

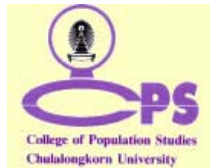
# The Relationship Between Formal and Familial Support of the Elderly in Singapore and Taiwan

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**Angelique Chan**  
**Ann E. Biddlecom**  
**Mary Beth Ofstedal**  
**Albert I. Hermalin**



ASIAN METACENTRE  
FOR POPULATION AND SUSTAINABLE DEVELOPMENT ANALYSIS



HEADQUARTERS AT ASIA RESEARCH INSTITUTE  
NATIONAL UNIVERSITY *of* SINGAPORE

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**Angelique Chan** is an Assistant Professor of Sociology at the National University of Singapore. She received her PhD from the University of California, Los Angeles, and completed a National Institute of Aging Postdoctoral Fellowship at the University of Michigan Population Studies Center. Her work concentrates on identifying the social and economic consequences of aging for populations in Singapore and the region. She developed Singapore's first longitudinal study of aging, and is currently involved in cross-national survey work on older populations in Asia.

**Ann E. Biddlecom** is a Senior Research Associate at The Alan Guttmacher Institute in New York, USA. Her research interests are in the areas of reproductive behavior, HIV/AIDS and intergenerational support, and her analyses draw on both quantitative and qualitative data. Dr. Biddlecom's current research on aging focuses on social network analysis tools to measure complex transfer flows among elderly parents and their children.

**Mary Beth Ofstedal** holds a joint appointment as a Research Investigator in the Survey Research Center and the Population Studies Center at the University of Michigan. She is currently directing a collaborative study of aging and health in Asia and working on the staff of the Health and Retirement Study in the United States. Her research interests include transitions in physical and cognitive functioning in old-age, utilization of health and long-term care services, intergenerational relations and support, longitudinal survey design and analysis, and comparative research.

**Albert I. Hermalin** is Professor Emeritus of Sociology at the University of Michigan and a Research Scientist at the Population Studies Center of the Institute for Social Research. He is editor of the forthcoming volume *The Well-Being of the Elderly in Asia: A Four-Country Comparative Study* (University of Michigan Press), which analyses the familial and social support arrangements of the older population and their economic, health and work status in the Philippines, Taiwan, Thailand and Singapore.

Angelique Chan  
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# Abstract

This paper examines the relationship between state social security systems and family-based support of the elderly in Singapore and Taiwan. As Asian countries grapple with the rapid aging of their populations this millennium, one of the central concerns is the economic support of this segment of the population. Asian societies with their long traditions of filial piety have continually propagated the notion that familial care of the elderly is paramount. However, according to the western model of development, informal sources of support for the elderly breakdown and are replaced with formal sources of support as development occurs (World Bank, 1994). Indeed, previous research in the United States and Peru suggests that the amount of private (family-based) transfers decreases as the amount of public support increases (Cox and Jimenez, 1992; Schoeni, 1992). To what extent will this occur in Asia? We examine this question using longitudinal data from two newly industrialized countries, Singapore and Taiwan. These two countries provide excellent case studies given that both countries have recently industrialized, each has some institutionalized formal sources of support for older persons, and both countries long cultural traditions (mainly Confucian) that emphasize filial piety. We examine changes in types and levels of formal and familial support for the elderly over time, taking into account characteristics of the elderly recipients and the providers of familial care. Since the data are longitudinal we are able to link the influence of individual characteristics to changes in main sources of support for the elderly over time.

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# Section 1 Introduction

This paper examines changes in the major income sources for older persons in Singapore and Taiwan using longitudinal data from both countries. At issue is whether the existence of formal programs, i.e., pension or retirement schemes, act to crowd out or replace family support of older persons. Existing literature suggests that in the United States, the Philippines, and Peru, formal sources of support of the elderly replace familial sources of support (Cox and Jimenez, 1992; Schoeni, 1992). Singapore and Taiwan are two Newly Industrialized countries that have formal support systems for the elderly in place. In Singapore, the Central Provident Fund, was instituted in 1955 to ensure financial security for older persons, however, recent evidence suggests it may not be fulfilling its function. In Taiwan, pension programs are available to varying degrees depending on population characteristics. Various programs were introduced at different stages, with the most recent introductions in 1993. Each country has taken a slightly different approach to providing economic security to older adults. In Singapore, the emphasis is on the individual, translated into individual mandatory savings for retirement. In Taiwan, the approach is more of a welfare-state approach where the government heavily subsidizes the newly established pension programs. Taken together, these two countries present excellent case studies to compare and contrast the effects of two types of formal support exploratory on levels of family support for the elderly. We adopt a life cycle approach which takes into account age, living arrangements, completed education levels and home ownership, to examine the effects of individual-level socioeconomic characteristics on changes in major sources of income for older persons in Singapore and Taiwan in the early 1990s. An older person's needs change depending on which stage he or she is in the life cycle and this will have a significant impact on the type of main sources of income. Our ultimate aim is to examine whether there has been a shift away from family-based support towards formal support in each of these countries.

Both Singapore and Taiwan have had similar experiences with economic growth and population aging. Dubbed two of the four "Asian Tigers", both countries experienced spectacular economic development over the past three decades (Milward 1998)<sup>1</sup>. Currently, Singapore's GNP per capita is US\$30,000, one of the highest in Asia. Taiwan's GNP per capita is US\$13,000. Both countries are also experiencing dramatic shifts in their population age structures. Singapore's population is the fastest aging in Southeast Asia. The proportion of the population aged 65 and above is expected to increase from the current 7% as of 2000 to 19% by 2030. This dramatic increase in the proportion of the aged in the population is a result of an extremely effective family planning policy introduced in the 1970s. By 1977, Singapore's total fertility rate had dropped below replacement level, and has continued to stay below replacement level despite recent government efforts to increase fertility. As a result of

this rapid aging of Singapore's population there will be a parallel increase in the old age dependency ratio. In 2000, approximately ten working age adults supported one older person. By 2030, only three working age adults will support one older person. Similarly, in Taiwan, sharp declines in fertility and increases in life expectancy have led to rapid population aging. The total fertility rate dropped from 5.9 children in 1949 to less than 1.8 in 1994. Mortality levels also declined sharply over this period; life expectancy at birth advanced from 51 in 1949 to 75 currently. The proportion of the population over 65 increased from 2.5% in 1958 to 7.6% in 1995, and is expected to increase to 14% in the year 2020 (Chang, 1997).

