The Public Provision of Home Care for the Elderly:

Its Impact on Living Arrangements, Formal and Informal Care & Health

By

Kelsang Yangzom

M.A. Candidate

Supervisor: Professor Catherine Deri Armstrong

Department of Economics

University of Ottawa

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Abstract: With a view to its cost-effectiveness, this paper reviews the current academic literature examining the impact of the public provision of home care on the following key issues: (1) the living arrangement choices of the elderly, (2) informal and formal care use (as well as the substitution between them) and (3) health of the elderly. From the policy side, two important documents dealing with the Canadian health care system are analyzed: the Romanow Report and the Health Transition Fund Report. By providing this overview, it is hoped that the issues surrounding home care become clearer.

1. Introduction

Long-term care has greatly increased in importance as a policy issue in recent years largely due to the expected doubling of the elderly population by 2030. (McKnight 2004). In Canada, it has become one of the key issues addressed in many government commissioned reports, such as the Romanow Report (2002) and the Health Transition Fund Report (2002), both of which will be presented later in the policy section of this paper[1].

This paper focuses on one aspect of long-term care, namely, home care. Home care encompasses "social (homemaker/chore assistance, aid with bathing and toileting)...[as well as] health-related services (nursing and nurses' aides, monitoring of medication)" (Stum 1998, page 83). In other words, home care is generally provided in cases where the individual needs assistance with daily living activities, either due to disability, old age or a recent hospital stay involving for example surgery. Since the largest population group using home care is the elderly, this paper focuses on them.

In both the US and in Canada, hospital care for the elderly is covered under Medicare and the Canada Health Act, respectively. However, home care is not necessarily covered. Once outside the hospital, often family and friends have to provide the necessary care, either through financial or time contributions. Therefore, the issue of private-public financing of home care becomes very important.

In 2000, long-term care expenditures in the US totalled $98 billion, making up 10% of national health care expenditures or 1% of GDP (McKnight 2004). As the population

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[1] The Romanow Report was commissioned by Health Canada to the Commission on the Future of Health Care in Canada, headed by Roy Romanow. It took one and half years to complete and engaged Canadians all over the country in a debate about how best to modernize the health care system and make it sustainable. The Health Transition Fund Report was also commissioned by Health Canada and consisted of 141 different projects conducted across Canada between 1997-2001, totalling $150 million in costs. The projects tested innovative and cost-effective ways to deliver health care to Canadians. The report is made up of a series of synthesis reports which are written by various experts. The only one I will consider is the one on home care.

ages further, the number of elderly who need assistance with daily living activities is expected to increase 42% between 2000 and 2020 (US Congress 2000). Most of these people will need institutionalized care (such as nursing homes) or home care. Home care has also grown in importance relative to more traditional types of long-term care such as nursing home care. In 1980, expenditure on institutional care was seven times higher than on home care. By 1995, there was only a two-fold difference in favour of institutional care (HHS 2002).

Likewise in Canada, over the last quarter-century, home care expenditures have increased 17.4%, which is more than double the annual growth rate of total public health spending (8.3%). In 1975, home care spending was $62 million and in 1997, $2.096 billion (Coyte and Stabile 2001). Since the Canada Health Act does not cover home care services, the provinces have great discretion when it comes to allocating money for home care. While the average home care expenditure per-capita in Canada in 1997 was $69, there was a three-fold variation in spending across provinces.

All provinces provide the same basic range of services, although some provinces offer more services. They also differ in the eligibility requirements and the maximum amount of home care services allowed per individual. Although there has been a general upward trend in spending on home care, the rates of growth across provinces have differed.

