. I focused on the money and good transfers quantified in money value in this analysis.

Table 1. % Received Transfers from Non coresident Children and the Amount Received

	# received transfer		amount received (1,000)		# receive money		# receive good		# receive chores		# receive business help	
	2007	2014	2007	2014	2007	2014	2007	2014	2007	2014	2007	2014
received	83.2%	81.0%	3,231	3,607	76.20%	72.30%	56.00%	50.50%	14.40%	12.70%	2.40%	2.90%
Total	2,112	2,673	--	--	2,112	2,673	2,112	2,673	2,112	2,673	2,112	2,673

Transfer and Elderly Welfare

The elderly outcomes include 4 measures of health (physical functioning limitations, ADL, IADL, and acute morbidity), a measure of cognitive ability (word recall list), and 2 measures of subjective wellbeing (dichotomous variable indicating family life and living standard satisfaction). For each outcome, I tested the association between outcome and transfer dummy (column 1 – 7) and if received, transfer amount (column 8 -14), respectively. Those who received transfer were likely to have less physical functioning and activity of daily life limitation; those with more acute morbidity was more likely to received transfer. In terms of those received transfers, the amount of transfer was associated with less instrumental daily activity limitation, higher cognitive ability, and higher odds of being satisfied of family life and living standard.

Table 2. Regression of Elderly Outcomes on Transfer Dummy and Amount.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
VARIABLES	Physical Functioning Limitation	ADL	IADL	Acute Morbidity	Cognitive Ability	Family Life	Living Std.	Physical Functioning Limitation	ADL	IADL	Acute Morbidity	Cognitive Ability	Family Life	Living Std.
Transfer Dummy (received =1)	-0.261**	-0.055**	-0.032	0.281***	0.083*	0.008	-0.053							
	(0.110)	(0.028)	(0.050)	(0.077)	(0.044)	(0.114)	(0.116)							
Transfer Amount (Logged)								-0.031	-0.007	-0.041***	0.012	0.035***	0.126***	0.133***
								(0.030)	(0.007)	(0.014)	(0.021)	(0.012)	(0.032)	(0.032)
Year (2014=1)	0.373***	0.139***	0.421***	0.336***	0.044	-0.254***	-0.366***	0.429***	0.144***	0.466***	0.345***	0.037	-0.306***	-0.447***
	(0.081)	(0.021)	(0.037)	(0.057)	(0.032)	(0.084)	(0.085)	(0.090)	(0.022)	(0.041)	(0.064)	(0.036)	(0.094)	(0.096)
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.172	0.033	0.105	0.026	0.200			0.165	0.035	0.111	0.021	0.200		

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Cellular Communication and Transfers

Next, I tested if elders with better cellular signals were more likely to receive transfer or receive higher amount of transfers. The results in Table 3 panel a. indicate those with better access to cellular coverage did have higher odds of receiving transfer or received higher amount of transfer. In Table 3 panel b., I tested if adult children who were not coresident with parents were more likely to give or give higher amount of transfer to their aging parents if they had better signal coverage. The result indicates a significant positive association between children's signal coverage and both their odds in sending transfers to non coresident parents and the amount sent.

Table 3. Regression of Transfer Dummy and Amount Cellular Signal Coverage

a. Elders' Signal Coverage

VARIABLES	Tranfer Dummy	Transfer Amount
Subdistrict Signal Coverage	0.001	-0.001
	(0.003)	(0.001)
Individual Controls	yes	yes
District Controls	yes	yes
R-squared		0.145

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

b. Adult children's signal coverage

VARIABLES	Transfer Dummy	Transfer Amount
Subdistrict signal coverage	0.002**	0.002***
	(0.001)	(0.001)
Individual Controls	yes	yes
District Controls	yes	yes
R-squared		0.170

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Preliminary Conclusion and Next Steps

In conclusion, these preliminary results confirmed and quantified the important relationship between non coresident adult children transfer and elderly welfare. The analysis found little support on the impact of cellular communication on parents' receiving transfer; but found evidence on non coresident adult children more likely to send transfer and send larger amount of transfer if they had better signal coverage. It is possible that elders relied on their children to initiate contact and support. These findings point to the importance of transfers from children to children. Moreover, in the mobile communication era, it is important to understand elderly welfare and the flows of communication.

I plan to extend the analysis in two directions. First, stratify the transfer based on the geographic proximity between parents and adult children, and look at if and how transfers across different distance was affected by the cellular communication. Second, examine the behavior links between cellular communication, with focuses on family dispersion and actual contact. I plan to answer: a. is parents/adult children's cellular signal coverage really associated with higher frequency of contact? b. is cellular signal coverage associated with migration away from parents' home, potentially serving as a counterforce of close-knitted family network?

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