In both of these countries, family support of older persons is upheld as an ideal representation of filial piety. Children are expected to take care of their elderly parents and the dictates of Confucianism, Islam, and Buddhism, define and bolster this expectation (Chan and DaVanzo, 1996; Cowgill and Holmes, 1972; Knodel *et al*, 1984). One of the central concerns of Asian governments is that family support of the elderly will be eroded as their economies develop. Modernization theory predicts such a decline in family support as alternative modes of economic support become available to individuals (Cowgill and Holmes, 1972). However, the persistence of family support in many parts of Asia suggests that bipolar models that consider only two types of societies, traditional and modern, may be inappropriate (Lee and Willis, 1997).

Recent evidence suggests that family support of older persons is still relatively high in Singapore and Taiwan. 85% of older Singaporeans live with at least one adult child, and 81% of older adults say that they will rely on their children for support in old age (Chan, 1997)<sup>2</sup>. For adult children, there exist strong incentives to continue supporting one's parents. There are the cultural and religious injunctions surrounding the doctrine of filial piety. There are also government incentives to promote support of older persons. The Singaporean government has also been careful to adopt policies that 'crowd in' familial support, that is, policies that reinforce the family as the primary source of support (World Bank, 1994). The government philosophy is that children have moral responsibilities and obligations towards maintaining their parents. Thus incentives are provided to encourage coresidence between children and their elderly parents (DaVanzo and Chan, 1994) and familial care of the elderly. These include tax incentives provided to those children who live with an elderly parent. Adult children who apply for Housing Development Board flats<sup>3</sup> are accorded top priority if they intend to live with an elderly parent. Living near parents is also encouraged; first-time HDB flat buyers are eligible for a \$50,000 (Singapore Dollars) housing grant when buying a flat near their parents home. This is compared to the usual \$40,000 grant available to first-time buyers of HDB flats.

There is also an income tax relief of \$3,500 for the maintenance of each parent. For those children who live with parents, the tax relief is \$4,500. The respective tax relief amounts are allowed as long as the elderly parent does not have an income of more than \$2,000 per year (Straits Times, 12<sup>th</sup> July 1997). Singapore has also instituted laws governing the economic

support of one's aged parents. In June of 1996, a tribunal was set up, under the Maintenance of Parent's Act (1994), allowing parents to take legal action against their children for neglect<sup>4</sup>.

Similar patterns of continuing high levels of family support are found in Taiwan. Taiwan has a traditional patriarchal/patrilineal family system and recent social and economic change does not appear to have significantly altered the status quo. The Chinese who settled the island between the 17<sup>th</sup> and 19<sup>th</sup> centuries maintained their traditional Confucian family system even through the period of Japanese rule from 1895 to 1945 (Roan *et al*, 1996). Today the majority of older Taiwanese live with children (66%), although the proportion is lower as compared to Singapore. 80% to 90% of older Taiwanese receive financial assistance and help with instrumental activities (for example, bathing, dressing, eating) from family members. Daughters-in-law are critical to providing assistance with Activities of Daily Living (ADLs, for example, bathing, eating, dressing, and toileting) and Instrumental Activities of Daily Living (IADLs, for example, household management, shopping/marketing); for financial assistance the son is critical (Hermalin *et al*, 1992).

Given these existing high levels of family support, one of the research aims in this paper is to determine whether there been any shift away from reliance on family support and towards more reliance on formal programs as each country develops. Secondly, if there has been a shift towards more reliance on formal programs, we plan to examine the extent of this shift and its determinants. We examine these research questions using longitudinal data. In the next section, we describe the formal programs available in Singapore and Taiwan. We include key details of the Taiwanese subsidy programs that were introduced in 1993, and for which we have pre- and post-program introduction data. Following a description of the data and measures, the results are presented on descriptive changes in the major sources of income of older persons. We then present the results from multivariate analyses that model the change from reliance on private transfers as the major source of income to non-private transfers. Our models differ slightly for Singapore and Taiwan, due to data availability. This will be explained in more detail later in the paper.

## Section 2 Formal Sources of Support Available in Singapore: The Central Provident Fund (CPF)

Singapore has had a formal program for old age economic support since Independence (1965). Singapore's Central Provident Fund (CPF) was instituted in 1955 as a mechanism to provide Singaporeans with financial security in old age. Since its inception, the CPF has evolved into a savings system that 'changes the whole concept of social security from provision for retirement to provision for life' (Aw and Low, 1996). It remains a mandatory savings scheme for all employees and employers in Singapore. Some observers have questioned, however, whether individual CPF savings will be sufficient for support in old age. As Asher (1996) notes, government estimates show that by 2003 the net balance of members' accounts, after withdrawal for housing, investments, and other schemes, will not reach a minimum balance sufficient for old age support (this Minimum Sum is stipulated by the government and described in detail below).

Singapore citizens and permanent residents are eligible to be covered under the CPF scheme. Participation is mandatory for both public- and private-sector employees. Table 1 below shows contribution rates by age group.

**Table 1 CPF Contribution Rates by Age Group, Singapore**

Age group	Employer's contribution (% of salary)	Employee's contribution (% of salary)	Total Contribution (% of salary)	Ordinary Account	Special Account	Medisave Account
35 years and below	16	20	36	26	4	6
Above 35 to 45 years	16	20	36	23	6	7
Above 45 to 55 years	16	20	36	22	6	8
Above 55 to 60 years	6	12.5	18.5	10.5	0	8
Above 60 to 65 years	3.5	7.5	11	2.5	0	8.5
Above 65 years	3.5	5	8.5	0	0	8.5

Self-employed persons make monthly contributions to their Medisave Account. This provides for the healthcare needs of their families and themselves. Non-working individuals can opt to open a Medisave account.

Source: [www.cpf.gov.sg](http://www.cpf.gov.sg)

Contribution rates are fine-tuned during periods of economic recession. For example, during the 1997 Asian Economic Crisis, employers' contribution was decreased to 10%<sup>5</sup>. This was

done in order to reduce costs for employers in the hopes of preserving more jobs in Singapore. Employee contributions were not decreased in order to maintain individual saving for old age.

A CPF member has three savings accounts into which their contributions are transferred automatically: an Ordinary account, a Medisave account, and a Special account. As shown in Table 1, the amount invested in each account varies depending on the individual's age. The bulk of CPF savings is usually deposited into the Ordinary account. After 40, the amount deposited in the Medisave and Special accounts is increased and the amount deposited in the Ordinary account is decreased. Ordinary account savings can be used to purchase property, approved investments, and insurance, to pay for children's tertiary education, and to top-up spouse's or elderly parents' CPF accounts<sup>6</sup>. Medisave account savings are for meeting hospitalisation and medical expenses and to buy medical insurance. Currently members must keep a minimum of S\$8,000 in their Medisave account to pay for medical expenses<sup>7</sup>.