Therefore, it is clear that there has been a dramatic increase in home care expenditures in both the US and Canada. As Payne (2002) states, "the factors contributing to this increase in home care expenditures are the aging population, greater prevalence of chronic conditions as survival rates improve, more technologies and services provided in the home, better ties between hospitals and home care providers and policies that encourage the shift of setting away from hospitals and institutionalized care to the home." (Payne 2002, page 685)

Given this reality, it is important to understand the impact home care has on the lives of the elderly as well as its associated costs. In this paper I draw from the literature of

economics of the family and health economics to analyze home care. More specifically, I discuss three fundamental questions. The first question is: how does the public provision of home care affect the living arrangement decisions of the elderly? The motivation behind this question is to see if home care is a cost-effective substitute for institutional care, i.e., whether increasing access to home care reduces the use of more expensive nursing home care. The second question is related to the first: does formal home care simply substitute for informal home care? If it does, then increases in public funding may not achieve its intended purpose of benefiting the elderly by increasing the intensity of care they receive. Informal caregivers may simply use the extra money to buy formal home care and cut back on their own care-giving time. These decisions are fundamentally related to household decision-making and financial incentives, which the field of economics is well-equipped to address. The final question asks, what is the impact of additional home care on the health status and on other measures of quality of life for the elderly?

Since the home care literature is quite extensive, it is not possible to review all the relevant papers. What I have tried to do is provide a comprehensive sample of those that deal with the above questions, as well as some important policy documents, from the US and Canada. My selection criteria favours those papers written more recently, based on my reasoning that these papers will likely draw and build on the earlier (equally important) studies, which had to be omitted simply because of my constraints on time and resources.

The paper proceeds as follows. In section 2, I review the economic literature. In section 3, I present my own analysis of the literature review, which synthesizes the overall findings and tries to address the three questions outlined above in a more direct manner. Section 4 presents two key policy documents relating to home care, while section 5 once again provides my own analysis of their views and findings. Finally, Section 6 draws some of the main lessons that can be learnt from this review and analysis as well as suggests extensions for future research.

2. LITERATURE SURVEY

"Public Subsidies, Private Provision of Care, and Living Arrangements of the Elderly." by Hoerger et al. (1996)

Hoerger et al. (1996) examine how public subsidies affect the living arrangement choices of the elderly. More specifically, the authors examine how these subsidies determine whether the elderly choose to live in a nursing home, with their children or independently.

They use a multinomial probit model, where each living arrangement is associated with a separate utility function. Utility is maximized subject to a budget constraint. To be eligible for Medicaid subsidies, the income of the elderly "parent" must lie below a certain threshold. If they qualify, they must pay all of their income, except for a small allowance for personal maintenance.

This payment scheme resembles a deductible, as an increase of $1 in income will be exactly offset by a $1 reduction in the Medicaid subsidy. On the other hand, if they choose to live independently or with their kids, an increase in income will expand the family budget constraint. If they do not qualify for the Medicaid subsidy, then they have to pay 100% of the nursing home costs. They also consider the effects of rationing, i.e., if the nursing home chooses not to admit the Medicaid patient. This is a realistic scenario as Medicaid pays the nursing home substantially less than private patients.

They estimate their model with data from the U.S. National Long-term Care Survey conducted in 1982, 1984 and 1989. Those sampled were at least 65 and required assistance with one or more activities of daily living for a period of at least three months.

The dependent variable is the choice of living arrangement. Explanatory variables are grouped into four categories. The first is family financial resources. It includes residual wealth in the nursing home, which refers to the remaining wealth available for family

consumption after paying for the parent's nursing home costs. Other variables include non-housing wealth, housing wealth and the user cost of housing.

The second category of explanatory variables is factors affecting prices of formal and informal care. The price of formal care is the hourly wage paid to nursing home aides in the parent's state in 1989. The price of informal care depends on the child's wage, distance from parent and Medicaid subsidies designed to encourage informal care. Unfortunately, since the survey did not report children's wages, they had to predict them based on certain demographic variables that were available. For the elderly without children, the authors set the children's wages to zero and used a binary variable to identify such families.

Third, they look at government policies and subsidies. Expected Medicaid home health subsidy per week, loss in Supplemental Security Income (SSI) payments for those who live in an intergenerational household as opposed to independently, Medicaid nursing home discount (the difference between what Medicaid pays and what a private patient pays), and nursing home beds per elderly ratio.

Finally, they include health and demographic variables, such as marital status, loss of spouse over the course of the survey, extent of disability (number of activities of daily living they need help with) and cognitive status.

They find that an increase in residual wealth (defined above) in the nursing home significantly increases the probability of entering a nursing home. If non-housing wealth increases, the elderly parent is less likely to move to a nursing home and more likely to live independently. Parents with greater housing wealth are more likely to live with their children.

