'The Persistence of Parent Repayment' and the Anticipation of Filial Obligations of Care in Two Thai Provinces

ABSTRACT

With an accelerated and sustained decline in fertility and an increase in life expectancy, Thailand has entered its ageing phase at a rapid pace. This raises an important question of who should care for the increasing elderly population. Using the survey of adults aged 16 – 64 years (n=742) in two Thai provinces in the north-east (Kalasin) and south (PhangNga), this paper explores expectations individuals have from their children when they turn very old. Only one-third of the respondents expect to live with their children in old age and only one-fifth anticipate financial assistance. Less than half of them expect personal care and practical care from their children (43% and 38% respectively). The expectations vary substantially by the number of children and income with those with higher income reporting lower expectation. Those living in Kalasin, a much poorer province than PhangNga, have greater expectations from their children in old age. This suggests that for those with less financial resources, children remain the main care provider for the elderly.

BACKGROUND

Aging and demographic change in Thailand

As is well known, Thailand is one of the most rapidly ageing societies in Southeast Asia (Mujahid 2012). This has come about through both rapid and sustained decline in fertility from the 1970s as well as significant improvements in mortality resulting in an increased dependency ratio. According to the traditional measurement of dependency, namely the ratio of the population aged 65+ per 100 population aged 15-64, Thailand saw an increase from 8.3 in 1990 to 13.7 by 2010 – the highest in Southeast Asia (UNPD 2013). According to the medium fertility scenario of the UN, this figure is projected to increase to 31.6 by 2030, and 57.5 by 2050 – higher than Singapore and many European countries such as the Netherlands and Poland. While this measurement of dependency is deeply flawed in its assumptions(Basten, Yip, and Chui 2013; Basten 2013b), and the medium fertility scenario is far from guaranteed (Basten 2013a), these indicative clearly demonstrate the extent of the ongoing march towards an aging Thai society.

Related to this is a fundamental restricting of the Thai demographic system in relation to fertility and migration. As Figure 1 demonstrates, the mean number of living children by age has declined dramatically among those aged 74 and below. Indeed, by 2021 it is projected that the mean number of living children for those aged 60-64 will be 2.1 – compared to 5.0 as recently as 1994. Furthermore, given the recent very low fertility rates in Thailand, and the reporting of sub-replacement level fertility preferences, there is a strong likelihood that this downward trend could increase, and perhaps even more steeply (UNFPA 2011, 23).

Figure 1: Mean number of living children by age, 1994-2017

Combined with this decline in family size, is an increased dispersion of children as a result of a more mobile domestic and international labour market. Between 1995 and 2007, for example, the percent of children of persons aged 60+ who live outside their parents' province rose from 29.0% to 37.6% in rural areas and from 25.6% to 29.4% in urban areas (UNFPA 2011, p. 39). Indeed, this is reflected by differential levels of 'aging' by province. For example, the percentage of the population aged 60+ in the Northern provinces was 12.1 in 2005 compared to 8.6 in Bangkok Metropolitan(UNFPA) largely due to out-migration. Similar characteristics can be found in rural areas (UNFPA).

Familial residualism and aging policy in Thailand

A core principle of the developmental welfare states of East and Southeast Asia is a reliance on a system of so-called 'familial residualism' – namely that the main locus of care will be the family, and that the role of the state is, ultimately, confined to a supporting role(Kwon 2007). With regard to aging in Thailand, this is still very much the case. With regard to state-led aging policy, there is, indeed, much rhetoric and determination (see, for example, Anantanasuwong & Seenprachawong, 2012) – but capacity is still highly limited. In 2010, for example, there were reported to be only 25 government sponsored institutional homes for older people with a total capacity for only 'a few thousand'(Knodel and Chayovan 2011). Meanwhile, a nationwide system of paid volunteers has been set up by the Ministry of Social Development and Human Security to provide part-time community-based home care assistance. However, as Knodel and Chayovan (2011) observe, while such a service would be useful for part time instrumental activities such as shopping, meal preparation and cleaning, 'more questionable is the extent to which such a strategy can be effective when personal care is required on a daily and virtually

full-time basis as would be the case for those who suffer serious chronic illnesses, are bedridden or severely disabled'(Knodel and Chayovan 2011, 4)

A second core element in the so-called 'care triangle' along with the family and the state is the private sector. As Kespichayawattana and Jitapunkul (2009) observe, the lack of effective registration or state licensing of private nursing homes in Thailand means that gauging the size of the private care sector in Thailand is extremely difficult – although strong evidence suggest that it is increasing in size and scope. Similarly, Knodel and Chayovan (2012) observe the increase of centers and agencies designed to train paid caregivers to assist the elderly at home – especially in Bangkok. Again, however, the lack of effective registration/regulations means that quantifying this is extremely difficult. Furthermore, in their analysis of the 2007 Survey of Older Persons in Thailand, only a very small percentage of respondents (<3%) reported a servant or nurse as primary caregiver.