Savings in the Special account can only be withdrawn at age 55. Since 1986, individuals now have to maintain a Minimum Sum in their CPF, which is meant to provide a basic retirement income. This amount has been slowly increased over the years. As of July 2003, retirees must maintain a Minimum Sum of S\$80,000 in his/her Retirement Account, out of which S\$40,000 can be in the form of pledged property (i.e., property pledged with the CPF board), used to finance children's tertiary education, or invested in other government-approved investments (stocks). The remaining S\$40,000 must be in the form of cash. Beginning at age 62, the elderly person then receives a monthly income of S\$613 from this sum (CPF Minimum Sum Handbook, 2002). This monthly income is supposed to cover basic financial needs during retirement (for example, food, rent, and utilities). The CPF board estimates that an individual would need \$297 per month for subsistence living. An individual can also use his/her Minimum Sum to buy a life annuity with an insurance company or deposited with a bank, which will yield a monthly income<sup>8</sup>. Buying an annuity may also yield higher interest rates since CPF interest rates on CPF funds range from 2.5% for the Ordinary account, to 4% for the Medisave and Special accounts.

Currently, Singapore's CPF has the highest coverage of any retirement plan in Asia. In 2000, total CPF members' balances amounted to S\$90.3 million (56.8% of GDP). The CPF contributes between 16.1% and 36.2% to the gross national savings rate. The Singapore Government invests CPF balances in a variety of physical, financial, and strategic assets, although the exact nature of these investments is not immediately evident (Asher, 2002).

Recently (July 2002), the government introduced new changes to the CPF system. In an attempt to pre-empt "future problems" the government has decided to limit the amount of CPF savings that can be used for housing (Parliamentary speech by Deputy Minister Lee Hsien Loong, *Straits Times* July 22, 2002)<sup>9</sup>. In addition, all workers will now contribute an additional percentage point of their monthly salary into their Special Accounts. Furthermore, workers aged 50-55 will have their CPF contributions reduced from 36% to 32% of their monthly wages. The government rationalizes this move as an attempt to maintain the

employability of older workers. The challenge, the government admits, is to provide older adults with financial security during retirement and to continue to attract multinational employers to Singapore. A more nuanced perspective regarding the role of the CPF in providing economic support in old age has been adopted since July 2002; officials have reiterated that the CPF is to provide a basic level of support in old age, beyond which individuals should rely on their own private savings and arrangements. The key focus remains coverage of basic retirement and health care expenditures, and home ownership. However, officials note that the CPF is designed for the broad majority of Singaporeans, between the 10<sup>th</sup> and 80<sup>th</sup> percentiles of the income spectrum. Those below the 10<sup>th</sup> percentile need to look into other social support schemes for support. Those above the 80<sup>th</sup> percentile should be able to plan for their own financial support during retirement.

In the sample used for this analysis, 63% have CPF accounts. Although the youngest age at first contribution is 16, 12% of the sample were over 60 when they first opened a CPF account. The opening of a CPF account at such a late age is most probably a result of government programs to encourage children to set up accounts for their parents. Adult children who make cash contributions into their parents' CPF accounts are entitled to tax relief on their income tax. The total amount of money (including ordinary, special, and medisave accounts) in the CPF accounts for respondents at age 55 in our sample is shown in Table 2. This information is based on retrospective accounts from individuals who are aged 64 and above at the time of the second survey wave.

The data show that approximately one-fifth of respondents reported having less than \$10,000 in their CPF account at age 55. Almost 10% of the respondents reported having between \$10,000 and \$19,999 in their account at age 55. One-fifth of respondents were unable to remember or did not know how much money they had in their account at age 55.

**Table 2 Retrospective Reports of Cash Balances in CPF Account at Age 55 for Respondents Who Have Ever Had a CPF Account, N=1,285 (Amounts Reported Are in Singapore Dollars)**

<b>Amount</b>	<b>Percentage (%)</b>
Less than S\$10,000	49.4
S\$10,000 – S\$19,999	9.3
S\$20,000 – S\$29,999	4.4
S\$30,000 – S\$39,999	3.7
S\$40,000 – S\$49,999	2.5
S\$50,000 – S\$99,999	4.8
S\$100,000 – S\$149,999	2.1
S\$150,000 and above	1.9
Refused	0.4
Can't remember/Don't know	21.6

Source: Transitions in Health, Wealth, and Welfare of Elderly Singaporeans: 1995 – 1999

## Section 3 Formal Programs in Taiwan

Although Taiwan is currently in the process of developing a universal pension system, until recently, pensions were available only to a small group of retirees, primarily civil servants and those in certain private sector occupations. Under the Civil Servant Retirement Regulations (CSRR), first implemented in 1943 and amended in 1992, employees can retire when they reach 60 or complete 25 years of service. The mandatory age of retirement is 65. The influx of Mainlanders from China in 1949-50, their strong role in government service, and the rather generous pension system stirred interest on the part of other workers for retirement benefits. This led to the passage of the Labor Standards Law (LSL) in 1984 (effective in 1985) that governs labor contracts and regulates retirement practices in the private sector. The LSL covers manufacturing and non-manufacturing workers in the private sector but excludes employees in finance, banking, commerce, and service industries. Workers can retire after 25 years of service, or at age 55 with 15 years of service. Pensions are awarded as a lump sum with a 45-month wage equivalent maximum.

Together these programs covered only a small proportion of the current elderly population because many made their living as farmers or in family-run businesses. Indeed, approximately 80% of persons age 60 or over in Taiwan in 1989 had no pension income. In the early and mid-1990s, several subsidy programs were initiated in Taiwan to provide income to this segment of the population. The first program established was a social welfare program for elderly in 1993. Legislation provided monthly subsidies of US\$120 to elderly in poverty (defined as those 65 or older with monthly income below US\$180 and who had no financial support from children).

The second and third programs for the elderly were not means-tested (as the social welfare program was), although individuals were not eligible for the subsidies if they were already receiving a pension. Table 3 shows some of the key details of each of these programs. The farmers pension program began in June 1995. All persons age 65 years and older who were registered farmers and who were not already receiving a pension (such as those for soldiers, teachers or civil servants) or a social welfare payment, were eligible for a monthly pension of \$3,000 New Taiwan (NT) dollars (or US\$111 in 1995). While the proportion of the labor force engaged in agriculture has been declining over the years, from 36.7% in 1970 to 8.3% in 1999 (Council for Economic Planning and Development, 2000), over one-third of the elderly in the 1996 survey were engaged in farming or had been farmers most of their lives.