An increase in the price of formal care in the community made it more likely for the elderly to enter a nursing home. As the child's wage increases, the probability of living

independently increases too. Having more children nearby increases the probability of living together.

Medicaid subsidies for home care are found to have no effect on the probability of entering nursing homes, as the subsidies are generally too low. Though when larger subsidies are available, parents are more likely to live independently than with their children.

As expected, a high Medicaid discount (the reduced payment that Medicaid can pay the nursing home, compared to private patients) and low nursing home supply significantly reduces the probability of nursing home entry.

As the severity of disability increases, the probability of entering a nursing home rises. Cognitively aware[2] parents were more likely to live independently. Being married reduced the probability of living in a nursing home and with children.

Overall, they find that rather than decreasing the probability of nursing home entry, Medicaid subsidies for home care make it more likely for the elderly to live on their own. To prevent nursing home entry, which is the original intent behind the subsidies, the authors argue that the subsidies would need to be much higher. At these levels, it is not clear if Medicaid expenditures would be reduced.

"The Effect of the Medicaid Home Care Benefit on Long-term Care Choices of the Elderly" by Susan Ettner (1994)

Ettner (1994) tests two hypotheses: does the average Medicaid subsidy (1) reduce the probability of nursing home entry, and (2) induce substitution of formal care for informal home care. Since Medicaid has no co-payments for covered services, the effective

[2] They defined coginitively unaware as those who were able to answer less than 7 out of 10 questions correctly on a cognitive functioning test administered by the NLTCS during the survey or those who required a proxy respondent to answer the questions.

subsidy rate 100%. For her data, she uses National Long Term Care Survey, a longitudinal survey conducted in 1982 and 1984.

In her model, the elderly couple must maximize their joint utility function, which is made up of two variables: the quality of care for the disabled person and a Hicksian composite good. The quality of care, in turn, depends on the type of care (nursing home vs. home care) and the quantity of care, conditional on the patient's health and tastes.

There are two budget constraints: one for nursing home care and the other for formal home care. If the nursing home is chosen, the couple maximizes utility from the nursing home and the composite good, subject to the budget constraint and production function of nursing home care. The solution is an indirect utility function. Similarly for home care. If the indirect utility from the nursing home exceeds that of home care, the nursing home will be chosen. Therefore the probability that a person will enter the nursing home is the probability that the indirect utility of nursing home care will exceed the indirect utility of home care. She then estimates these probabilities using a probit model. If home care is chosen, she can calculate the amounts of formal and informal care through the conditional demand functions.

So far, she has not considered supply-side constraints. However, they are a very real possibility in both nursing home care (especially for Medicaid clients, due to the discount mentioned earlier) and home care. Hence, she tries to incorporate nursing home supply constraints by creating a (dependent) variable, which represents the elderly person's desired mode of care. Her data allows her to do this as it shows whether the sample person was on the waiting list for a nursing home or not. Supply constraints on the home care side are proxied by whether or not the person resides in a rural area, as rural areas tend to have fewer home care agencies.

Constraints on informal care are influenced by the number of potential caregivers, which is in turn influenced by the opportunity costs of their time. She uses two common proxies, number of children and marital status for opportunity cost of time. She

differentiates between male and female caregivers, as they may have different opportunity costs.

Since her sample is limited to those on Medicaid or Medicaid plus private insurance, she notes that there are two potential sources of selection bias. First, Medicaid patients tend to be poorer and sicker, on average. Therefore, imperfectly measured health and income variables will bias the estimated effects of Medicaid subsidies. To deal with this, she includes a variable for Medicaid status, which will capture the bias instead of the variable of interest, Medicaid subsidy.

The second source of bias stems from the fact that she can only observe whether someone actually receives home care coverage or not, rather than whether they are eligible for it. If there are some unmeasurable differences between those that participate in the home care program and those who are eligible but choose not to, then the estimated effects of the Medicaid subsidies will be biased again. This may also affect their use of formal and informal home care and nursing home care.