In 1987, Knodel et al. stated that 'The expectation that children, when economically active adults, will provide comfort and support to their parents, *particularly when parents are too old to work or care for themselves*, is shared by all segments of Thai society' (Knodel, Chamratrithitrong, & Debavalya, 1987, p. 144, emphasis added). This notion of so-called 'Parent Repayment' can be seen in a wide variety of surveys, not least in the Thai module of the *Value of Children* [VoC] Surveys run in the 1970s. Indeed, in the VoC survey for Thailand, 'Unspecified help in old age' and 'Companionship, comfort, care in old age' were – by some distance – the most frequently cited advantages of having children (Buripakdi 1977, 19).

Indeed, this view of what Knodel et al. termed the 'Persistence of Parent Repayment' in 1987 is still held to be a core element of the Thai care system. In 2012, for example, Knodel and

Chayovan analysing the 2007 Survey of Older Persons in Thailand confirm the 'primary role of the family, especially adult children, in providing personal care to older members'(Knodel and Chayovan 2012, 682). Indeed, they confirm the primacy of the family in the so-called 'care diamond' of care providers – namely family private sector and state sector. Indeed, the main person assisting in daily activities among persons age 60 and older was, in 59.4% of cases, the child or child-in law (N=3324). Furthermore, there were marked differences by gender (women (N=2075) 72.5%, men (N=1249) 39.3%) and between provincial Thailand (N=3190) and Bangkok (N=134), where 18.6% of respondents received care from a 'non-relative'. There were also important gradients in age of respondent – namely that spouse was the main caregiver for respondents aged 60-69 (N=773), while for the oldest-old – aged 80+ (N=1312) the child/child-in-law was the primary caregiver for 72.5% of respondents(Knodel and Chayovan 2011, 15).

Knodel and Chayovan'sground-breaking work is the primary reference point for an understanding of the current system of elder care and the role of the family in Thailand. But what of the future? As Knodel and Chayovan (2011, p. 3)admit – and as discussed above – the combination of much smaller family size of the generation next in line to become (increasingly) 'dependent' with increased migration of their children 'will further reduce the number (of children) in close proximity, a condition which is virtually a necessity if filial personal care is to be provided'(see also Knodel, Kespichayawattana, Saengtienchai, & Wiwatwanich, 2010). Furthermore, in the context of extended life expectancy the period for which care might be needed is likely to increase. Knodel and Chayovan (2011, p. 24)observe that 'the normative framework in which filial obligations are grounded is also subject to change although this is far less predictable'. Indeed, co-residence between Thais aged 60+ and their children has declined from 77% in 1986 to 56% by 2007; however, it is difficult to disentangle the effect of improved

health/independence among the older population from other variables such as a decline in filial obligation and/or lack of suitable opportunity through smaller families or out-migration.

A number of studies – often qualitative – have examined individual preparations for impending aging in different settings in Thailand both among working age populations (e.g. Kaenkaew 1997; Bangkaew 2012; Muanphannari 2000) and elderly populations. Rattanamongkolgul et al. (2012), for example, performed a qualitative study of preparing for aging among 35 older villagers in an urban area in KhonKaen province. This study identifies the more nuanced approach to the inter-relationship between elders and their children in the 'care triangle'. In agreement with the notion of the 'Persistence of Parent Repayment', the respondents in Rattanamongkolgul et al. (2012) do, indeed, believe that 'once they raise children, their children should reciprocate by taking care of them in their old age' (p.448). On the other hand, the respondents reported a desire to 'minimize the burden of care by contributing to family life, caring for themselves, helping with housework, looking after grandchildren, getting small jobs to earn extra money, or using their state-paid monthly allowance to help with household expenses' (p.448).