**Table 3 Characteristics of Taiwan Subsidy Programs for the Elderly  
Beginning in 1994-1995**

<b>Program</b>	<b>Eligibility</b>	<b>Amount and frequency</b>	<b>Duration</b>
Farmers pension program	Farmers and fishermen age 65 years and older who are not already receiving pensions (soldiers, teachers, civil servants) or social welfare for persons in poverty	\$3000 NT every month	June 1995 - present  Program operating through present
<i>Hsien</i> and city subsidy programs (1994-1996)	All persons age 65 years and older without any existing pension payment (including farmers pension)	Varied by area	Varied by area
Taipei <i>Hsien</i>	See above	\$5000 NT each month	July 1995 – October 1999 4 months each year from July to October
Yi-Lan <i>Hsien</i>	See above	\$3000 NT each month	July 1995 – present 4 months each year from July to October
Kaoshiung <i>Hsien</i>	See above	\$5000 NT each month	July 1994 – October 1994
Tai-Nan <i>Hsien</i>	See above	\$2000 NT each time	July 1994 – October 1995 Spring Festival senior subsidy
Chya-Yi City	See above	\$5000 NT each month	July 1994 – October 1994

Source: Social Welfare Division, Regional Office in Central Taiwan, Ministry of the Interior (May 17, 2000)

Note: Programs in two hsien are omitted from this list because the panel data contain only one respondent in each hsien. The two panel respondents moved to these hsien after the original survey. Taipei City is also omitted from the list because of the lack of overlap between the timing of the program and the time reference for income in the 1996 survey questions.

The *hsien* (county) and city subsidy program was much more varied than the farmers pension program and began as part of a political platform in the 1993 local government elections. In 1993 mayoral elections in 21 *hsien* and cities in Taiwan Province, DPP (Democratic Progressive Party) candidates proposed elderly subsidies as part of their campaign platform. Five DPP candidates won and implemented elderly subsidy programs along with two non-DPP mayors. Taipei city's mayor at the time (now the current President of Taiwan) also implemented an intense but short-lived elderly subsidy program. The subsidy programs varied across counties and cities by the amount of the subsidy given (ranging from \$2,000 NT to \$5,000 NT), the frequency that the subsidy was given (periodic to monthly), and the duration of the program (from 4 months only to programs still ongoing). The median annual income in 1995 for persons aged 60 and older (including income from spouses) was \$168,000 NT (or US\$6,363 (\$26.4 NT = US\$1 in 1995)) and 34% of older persons reported annual incomes of less than \$100,000 NT (or US\$3,788). The farmers pension program provided \$36,000 NT per year or 21% of the median annual income for elderly. The high subsidy, intensive programs at the county and city-level (for example, \$5,000 NT every month) would have contributed towards a higher proportion of an older person's annual income, but these tended to be short-lived programs.

The government of Taiwan is in the process of starting a new national annuity program. According to the drafts of the plan appearing in the press, the annuity program will give every citizen a maximum monthly pension of US\$272 (equivalent to approximately \$86,000 NT annually) with a premium deduction set at US\$27 a month, or 10% of the annuity. The government will subsidize the program by paying 20% to 40% of the premium, depending on a worker's occupation. Provision for continuing coverage under existing plans for those currently covered and for switching to the new national program are also included. The results from this study should provide some indication of the possible effects that the new province-wide program may have on private support among the elderly.

## Section 4 Data and Measures

### 4.1 Singapore

We use data from two longitudinal data sets; the 1995 *National Survey of Senior Citizens*, and the 1999 *Transition in Health, Wealth, and Welfare of Elderly Singaporeans:1995-1999*. Both surveys collected information on the demographic and socioeconomic characteristics of older Singaporeans. The baseline survey had a 60% response rate, and the follow-up had a 47% response rate. Given the low re-interview response rate, we checked the distribution on our key variables used in our analysis. We found that the distribution between the panel and the baseline survey quite similar (see Appendix A).

For the Singapore analysis, we use information derived from the following questions from both surveys:

Survey question in 1995: *What is your main source of financial support, taking into account your own sources of income and cash allowances from other people? (Check 1 only)*

Answer:        Self-supporting: salaries or business income  
                  Self-supporting: interest, dividends, rent  
                  Self-supporting: pension  
                  Self-supporting: annuity  
                  Self-supporting: monthly withdrawal from CPF  
                  Self-supporting: other own sources  
                  Allowance from spouse  
                  Allowance from children  
                  Others

Survey question in 1999: *Please rank the major source of income for you and your spouse (Starting from 1 for the first major source):*

Answer:        Respondent's earnings from work  
                  Spouse's earnings from work  
                  Pension or retirement fund  
                  Income from rental property, savings, stocks, shares  
                  Income from family business  
                  Children  
                  Others (specify)

Major sources of income were categorized into work income (including wages, salaries, and any income from family businesses), private transfers (from children, other family members, or friends), pension or retirement income, and other income (income from stocks, rental properties, or savings). There are a couple of limitations with these data. The first is the difference in question wording between 1995 and 1999. Secondly, in 1995, the respondent was asked about individual major source of income whereas in 1999, the respondent was asked about major source of income for himself/herself *and* spouse.

The sample used for analysis is older adults age 60 and above in the 1995 survey. A total of 1,624 individuals were re-interviewed in 1999. Of these, 131 were missing on the major source of income variable for 1999; therefore the final sample size for analysis was 1,493.

## 4.2 Taiwan

We use nationally representative, longitudinal data from four surveys on 4,049 persons age 60 years and older (at baseline in 1989) to examine the impact that these public transfer programs had on private transfers. The baseline survey is the *1989 Survey of Health and Living Status of the Elderly* (see Hermalin *et al*, 1989 for details). Respondents were re-interviewed in 1993, 1995 and 1996. Data from 1989, 1993 and 1996 surveys contain detailed information on major income sources and financial transfers between the elderly respondent and family members. The *1995 Long-Term Survey of Health and Living Status of the Elderly in Taiwan* administered an abbreviated form of the questionnaire that focused mainly on health. We utilize residence information from the 1995 survey in order to determine eligibility for the *hsien* and city-level subsidy programs. The 1989, 1993, and 1995 panel data are available for public use (see <http://www.icpsr.umich.edu>).

There are a couple of limitations to the panel data. While the data cover 7 years and contain much detail about a wide range of income types, they do not contain information on amounts of transfers in each wave of survey data. In waves where amounts of income and transfers are obtained, the questions and response categories vary between surveys, thus complicating comparison over time on this dimension. We place more focus, as a result, on respondents' reports of their major source of income. Even this focus may be compromised slightly, however, because major source of income was asked in slightly different ways in the 1989, 1993 and 1996 surveys. In 1989 the question was: "At present, what are the major sources of your (and your spouse's) money (cash) income?" If the respondent listed more than one source, a follow-up question was asked: "What is the most important source of income?" In 1993, respondents were asked: "In the past year, what was your most important source of money income?" If the code signified that more than one source was named, we assigned non-private income sources instead of private sources as the major source of income. In the 1996 survey, the respondent was asked whether he/she and his/her spouse (separately) had any of eight different types of income. Those respondents indicating more than one source

were then asked to identify their major source and second major source, followed by the total income the respondent or couple received in the prior year. Major sources of income are categorized as work income (including wages, salaries and any income from family businesses or farming), private transfers (from children, other family members, or friends), pension or retirement income, and other income (income from stocks, rental properties, or savings).