Due to a lack of instruments, she proceeds by re-estimating the model, first omitting health status and then caregiving supply measures. If these variables are good predictors, yet their exclusion does not impact the results much, she argues that having better measures of them would not change the estimated impact of the Medicaid subsidy much.

In regard to the first hypothesis she tests, i.e., whether the Medicaid subsidy reduces the rate of nursing home entry, she finds that it does. Without subsidies, 18% were likely to enter a nursing home, after subsidy, only 8% were. If health status variables are omitted, the negative impact of the Medicaid subsidy on institutionalization is greatly reduced. The exclusion of informal caregiver proxies does not have any impact however. Therefore, the selection bias affecting Medicaid subsidy seems more likely related to imperfectly measured health status than informal caregiver supply.

Her overall result that Medicaid home care benefit can lower nursing home entry is consistent with previous studies. In particular, she cites the New York State Long-term Home Health Care Program (another social experiment project, similar to Channeling) which found that participants used 90% fewer nursing home services as a result increased access to formal home care. In addition, she mentions Weissert et al. (1988) and Hughes (1985) who, in their surveys of the home care literature after 1960, both find that home care can reduce nursing home use. However, all these studies caution that overall costs may not decline, and may even go up. Hence, they advocate targeting the home care benefits to those most highly at risk for institutionalization. Ettner's results are also specific to this population, supporting the notion of targeting the benefits to this group. She finds a smaller effect of informal care supply on nursing home entry than previous studies, which she attributes to the conditioning of her sample on formal home care use. This tends to reduce variation and importance of informal care supply.

The second hypothesis she tests is whether Medicaid subsidy induces formal care to substitute for informal care. In this case, she uses formal and informal care as the dependent variables. Again she estimates with and without health and informal caregiver supply variables to get a sense of the bias on the effect of the Medicaid subsidy. She divides care-giving activities into four categories: home-making, assistance with daily living (ADL), transportation and medical services to see if the effect varies across skill types. She re-estimates the demand equation for each category of care.

Her main result is that the Medicaid subsidy increases the use of formal home care by 7 activity days per week, while decreasing informal home care by 8 activity days[3]. Therefore, the main effect appears to be substitution.

When she breaks down home care into the same four categories as before, she finds evidence of substitution in less specialized skills (such as home-making and ADL).

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[3] Activity days are constructed by multiplying the number of activities that each care-giver helped the elderly person with the number of days per week the care-giver helped.

However, in medical services, she finds an increase in formal care use without a corresponding decrease in informal care.

Her results differ quite significantly from those from the Channeling experiment (Kemper 1992). She finds a much larger substitution effect, for which she offers three possible reasons. First, the Channeling experiment had much more precise data on the number of care-giving days than the survey she used. If the caregiver compressed the same number of hours within a fewer amount of days, her measure would show a drop in care-giving. However, most of the discrepancy cannot be due to this as it would involve a significant amount of rearranging schedules, which is unrealistic. Second, she could be studying a different substitution effect, as the Channeling experiment offered home care benefits to those already receiving Medicaid benefits. Finally, the most likely explanation is that all Channeling participants had to demonstrate unmet needs or a fragile informal care system. In this case, they are more likely to increase formal home care use and therefore, less likely to substitute informal care.

To sum up, she finds that the targeted expansion of the home care benefits to at-risk elderly may reduce nursing home entry. However, she notes that even a high degree of targeting may not be sufficient to ensure cost-neutrality. In 1986, Medicaid incurred $2,278 in expenses per home care patient and $8,889 per nursing home patient. In that year 26 patients would need to be deterred from nursing home entry per 100 new home care patients in order to break even. This would require an even higher proportion of home care patients to be at imminent risk of entering a nursing home. Even her restricted sample would not meet this condition. Therefore, it is possible that overall costs could increase as a result of home care expansion.

In addition, for non-medical services, she finds that there is substitution of formal for informal home care. However, she argues that there may still be a drop in nursing home entry due to the higher quality of care that formal caregivers are able to provide. In addition, the presence of formal care may help relieve the burden on informal caregivers thus making them more willing to care for the elderly at home.