Relatively little research, however, has been performed upon the attitudes of current-working age populations regarding the expectations of the support which their children will provide to them in old age. Clearly, this is an important bellwether given the context not only rapid and significant demographic change (move towards smaller families, higher levels of out-migration etc.) but could also give an impression of the broader view of contemporary (and future) attitudinal shifts in terms of filial obligation and the role of family care in the context of huge social and economic change. Some previous investigations have concluded that expectation of certain elements of care from children are far from universal. For example, the 1995 *Survey of*

the Welfare of the Elderly in Thailand asked respondents aged 50-59 what their main source of income would be in old age, with more than half citing their children (Chayovan and Knodel 1997). By 2011, however, Knodel finds a significant decline in the expectation of children being the main source of income in old age (Knodel 2012, 25). Indeed, the same study identifies a growing recognition among Thai 'near elderly' that the parameters of care and the role of filial obligation are, indeed, changing rapidly. Our study, therefore, attempts to add to the literature by examining the views of an adult population in two provinces (*changwat*) of Thailand – PhangNga in the south and Kalasin in the north-east – regarding their *expectations* of whether their children will care for them in their old age, and what type of care they anticipate receiving. In particular, we will examine the extent to which Thais of different demographic characteristics expect their children to provide certain elements of care for them when they become 'very old'.

We will then examine whether or not there are differences by region in terms of expectation. PhangNga and Kalasin are chosen as a case study given demographic and socio-economic differences in the two provinces. Situated in the north-east, the poorest region in the country, outmigration of young people to find a job in urban areas is not uncommon in Kalasin. According to the 2000 Census, the north-eastern region experienced net loss in migration of -15.4 whilst the southern region enjoyed net gain in migration of 8.7 (NSO 2002). The two regions also marginally differ in total fertility rate with the north-east having the TFR of 1.9 as compared to 2.0 in the south (NESDB 2013). Based upon the literature presented above, we hypothesise that different demographic structures could influence how the population of the two provinces set expectation for their children when they turn old.

Finally, we will examine the extent to which any regional-level variables are robust when cross-checked against a variety of individual-level variables. By doing so, we will be able to

detect whether or not particular individual characteristics could be driving any differential outcome in expectation of care in old age.

DATA AND METHODS

This study is based on a household survey of provincially representative sample of population in PhangNga and Kalasin. The survey was conducted during May – August 2013 by the College of Population Studies, Chulalongkorn University by interviewing, face-to-face, one member aged 15 and older from each household. The interviewers first approached the head of household; if not present, the spouse or a household member aged 15 years or older was asked to participate. The interviews were carried out in the Thai language by trained interview staff.

A stratified two-stage sample design was adopted for the survey. The primary sampling units were villages in non-municipal areas and housing blocks in municipal areas using the sampling frame of the 2010 National Census. The private households were the secondary sampling units. In stage one, a number of sample enumeration districts were selected systematically in each sub-stratum. In stage two, we randomly sampled and selected 25% of districts in the selected provinces, 25% of villages in the selected districts, and 25% of households in the selected villages for interview. In order to achieve a considerable sample size to perform a meaningful statistical analysis, in each province approximately 500 households were targeted for an interview. In total, 467 and 435 households were interviewed in PhangNga and Kalasin respectively. A non-response rate of 10% was also adopted to ensure that the target sample size would be achieved.

The survey collected information on demographic and socio-economic characteristics of the respondents and their households including a set of questions related to fertility. In particular,

the survey asks a question about the respondents' expectation from their children when they get old. The respondents could identify up to three items, namely, 1) not expecting anything from children; 2) financial support; 3) personal care (e.g. dressing, bathing or showering, eating, getting in or out of bed, using the toilet); 4) practical care (e.g. help with home repairs, gardening, transportation, shopping, household chores); 5) living together with children; and 6) any other activities. This allowed us to investigate what types of help the respondents expect from their children in old age.

The sample used for the analysis are subjects aged 16 – 64 years since those age 64 years and over could already be receiving help from their children at the time of survey. We also excluded item non-response (n=3), respondents who are still in school (n=15) and individuals with disability (n=8) since a disabled person may have different needs. Finally, 742 subjects were kept for the analysis.