The overall sample for analysis is adults aged 60 years and older in the 1989 survey. The response rate for the 1989 baseline survey was 91.8%. The sample design for the baseline survey in 1989 was a three-stage (townships, blocks and individuals), stratified sample using the Taiwan Household Register system. [Details can be found in Hermalin *et al*, 1989].

In 1993, 85.4% of the 1989 respondents were still living and interviews were obtained with 91.2%. In 1996, over one-quarter of the 1989 baseline respondents had died (26.1%) and interviews were completed with 89.2% of the remaining sample. Information on death of panel members was obtained through informants at the time of the follow-up interview (1993 and 1996) and from death certificates. Respondents who were lost to follow-up (unable to be found to be re-interviewed) were searched in the death certificates to determine whether they had died since the previous interview.

### **4.3 Analytic Strategy**

#### *4.3.1 Bivariate analysis*

We first examine how the major sources of income change over time for both countries. For Singapore, we investigate how major source of income changed between 1995 and 1999. For Taiwan, we concentrate on the change in major source of income between 1993 and 1996. This is to take into account the implementation of formal programs for the elderly in 1993. We are particularly interested in whether the observed shift in major source of income is more pronounced for respondents who received or were eligible to receive subsidies compared to respondents who were not.

#### *4.3.2 Bivariate results*

Overall we see very little change in the cross-sectional data in terms of main source of economic support for older persons (Table 4). There is a decrease in the percentage of elderly citing work or family business income as their major income source from 14% to 10%. This decrease is probably due to mandatory retirement: Singapore's mandatory retirement age was 55 in 1995 and was increased to 60 on January 1<sup>st</sup> 1999. There is a remarkably low percentage of older Singaporeans that cite pension or retirement income as their major source of support, 2%, given that 63% of the sample reports ever having a CPF account. The main reason for

this may be the low levels of savings in the CPF account due to low contribution rates at the start of the program, breaks in employment histories, withdrawals to finance housing mortgages, and low interest rates<sup>10</sup>. It is therefore not surprising that private transfers are the major type of economic support for older Singaporeans; 81% cite their children or spouse as their main source of economic support in 1999. Only 2% of respondents rely on pension or retirement income for economic support.

**Table 4 Major Source of Income Among a Cohort of Older Persons Age 60+ in 1995, as Observed in 1995 and 1999, Singapore**

<b>Major source of income</b>	<b>1995 (60+ years)</b>	<b>1999 (64+ years)</b>
Work or family business	14.5	9.7
Private transfers	78.5	81.4
Pension or retirement	2.1	2.3
Other income (rental, stocks, etc)	4.9	6.6
Total		
N	1,493	1,493

Note: Percentages are weighted.

Source: 1999 Transitions in Health, Wealth, and Welfare of Elderly Singaporeans: 1995-1999.

Table 5 shows cross-sectional data on changes in major source of income for older Taiwanese. For Taiwan, we see a much larger percentage of older persons compared to Singapore, relying on pension or retirement income even prior to the introduction of new pension programs in 1993. In 1989, 15% of older Taiwanese cited pension/retirement income as their major source of support. This proportion increased to 37% by 1997. The percentage of older Taiwanese relying on private transfers is much lower than Singapore, particularly after the introduction of more formal support programs in 1993; 52% of respondents report private transfers as their main source of support in 1989 compared to 38% in 1997. We see a decrease in the proportion of older Taiwanese who rely on work or family business income, with age. As mentioned above, the mandatory retirement age is 65 in Taiwan, and we see a drop from 22% relying on work/family business income in 1993 (when respondents are 64+) to 14% in 1997 (when respondents are 67+).

**Table 5 Major Source of Income Among a Cohort of Older Persons Age 60+ in 1989 as Observed in 1989, 1993, and 1996, Taiwan**

<b>Major source of income</b>	<b>1989 (60+ years)</b>	<b>1993 (64+ years)</b>	<b>1996 (67+ years)</b>
Work or family business	28.4	21.6	13.8
Private transfers	52.3	54.1	38.0
Pension or retirement	14.8	15.9	36.8
Other income (rental, stocks, etc)	4.5	8.4	11.4
Total	100.0	100.0	100.0
N	4,049	3,155	2,669

The next set of tables examines changes in main source of economic support for older persons in Singapore and Taiwan taking into account the source of income in the base year. We note that for Singapore, among older adults who rely on work or family business income in 1995, 42% continue to rely on the same source in 1999 (Table 6). 42% switch to private income sources, and 5% switch to retirement income. 12% switch to other income sources. Among those respondents relying on pension income in 1995, one third continue to rely on pension income, however, an equal number (38%) switch to private forms of support (the small sample size suggests a cautious interpretation of these results). By far the most prevalent type of economic support is private support. A full 91% of older adults who rely on private support at baseline continue to rely on such support in the follow-up. We see a small percentage of respondents who switch to work or family business income, or pension/other sources. Among respondents who cite other income sources as their main source of support in 1995, the majority (64%) switch to private support by the follow-up.

Table 7 presents changes over time in major source of income depending on the source of income in the base year for Taiwan. The left panel shows changes among respondents from 1989 to 1993 and the right panel shows changes from 1993 to 1996. Of particular interest is the change that occurred among those who relied primarily on private transfers as their major source of income. Between 1989 and 1993, 78% of these people continued to rely on family for financial support.

**Table 6 Changes in Major Source of Income, 1995-1999, for Cohort Age 60+ in 1995, Singapore**

1995 (60+) Income source	1999 income source (64+)				Total
	Work	Private	Pension	Other	
Work	41.67	42.13	4.63	11.57	100.00 (n=216)
Private	3.75	90.87	0.77	4.61	100.00 (n=1172)
Pension	9.38	37.50	37.50	15.63	100.00 (n=32)
Other	10.96	64.38	5.48	19.18	100.00 (n=73)

Note: 131 cases missing on main source of income in 1999 have been excluded.

Again, we would expect a high level of continuity of family support as this cohort advances further in old age. However, between 1993 and 1996, approximately half of those initially relying on family support continued to do so in 1996 and fully 29% switched to pension or retirement income as their major source of financial support.