"Does Publicly Provided Home Care substitute for Family care? Experimental Evidence with Endogenous Living Arrangements" by Pezzin et al. (1996)

Pezzin et al (1996) examine whether publicly provided formal home care substitutes for informal care. They use data from the Channeling experiment,[4] which tested an expansion of publicly provided home care between 1982-1985 to see if it was a cost-effective alternative to nursing home care. A control group was allocated home care under existing eligibility standards, while the other (treatment) group was given access to a full range of home care services. The two criteria for eligibility were disability and unmet needs. After qualifying, participants were randomly divided into treatment and control groups. Follow-up interviews were conducted after 6, 12 and for half the sample, 18 months. Those sampled were old, poor and frail, about 28% had died by a year later.

As their framework to analyze the direct and indirect effects of publicly provided home care on family decision-making, they use Becker's neo-classical model. The family is assumed to maximize joint utility, which is a function of a private good, leisure, and a variable that represents the functioning of the disabled elderly person. This variable may be produced in two settings, in the home or an institution. The family must simultaneously maximize their utility function as well as decide on a living arrangement that maximizes that utility.

They estimate their model with a two-step procedure, first applying a likelihood function to determine the choice of living arrangement and then ordinary least squares to determine the number of hours of care, conditional on living arrangement. They estimate the model separately for married and unmarried persons due to their expected differing responses. They check for attrition bias due to the high level of attrition (28% of the sample died within a year and another 15% did not respond to the survey). However, they find no evidence of its presence in either sample.

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[4] It was conducted in ten sites: Baltimore, Houston, Middlesex County, Eastern Kentucky, Southern Maine, Miami, Greater Lynn, Rensselaer County, Cleveland and Philadelphia.

They find that the more generous public provision of home care significantly increases the probability that unmarried persons will live independently. The total increase is 7.1% (2.4% reduction in the likelihood of living with others and 4.7% reduction in the likelihood of entering a nursing home). Moreover, the substitution effects from public provision of home care tend to be small, which means that an expansion of publicly provided home care will primarily benefit the disabled elderly by increasing their level of care instead of informal caregivers.

"Household Responses to Public Home Care Programs" by Coyte and Stabile (2001)

Coyte and Stabile (2001) examine the impact of publicly funded home care on household behaviour. They have a simple model with a two person-household, where one person is health caregiver and the other a care recipient. Household utility depends on consumption good, leisure time and the ability of the care recipient to perform the tasks of daily living. Ability is determined by the amount of publicly and privately funded formal home care, the amount of care-giving time received from the other family member, and the health status of the individual. The household maximizes utility subject to ability, time and financial constraints. First, the household chooses the ability level for which its marginal benefit is just offset by its marginal cost. Next, it selects the level of formal and informal home care in order to achieve that ability. Finally it selects that level of leisure where its marginal benefit just offsets the marginal cost of forgone consumption.

They find that the effect of increased public funding for home care on household behaviour depends on the initial equilibrium, the relationship between the total home care received and the maximum public funding available. There are three possible scenarios. In the first scenario, the household does not exhaust the publicly funded amount of home care. This occurs when the subsidized price is much higher than the household's willingness to pay. The second scenario is in a corner solution, in which the household just exhausts the publicly funded amount of care, but consumes no amount of private care because the price of private care is too high. In the final scenario the household not only

fully uses their publicly funded allocation but also supplements it with privately funded care.

If the initial equilibrium occurs where the household supplements public care with private care, an increase in public funding for home care has an income effect. This increases the amount of care-giving time and the performance ability of the care recipient. On the other hand, if the household is consuming less home care than the publicly funded amount, then the increase in public funding has no effect. Finally, in the case of the corner solution, an increase in public funding has a price effect, and public care substitutes for family care-giving time. This increases (presumably) the performance ability of the care recipient as well as the household's consumption of leisure and other goods. In Canada, where the price of private care is relatively high compared to that of public care, the corner solution scenario is most likely.

They use 2 data sources, the National Population Health Survey (NPHS) conducted in 1994-95, 1996-97 and 1998-99 and the General Social Survey (GSS) for the years 1992, 1994 and 1996.