Methods

The outcome of interest is the type of help the respondents expect from their children when they turn old. Four types of help are considered: 1) financial assistance; 2) personal care; 3) practical care; and 4) co-residence. Each type of help expected from children is a binary outcome: coded 1 if a particular type of help is anticipated; 0 otherwise. Logistic regression is employed to investigate the association between help expected and individual characteristics as well as province of residence. We first explore the bivariate relationships between individual characteristics and type of help expected. Then, multivariate analysis is introduced to examine whether the relationships observed in the bivariate analysis (if any) hold.

RESULTS

Bivariate results

Table 1 presents the presents the proportion of the respondents who reported that they expect some types of help from children in old age by demographic and socio-economic characteristics. The p-value is obtained from a chi-square test of association between each type of help and the corresponding demographic or socio-economic characteristics.

Table 1: Percentage expecting four types of help from children in old age by demographic and socio-economic characteristics

On average, the most common type of help anticipated in old age is personal care (43%) followed by practical care (38%) and the prospect of living together with children (34%). Only 21% of the respondents expect financial assistance from their children. There is relatively little gender difference except that the proportion of women expect to live together with their children is notably higher than that of men (38% vs. 30%). There is only slight variation by age group except for in the case of expecting financial assistance from children whereby those in the older age groups have higher proportion of the respondents anticipating financial assistance from their children.

For all types of help, the proportion anticipating help from their children is significantly greater among those with two children and those with three or more children as compared to those with one child or no children. We however do not find that anticipation of help from children significantly varies with the gender composition of children although the proportion of the respondents expecting personal care and co-residence is higher among those with daughter(s) only or those with both son(s) and daughter(s).

Expectation from children differs by socio-economic characteristics. For financial assistance, the proportion anticipating some kind of financial help from their children is significantly greater among those with low education and those in lower income quintiles. Similarly for personal care, the majority of those in the lower income quintiles especially the lowest income quintile reported expecting personal care from their children. However, in terms of expecting practical care and co-residence, we do not find variation by educational attainment and income level.

As expected, respondents from PhangNga and Kalasin have different levels of expectation from their children with those from Kalasin significantly reporting greater expectation from their children for all types of help except for co-residence.

Multivariate results

Next, we explore individual demographic and socio-economic characteristics associating with anticipation of help from children in old age. Table 2 presents a series of logistic regressions estimating the probability of expecting each four type of help from children. It appears that many of the associations observed earlier in the descriptive analysis do not, in fact, hold in the multivariate analysis. Here we find that expectation of help from children does not differ by gender, age and educational attainment of the respondents nor by the gendered composition of their children. Indeed, it appears that number of children and level of income are the key characteristics explaining the variation in expectation from children in old age. The higher the number of children, the higher the odds of anticipating certain types of help from their children. The opposite is true for the case of income whereby the higher the level of income, the lower the expectation of financial assistance and personal care from children in old age.

Table 2: Logistic estimates of the probability of anticipating certain help from children in old age

In Table 3, we control for provincial difference by adding a dummy variable of Kalasin province in the model. As expected, respondents from the two provinces differ substantially with those living in Kalasin significantly have higher odds of anticipating financial assistance, personal care and practical care from their children than those living in PhangNga. The number of children remains an important predictor of the propensity to expect certain help from children in old age. However, after controlling for provincial difference, the association between income and expectation from children is no longer statistically significant. Compared to Table 2, the size of the income coefficients also reduces substantially. This shows that the differences in expectation from children at the individual level observed earlier is partially explained by provincial differences in the distribution of

these characteristics. For example, the individual income difference observed earlier in Table 2 can be explained by differentials in income between PhangNga and Kalasin.

Table 3: Logistic estimates of the probability of anticipating certain help from children in old age, controlling for provincial difference

CONCLUSION

Whether measured relatively or absolutely, Thailand is ageing rapidly. Within this context, the prevailing demographic landscape does not, at first glance, appear to be particularly favourable. Firstly, the persistence of sub-replacement fertility rates will only serve to increase the (already high) dependency ratio, meaning that more and more elderly people are likely to be supported by relatively fewer people of working age. However, on a more individual level, the demographic situation can play a role in shaping the likely persistence of filial obligation in care. Smaller families (and below-replacement fertility ideals) coupled with high levels of domestic and international migration mean that the chances of kin being able to assist in the day-to-day *physical* care of their elderly parents are almost certainly lower today than in the past. Remittances, of course, are a key element in the global care economy and the provision of externally provided care services both through the commercial sector or through informal support within the community could be a critical future element pulling the 'triangle of care'. However, relatively little is known of these private sector service providers and, as such, it is difficult to judge their current role in the care triangle, or even to predict the future.