**Table 7 Changes in Major Source of Income, 1989-1993 and 1993-1996, for Cohort Age 60+ in 1989, Taiwan**

1989 Income	1993					1993 Income	1996				
	Work	Private	Pension	Other	Total (n)		Work	Private	Pension	Other	Total (n)
Work	43.9	34.3	15.9	5.9	100.0 (970)	Work	35.2	22.0	33.6	9.3	100.1 (583)
Private	10.7	77.7	3.5	8.1	100.0 (1623)	Private	7.7	54.2	28.6	9.5	100.0 (1348)
Pension	13.7	14.8	64.0	7.5	100.0 (439)	Pension	6.2	10.1	73.5	10.3	100.1 (388)
Other	17.9	39.8	6.5	35.8	100.0 (123)	Other	4.4	32.5	31.6	31.6	100.1 (206)

In the next section, we model the shift from private to pension/other income sources over time. Our aim is to determine the characteristics of older adults who make the switch from private to pension/other income as major source of economic support between the two survey waves.

#### 4.3.3 *Multivariate analysis*

For Taiwan, we take all those individuals relying on private transfers in 1993 (N=1,311) and model the probability of switching to pension income in 1996. We do this in a multivariate framework by regressing whether pension or government allowances were the major source of income in 1996 (yes/no) on type of program participation (farmer program, ongoing *hsien* or city-level subsidy, or no program participation). Coresidence with a child in 1996 is added as a control variable in order to differentiate private transfers that might be entangled with intra-household transfers from private transfers that are solely from people outside the household. Since all respondents are 67 years or older in 1996, coresidence is almost always with an adult child who one could consider independent (for example, married, employed, or out of school). The sex of the respondent, mainlander ethnicity, and marital status in 1996 are added to the models as sociodemographic control variables. Average monthly income of the respondent (and spouse) is also included as a control for the respondent's relative economic status in 1993 and as an interaction term with program type. A series of dummy variables are used, adapted from the categorical income variable from the 1993 survey. Program subsidies, which are not large on average, should have most of an impact on movement from private to pension income for those persons at the lower end of the income distribution.

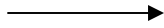
Similarly for Singapore, we take all those individuals who relied on private support in 1995 (N=1,172) and model the probability of switching to pension, CPF, or other sources of support (including savings, annuities, work, income from family business) in 1999. Specifically we predict if pension, CPF or other sources were the main source of respondent's income in 1999 (yes/no). We control for the factor of having a CPF account to gauge the effects of the presence of formal support on the shift away from private support. Our main demographic control variables are age, gender, ethnicity, religion, and marital status. To control for levels of need, we include measures of education level, self perceived health at baseline, and average monthly income at baseline. As for Taiwan, we control for whether the respondent lives with a child.

The following diagrams outline our analytical strategy for modelling change in the dependent variable.

For Singapore, we modelled the following process:

*Time 1*

Private transfers as  
major income source



*Time 2*

All other sources of income (includes pension,  
work/family business income, any other  
income) -- **1**

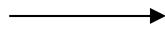
vs.

Continuing reliance on private  
transfers -- **0**

For Taiwan, given the higher percentage of elderly relying on pension income, we were able to model the following process:

*Time 1*

Private transfers as  
major income source



*Time 2*

Pension as major source of income -- **1**

vs.

Reliance on other income sources  
(includes private transfers, work/family business  
income, any other income) -- **0**

Table 8 shows the logistic regression results for the model that looks at change from private to other sources of support over time for Singapore. Two main findings emerge: (i) the presence of a formal income source, that is, a CPF account has no impact on the switch from private to other income sources, and (ii) that only gender and marital status affect the switch significantly from private to other income sources. Older females are significantly less likely to make the switch away from private support controlling for other sociodemographic characteristics. Never married older adults are significantly more likely to make the switch away from private support compared to currently married adults. An anomaly which deserves more investigation is that widowed older adults are significantly more likely to switch from private to other (pension, work/family business income, and/or other income) sources of support compared to currently married older adults. Widowed adults may be forced to begin working or rely on government support if support from family is insufficient or not forthcoming.

The logistic regression model results for Taiwan are presented in Table 9. The first key result is that the farmer's pension program had a strong positive and statistically significant effect

on the likelihood of moving from reliance on family income to reliance on pension income between 1993 and 1996, compared to other transitions. Second, the *hsien* and city-level subsidy program shows no evidence of “tipping” older persons away from reliance on family transfers to reliance on pension income. Although the coefficient is in the right direction to support this hypothesis, the effect is not statistically significant. These same program effects remain even in the full model with sociodemographic and income controls.

**Table 8 Logistic Regression Predicting Change from Private to Other Sources Versus Continuing to Rely on Private Support Between 1995-1999, Singapore<sup>a</sup>**

<b>Determinants</b>	<b>Odds Ratios</b>
<b>Age</b>	
60-64	1.18
65-69	1.35
70-74	1.19
75+	Ref
<b>Gender</b>	
Male	Ref
Female	0.45**
<b>Ethnicity</b>	
Chinese	0.48
Malays/Indians/Others	Ref
<b>Living arrangement</b>	
Live alone/with spouse/others	Ref
Live with children	0.82
<b>Marital status</b>	
Never married	39.25**
Currently married	Ref
Widowed	1.57*
Divorced/Separated	1.89
<b>Education level</b>	
No education	0.80
Completed Primary	0.77
Completed Secondary or above	Ref

<b>Total monthly income in 1995</b>	
Less than 500	1.09
500+	Ref
Own home	1.16
Have CPF	1.25
<b>Religion</b>	
Christian	Ref
Buddhist/Tao	1.21
Islam	0.50
Hinduism	0.70
No religion	1.12
N	1172

<sup>a</sup>Private to other sources includes the move from private to work/family business income, private to pension, and private to other (savings, annuities, rental incomes, etc.)

Source: Survey on the Transitions in Health, Wealth, and Welfare of Elderly Singaporeans: 1995-1999

**Table 9 Odds Ratios of a Logistic Regression Model of Change from Private to Pension Income Versus Private to All Other Sources of Income<sup>b</sup> Among Adults Age 67 Years and Older, 1993-1996, Taiwan (n = 1,311)**

<b>Determinants</b>	Program model Odds ratio	Full model Odds ratio
Program indicators		
Farmer in 1993	2.49***	2.41***
Non-farmer, subsidy	1.21	1.20
Non-farmer (ref)	1.00	1.00
Sociodemographic factors		
Age 64 to 69 years in 1993		1.02
Age 70 to 79 years in 1993		1.08
Age 80 years and older (ref)		1.00
Male		1.11
Female (ref)		1.00
Married in 1996		1.27
Not married (ref)		1.00

Mainlander	2.15***
Other ethnicity (ref)	1.00
Coresidence with child in 1996	0.95
No coresidence (ref)	1.00
Monthly income in 1993	
Less than \$ 5000 NT	2.75***
\$ 5000 - \$ 19999 NT	1.13
\$ 20000 NT and above (ref)	1.00
Missing or don't know	0.94
Interaction terms	
Farm93*Income < \$ 5000	1.42
Non-farmer subsidy*Income < \$5000	0.92

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\* p < .05 \*\* p < .01 \*\*\* p < .001

<sup>b</sup>Private to all other sources of income includes private-to-private, private to work and private to any other non-pension sources.