Clearly, the horizons of care are being reshaped in a dramatic fashion. While the State in Thailand recognises the critical importance of responding to what scholars have referred to as the 'silver tsunami', the current resources allocated to care for the elderly appear to be

relatively slight. This is in keeping with a developmentalist/family-residualist view of the welfare state, which places the family – and filial obligation – at the heart of the so-called 'care triangle'. The literature on care for the presently elderly in Thailand confirms this normative view of filial obligation being the primary locus of care.

In our paper, we examined the extent to which both working-age and elderly Thais in two distinct provinces *expected* their own children to care for them in their old age via provision of financial assistance, practical/personal care and/or through co-residence. Strikingly, on the average in every case bar one the majority of respondents by certain variables stated that they *not* expect their children to help them in each of these four ways (Table 1).

Our regression analysis found the primary significance of number of children and level of income: namely that the higher the number of children, the higher the odds of anticipating certain types of help; while in the case of income, higher levels were associated with *lower* expectations from children in old age. However, after examining the role of the regions, the differences in expectation from children at the individual level appears to be partially explained by provincial differences, with the individual income difference explained by differentials in income between PhangNga and Kalasin.

All of this implies that, in general, respondents to our survey appear to have much lower expectations of the role of their children in terms of caring for them when they are 'very old' than, perhaps, the literature cited above might lead one to expect. While ties of filial obligation are certainly culturally engrained, and a high degree of expectation does certainly exist – especially among lower income groups and in larger familial groups – the evidence of this survey suggests that the anticipation of the 'persistence of parent repayment' appears to be weakening.

This has clear implications for the future of the 'care triangle' in Thailand. As stated previously, the family is the primary locus of care provision for the elderly in Thailand. The evidence presented here suggests that the processes of demographic, economic and possibly cultural change and modernisation have led to a low perceived expectation that the current system of filial obligation will last. If this is indeed the case, then it will be necessary for the other two elements of the 'care triangle' – namely the public and private sectors – to take on a greater role.

Of course, these results are only tentative are difficult to validate. We do not, for example, have comparable data from a generation or two in the past which we can use to compare to our own findings to detect either changes over times or, indeed, to examine the relationship between *expectation* of future care and *reality*. We also know from qualitative studies (e.g. Rattanamongkolgul et al., 2012) that older Thais do not wish to present themselves as a 'burden' to their children and are active in attempting to minimise this. As such, it may well be that respondents are disproportionately stating a lower sense of anticipation as a *preference* rather than necessarily and *expectation*.

Despite these caveats, the evidence from our survey might suggest that just as our respondents do not *expect* that their children will automatically care for them in their old age, perhaps policymakers should not take this for granted either.

Table 1: Percentage expecting four types of help from children in old age by demographic and socio-economic characteristics

	Financial assistance	Personal care	Practical care	Living together	n
Gender					
male	19.7	39.2	35.6	29.6	356
female	21.4	46.0	40.2	37.7	392
P-value	0.578	0.058	0.192	0.018	
Age group					
16-29	7.9	42.7	39.3	31.5	74
30-39	20.1	35.5	39.1	30.2	169
40-49	20.2	49.3	40.8	32.3	223
50-59	25.7	42.1	34.6	40.2	214
60-64	23.5	41.2	35.3	30.9	68
P-value	0.013	0.104	0.705	0.231	
Number of children					
no children	8.1	19.2	20.2	14.1	101
1 child	15.1	41.2	35.3	26.9	120
2 children	27.1	51.0	44.5	41.6	342
$\geq$ 3 children	20.2	43.8	37.1	36.0	185
P-value	0.000	0.000	0.000	0.000	
Gender composition of children					
only son(s)	19.4	45.8	40.7	34.2	158
only daughter(s)	19.8	48.0	39.0	37.3	178
both son(s) and daughter(s)	26.7	47.5	41.9	38.9	310
P-value	0.101	0.913	0.819	0.610	
Education					
< 6 years primary	26.5	45.4	35.0	36.9	260
primary education (6 years)	23.4	45.9	37.1	35.6	205
secondary	15.6	41.7	41.2	31.8	211
tertiary	8.3	30.6	41.7	23.6	72
P-value	0.001	0.113	0.491	0.160	
Income quintiles					
1st quintile	31.9	53.6	42.8	33.3	138
2nd quintile	23.7	42.2	36.3	37.0	135
3rd quintile	19.9	46.2	32.1	26.9	156
4th quintile	16.3	36.9	37.5	35.6	160
5th quintile	12.3	37.0	41.6	37.0	154
P-value	0.001	0.020	0.322	0.300	
Province					
PhangNga	8.0	32.3	30.1	31.6	399
Kalasin	35.5	55.3	47.0	36.4	349
P-value	0.000	0.000	0.000	0.165	
Total	20.6	42.7	38.0	33.8	748