The interaction terms shown at the bottom of Table 9 indicate that neither the farmers pension program nor the *hsien* and city-level subsidies had a differential effect on income change for those at the lower end of the income distribution.

## Section 5 Conclusion

This paper examined the changes that occur in major source of income reported by older individuals in Singapore and Taiwan using longitudinal data. We look at the effects of the presence of formal sources of support, pension or retirement programs on the probability of switching from private support to other income sources over time.

For Singapore, we examined changes in major source of income support between 1995 and 1999. We found very little change over time. The majority of older Singaporeans rely on private support (79% in 1995) and there is even a slight increase over time; 81% rely on private support in 1999. Very few elderly, 2%, rely on pension or retirement income. Given the lack of change in main source of income support over time, and the low reliance on pension/retirement income into account, we decided to model the shift away from private to all other forms of support (a combination of pension/retirement income, work/family business, and any other income). As such our model differs from the model for Taiwan in which we explicitly model the shift from private to pension/retirement income as a major income source. We find that the availability of a CPF account does not significantly affect an older individual's probability of switching away from family support. Much of this result may be a product of the fact that there is little change over time in main source of support for older Singaporeans. Only 10% of individuals make a switch from private to other sources of support between 1995 and 1999. This result may also be due to the low amount of savings in CPF accounts reported by older Singaporeans. We find that older females are significantly less likely to make the shift away from private to other forms of support over time compared to older males. Widowed and never married older adults are significantly more likely to switch from private to other forms of economic support compared to currently married older adults.

For Taiwan, we tried to take advantage of a "natural experiment" in Taiwan in the form of a major policy change during the course of a national longitudinal survey of the older population. The major research question of interest was whether the initiation of public subsidy programs for older persons had an impact on the reliance of the elderly on private transfer income. This question is important because of the repercussions that public support programs may have on existing patterns of family support and the resulting effectiveness of those public support programs to improve elderly economic well-being. The resulting evidence is mixed. With regard to the farmers pension program, we observe strong effects of this program on reliance on private transfers. Older persons who were likely to have qualified for this program were substantially more likely than others to have switched from private sources to pension as their major source of income between 1993 and 1996. In contrast, the

*hsien* subsidy program appears to have had little impact on reliance on private transfers during the survey period (though the odds ratio was 1.20, the result was not statistically significant)<sup>11</sup>.

It is important to recognize that we are imposing a strong test of substitutability of public funds for private transfers by looking at changes in major source of income. In some cases, for example, family members may have reduced the funds given to an older person in response to formal programs, but still remained the major source. In other cases, family members may have maintained their level of support but the public program funds exceeded what they were able to provide, so that the major source shifted, without implying any change in the amount of private transfers. Given these possible ambiguities, the analysis presented here must be regarded as a first estimate of the possible responsiveness of the current older cohorts in Singapore and Taiwan to the advent of new pension or retirement programs.

In our paper we present two examples of Asian countries which have both undergone rapid economic development and are currently experiencing population aging. In one case, Taiwan, the government has taken a welfare-state approach and implemented a series of subsidized pension programs for older adults. In the other case, Singapore, the government has taken the approach that economic support in old age is an individual responsibility. We see very different outcomes when we look at changes in main source of income in both countries. Over time, there is a much higher reliance on pension support in Taiwan compared to Singapore. In Singapore, over 70% of older adults rely on private transfers as their major source of income in old age. Once pension programs were implemented in Taiwan, the percentage of older persons relying on private transfers decreased from 52% to 38%. The question is how sustainable are these current arrangements? Given the rapid aging of the population, will family transfers be sufficient in future especially in the case of Singapore? Lower fertility will translate into fewer children for older parents to rely on financially, and at the same time life spans are lengthening therefore increasing the number of years during which an older parent requires income. In the case of government subsidized programs, fiscal sustainability becomes an obvious issue. There is also the qualitative dimension of caring for the older adults which this paper has not addressed. Family support can take many forms, an issue we need to understand better by taking into account the role of coresidence, physical and emotional support in the lives of older adults in Asia.

# References

- Asher, M.G. (2002) 'Pension reform in an affluent and rapidly ageing society: The Singapore case', *Hitotsubashi Journal of Economics*, 43(2):105-118.
- Asher, M. (1996) 'Financing old age in Southeast Asia', *Southeast Asian Affairs*, pp.70-98.
- Aw, T.C. and Low, L. (1996) 'Social security in Singapore: Continuous managed investment approach', *Singapore Institute of Labour Studies*, Singapore.
- Chan, A. (1997) 'An overview of the living arrangements and social support exchanges of older Singaporeans', *Asia-Pacific Population Journal*, 12(4), pp. 35-50.
- Chan, A. and DaVanzo, J. (1996) 'Ethnic differences in parents' coresidence with adult children in peninsular Malaysia', *Journal of Cross-Cultural-Gerontology*, 11:29-59.
- Chang, M. C. (1997) 'A longitudinal study on living arrangements of the elderly in Taiwan', Presented at a conference on the Emerging Policy Issues on Aging in Asia and the Research response, Academia Sinica, Taipei.
- Cowgill, D. O. and Holmes, L. D. (eds) (1972) *Aging and Modernization*, New York: Appleton-Century-Crofts.
- Cox, D. and Jimenez, E. (1992) 'Social security and private transfers in developing countries: The case of Peru', *World Bank Economic Review*, 6(1): 155-70.
- CPF Minimum Sum Handbook (2002) [www.cpf.gov.sg](http://www.cpf.gov.sg)
- DaVanzo, J. and Chan, A. (1994), 'Living arrangements of older Malaysians', *Demography*, Volume 31(1): 95-113.
- Frankenburg, E., Chan, A. and Ofstedal, M. B. (2002) 'Stability and change in living arrangements in Indonesia, Singapore, and Taiwan: 1993-1996', *Population Studies*.
- Hermalin, A. I., Ofstedal, M. B. and Lee, M. L. (1992) 'Characteristics of children and intergenerational transfers', *Comparative Study of the Elderly in Asia Research Report No. 92-21*, Population Studies Center: University of Michigan.
- Hermalin, A. I., Liang, J. and Chang, M. C. (1989) '1989 Survey of health and living status of the elderly in Taiwan: Questionnaire and survey design', *Elderly in Asia Report*, pp. 89-1.
- Knodel, J., Havanon N. and Pramualratana A. (1984) 'Fertility transition in Thailand: A qualitative analysis', *Population and Development Review*, 10(2), pp. 297-328.
- Lee, L. and Willis, R. (1997) *Motives for Intergenerational Transfers*, Volume 34 (1).