Table 2: Logistic estimates of the probability of anticipating certain help from children in old age

	Financial assistance		Personal care		Practical care		Living together	
	coef	se	coef	se	coef	se	coef	se
female	-0.029	(0.199)	0.123	(0.161)	0.089	(0.162)	0.328+	(0.168)
Age group (ref: 60-64)								
16-29	-0.392	(0.600)	0.898*	(0.427)	0.480	(0.428)	0.370	(0.443)
30-39	0.455	(0.451)	0.084	(0.369)	0.247	(0.373)	0.086	(0.384)
40-49	0.142	(0.409)	0.500	(0.332)	0.294	(0.339)	0.063	(0.348)
50-59	0.463	(0.365)	0.203	(0.302)	0.065	(0.311)	0.412	(0.315)
Number of children (ref: none)								
1 child	0.655	(0.482)	1.209***	(0.345)	0.876**	(0.340)	0.802*	(0.378)
2 children	1.146*	(0.451)	1.601***	(0.334)	1.377***	(0.329)	1.397***	(0.359)
≥ 3 children	0.544	(0.490)	1.297***	(0.370)	1.168**	(0.367)	1.147**	(0.394)
Gender composition of children (ref: only son(s))								
only daughter(s)	-0.082	(0.293)	0.044	(0.229)	-0.099	(0.232)	0.080	(0.238)
both son(s) and daughter(s)	0.306	(0.276)	-0.011	(0.226)	0.013	(0.227)	-0.022	(0.232)
Education (ref: < 6 years primary)								
primary education (6 years)	-0.006	(0.290)	0.005	(0.244)	0.062	(0.247)	0.079	(0.249)
secondary	-0.282	(0.311)	-0.016	(0.253)	0.375	(0.255)	-0.012	(0.262)
tertiary	-0.736	(0.525)	-0.275	(0.358)	0.420	(0.348)	-0.562	(0.379)
Income quintiles (ref: 1st quintile)								
2nd quintile	-0.371	(0.284)	-0.512*	(0.255)	-0.341	(0.257)	0.211	(0.264)
3rd quintile	-0.596*	(0.283)	-0.335	(0.247)	-0.566*	(0.253)	-0.305	(0.265)
4th quintile	-0.833**	(0.298)	-0.714**	(0.252)	-0.349	(0.251)	0.196	(0.259)
5th quintile	-1.015**	(0.333)	-0.626*	(0.266)	-0.196	(0.263)	0.369	(0.272)
Constant	-1.875	(0.519)	-1.475	(0.404)	-1.686	(0.407)	-2.211	(0.441)
Observations	742		742		742		742	
Log likelihood	-348.80		-477.10		-473.90		-451.10	

DF		17	17	17	17

Note: Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 3: Logistic estimates of the probability of anticipating certain help from children in old age, controlling for provincial difference

	Financial assistance		Personal care		Practical care		Living together	
	coef	se	coef	se	coef	se	coef	se
female	-0.013	(0.210)	0.142	-0.164	0.103	-0.165	0.332*	-0.168
Age group (ref: 60-64)								
16-29	-0.213	(0.639)	0.970*	(0.432)	0.549	(0.436)	0.381	(0.444)
30-39	0.586	(0.485)	0.112	(0.376)	0.279	(0.380)	0.088	(0.385)
40-49	0.080	(0.440)	0.484	(0.338)	0.271	(0.346)	0.054	(0.349)
50-59	0.353	(0.381)	0.127	(0.307)	-0.011	(0.315)	0.397	(0.316)
Number of children (ref: none)								
1 child	0.466	(0.498)	1.164***	-0.351	0.817*	-0.346	0.788*	-0.378
2 children	0.713	(0.474)	1.428***	-0.341	1.201***	-0.336	1.360***	-0.363
≥ 3 children	0.522	(0.512)	1.325***	-0.377	1.192**	-0.374	1.147**	-0.394
Gender composition of children (ref: only son(s))								
only daughter(s)	-0.107	(0.306)	0.04	-0.233	-0.103	-0.235	0.077	-0.239
both son(s) and daughter(s)	0.362	(0.290)	0.009	-0.229	0.037	-0.23	-0.019	-0.232
Education (ref: < 6 years primary)								
primary education (6 years)	0.054	(0.318)	0.031	-0.249	0.086	-0.253	0.085	-0.25
secondary	-0.129	(0.335)	0.065	-0.259	0.464+	-0.262	0.002	-0.263
tertiary	-0.929+	(0.551)	-0.319	-0.363	0.392	-0.355	-0.57	-0.379
Income quintiles (ref: 1st quintile)								
2nd quintile	0.036	(0.302)	-0.282	-0.264	-0.118	-0.266	0.253	-0.269
3rd quintile	-0.207	(0.296)	-0.11	-0.255	-0.361	-0.26	-0.266	-0.27
4th quintile	-0.211	(0.319)	-0.388	-0.264	-0.027	-0.264	0.257	-0.27
5th quintile	-0.262	(0.358)	-0.236	-0.282	0.194	-0.281	0.44	-0.286
Kalasin	1.715***	(0.241)	0.801***	-0.173	0.786***	-0.177	0.144	-0.179
Constant	-3.128	(0.572)	-2.05	(0.432)	-2.248	(0.434)	-2.305	(0.457)
Observations	742		742		742		742	

Log likelihood	-319.80	-466.30	-463.90	-450.70
DF	18	18	18	18

Note: Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Figure 1: Mean number of living children by age, 1994-2021
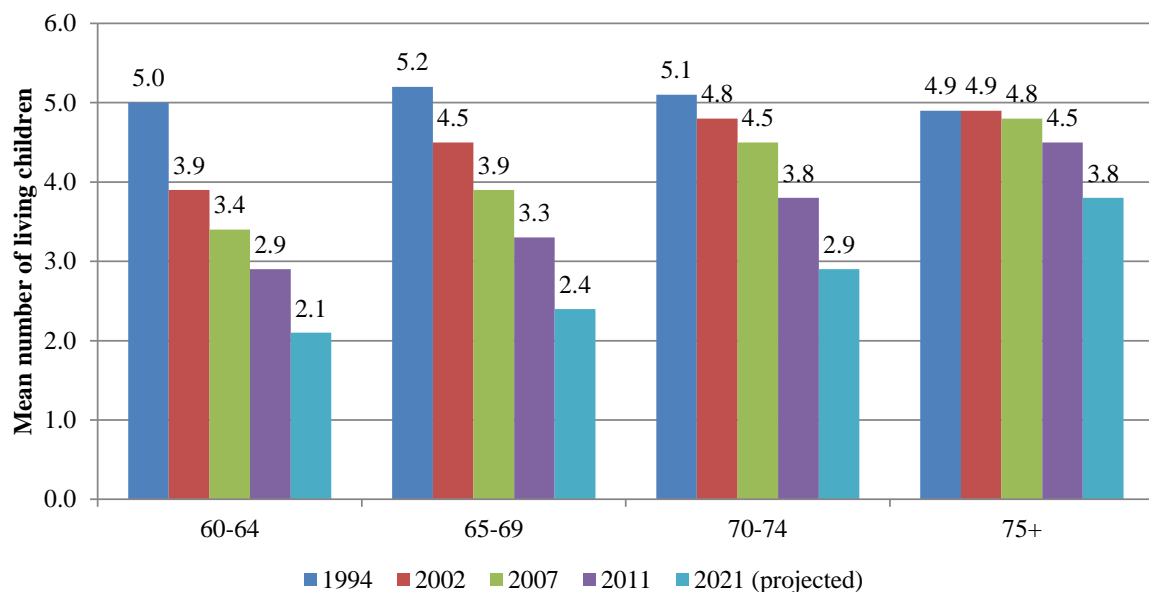
Source: 1994, 2002 and 2007 Surveys of Older Persons in Thailand

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