Milward, B. (1998) 'The Asian tigers', in Atkinson, B., Livesey, F. and Milward, B., *Applied Economics*, Basingstoke: Macmillan, pp. 461-470.

Parliamentary speech by Deputy Minister Lee Hsien Loong, Straits Times July 22, 2002, [www.straitstimes.com.sg](http://www.straitstimes.com.sg)

Roan, C., Hermalin, A., and Ofstedal, M. B. (1996) 'Intergenerational contact and support in Taiwan: A comparison of elderly parents and children's reports', *Elderly in Asia Report*, pp. 96-36.

Schoeni, R. (1992) 'Another leak in the bucket? Private transfer income and private family support', *Population Studies Center, Research Report No. 92-249*, University of Michigan.

Straits Times 12<sup>th</sup> July 1997, [www.straitstimes.com.sg](http://www.straitstimes.com.sg).

World Bank (1994) 'Averting the old age crisis: Policies to protect the old and promote growth', Oxford University Press.

# Appendix

## Weighted characteristics for Original and Panel Samples of Older Adults, 60+ in 1995, Singapore

1995 Characteristics	Original sample (60+ in 1995)	Panel sample (64+ in 1999)
<b>Age</b>		
60-64	34.10	38.32
65-69	23.90	24.24
70-74	18.24	18.42
75-79	13.36	11.19
80-84	6.82	5.27
85+	3.38	2.56
<b>Gender</b>		
Male	46.22	45.30
Female	53.78	54.70
<b>Ethnicity</b>		
Chinese	82.22	83.27
Malays	9.95	9.53
Indians	6.83	5.85
Others	1.00	1.35
<b>Living arrangement</b>		
Live alone/with spouse/others	14.87	15.50
Live with children	85.13	84.50
<b>Marital status</b>		
Never married	3.30	3.39
Currently married	52.20	55.61
Widowed	43.15	39.57
Divorced/Separated	1.35	1.43

<b>Religion</b>		
Buddhist/Taoist	69.66	69.31
Christian	8.16	8.71
Muslim	10.90	10.27
Hindu	5.70	4.46
No religion	6.21	7.25
<b>Education level</b>		
No education	66.67	65.85
Completed Primary	23.43	23.23
Completed Secondary	7.20	8.30
Completed Upper Secondary/Polytechnic/University	2.70	2.62
<b>Total monthly income in 1995</b>		
Less than 500	55.97	49.48
500-999	28.40	33.29
1000-1499	9.81	11.63
1500-1999	2.06	2.02
2000+	2.70	2.73
Refused/DK	2.00	0.85
<b>Home ownership</b>		
Own home	93.87	94.58
N	3,982	1,624

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Source: Survey on the Transitions in Health, Wealth, and Welfare of Elderly Singaporeans: 1995-1999

# Notes

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<sup>1</sup> The other two “Asian Tigers” are South Korea and Hong Kong.

<sup>2</sup> Today, Singapore has one of the highest coresidence rates in Asia. However, this may be a result of high housing costs rather than continuing high levels of support for older parents. Recent work on living arrangements looking at change over time suggests that high coresidence levels in Singapore are more a result of younger children not having left home yet, rather than older parents moving in with adult children (Frankenberg *et al*, 2002).

<sup>3</sup> 80% of the Singaporean population lives in Housing Development Board (HDB) flats. Essentially subsidized housing, these estates are built by the government and are leasehold properties. After 99 years from the date of building completion, the land reverts to the ownership of the government. Only Singaporean residents and Permanent residents are allowed to purchase HDB properties. Once a new flat is purchased, the buyer must live in the flat for a period of 5 years. If the flat is not a new property, the buyer need only live in the flat for a period of 2 and a half years (provided no government loan has been obtained) before reselling. If a government loan is used to purchase a re-sale flat, the buyer must live in the flat for a period of 5 years. Buying a HDB property is an attractive option, particularly for young couples starting out because part of the Central Provident Fund (CPF) savings can be used as a down-payment for the property.

<sup>4</sup> Neglect was defined in terms of financial neglect as the Parliament agreed that emotional neglect is difficult to prove.

<sup>5</sup> This has been increased to 16% (2002) but has yet to be restored to the full 20%.

<sup>6</sup> A CPF member can top-up his/her account, his/her spouse’s account, and his/her parents’ Retirement accounts if the parents are over 55 and have less than the Minimum Sum in their CPF balance. If the member uses cash, he/she can claim tax relief of up to \$6,000 per calendar year.

<sup>7</sup> At the time of writing (September 2002), \$1 US dollar is equivalent to \$1.77 Singapore dollars.

<sup>8</sup> The government is presently trying to encourage CPF members to purchase annuities, which would provide them with a regular monthly income in old age. The take-up rate, however, has been slow, prompting the government to offer several seminars to inform the elderly about annuities.

<sup>9</sup> The amount of CPF savings that can be used for private property and HDB resale properties will be capped at 150% of the property’s value (including interests payments).

<sup>10</sup> Approximately 20% of respondents with CPF accounts reported breaks in their contribution histories as a result of unemployment or sickness. Most elderly with CPF accounts do not think their funds will last more than 1 or 2 years from the time of the survey (analysis not shown).

<sup>11</sup> There are several possible reasons for the lack of effect of the *hsien* and city-level subsidy program. First, “natural experiments” are rarely ideal experiments in the arrangements of control and treatment areas or in the magnitude of the treatment. In this case, there may have been a relationship between the likelihood of a DPP victory and the status of the older citizens in these *hsien* and cities that influenced the observed responses vis-à-vis other areas. In addition, the range of magnitudes in terms of the *hsien* subsidies and the relatively short

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duration of some programs are also likely to dampen the ability to discern clearly the responsiveness to the introduction of new public programs.

Second, the subsidies provided under the *hsien* program were much smaller and more variable than those provided under the farmers program. The maximum annual amount under the *hsien* program was \$20,000 NT (US\$758 in 1995 dollars) compared to \$36,000 NT (US\$1,364) under the farmers program. Furthermore, whereas the farmers program has been ongoing continuously since June 1995, the *hsien* programs have been much more sporadic and short-lived. Those *hsien* where payments were the highest tended to be especially short-lived. As a result, the actual amount of money received under the *hsien* program may not have been sufficient to tip the major source of income from private to pension.



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