Their dependent variable is home care use (public and private) reported by individuals. The independent variables are public program generosity[5] and a vector of demographic variables including self-reported health status and lagged per capita public health care spending[6]. Dummy variables are also included for province and year. They note that one of their independent variables, public program generosity may be endogenous so they also present results with instrumental variables. They use three exogenous variables that are correlated with public program generosity but not with the decision to use home care: the share of the population aged sixty-five and older in a province over time, the level of provincial spending on education over time, the share of a province's tax rate in federal taxes over time. They find that their results are not sensitive to this alternative

[5] They used annual per-capita spending on home care per individual over 65 as a measure of generosity.
[6] This independent variable is used to control for overall trends in provincial health care spending over time

specification, therefore, they only report their results using spending as a measure of generosity.

Using a probit model, they test four predictions of their model. First, they run an unconditional regression of home care use on the independent variables. This is to test the prediction that if public program generosity increases, individuals should receive more care regardless of whether they are using both privately and publicly funded care or just public care. They find that the use of home care is indeed positively and significantly correlated with public home care generosity.

Some other interesting findings worth mentioning are as follows. As expected, males and married individuals are less likely to use formal home care. Higher income households are less likely to use home care while more educated individuals are more likely. A possible explanation for this is that more educated individuals are more likely to be aware of the services available. Older people and those with lower self-reported health status are more likely to use home care. Those who own their own homes are much less likely to use home care.

Next, they perform the same probit regression but conditioning on need, to estimate the probability of receiving home care for those individuals that reported need. They condition on need (determined by those claiming to need care in the survey) because they find that the reported need of home care and actual use of home care by individuals differ quite significantly. Individuals report a much higher need for home care than their actual use (20% compared to 6%). This is to test the second prediction of their model that conditional on needing care, an increase in the generosity of public home care programs should increase the probability of receiving care. They find that this is the case.

In addition, they find that higher income individuals and homeowners are less likely to receive home care conditional on needing it. There are significant negative year effects, suggesting that the probability of receiving care conditional on needing it declined over 1990s.

Third, their model predicts that increased generosity will result in improved performance ability. As a measure of this, they use self-reported health status. They regress it on demographic variables and the generosity of public home care programs. Their results are consistent with the predictions of the model. A $100 increase in public funding is correlated with 1.7% increase in the probability of reporting good health or better. When they focus on those elderly that actually receive home care, the population of interest, they find even larger improvements; a $100 increase in public funding is associated with a 2.2% increase in self-reported health status.

Fourthly, their model predicts that an increase in the generosity of public programs will increase informal care-giving time for those who are consuming both publicly and privately funded care. On the other hand, for those consuming exactly the publicly funded amount, an increase in generosity will decrease informal care-giving time. Their empirical findings are consistent with the model predictions. For both income and education as proxies, they find an inverted relationship between informal care-giving and generosity of the public care program as expected in the case of Canada.

Their study is the first to examine the effects of expanding home care on the health status of care recipients. Their finding that it improves self-reported health status supports home care as a promising alternative to other long-term care options.

They argue that the decline in care-giving time as a result of increased generosity of public home care program undermines but does not eliminate the potential benefits of increased formal home care. They find that the benefits are shared among care recipients and care givers.

"Home Care Reimbursement, Long term Care Utilization, and Health Outcomes" by Robin McKnight (2004)

McKnight (2004) exploits a policy change that caused a dramatic change in the growth rate of home care in the US. Specifically, she looks at the short run impact of a change in the Medicare reimbursement rates in 1997, which caused a 30% decline in home care costs. Medicare imposed per-patient reimbursement caps, which changed the incentives faced by the home care agencies. It shifted from a fee-for-service to a prospective system. The new system was referred to as the interim payment system (IPS).

She addresses two questions: Did the reduction in home care lead to an increase in the probability of nursing home entry? What effect did this have on the health care status of the elderly?

She models a profit-maximizing home care agency with two types of patients: short-term and long-term. She shows that if caps are imposed, agencies will prefer short-term patients and lower intensity of care towards its long-term patients.

She uses the 1992-99 Medicare Current Beneficiary Survey to examine the impact. She identifies the effects of the reimbursement change by using state variation in the restrictiveness of per-patient caps. The caps are constructed as the weighted average of the historical costs per home care user in each agency and the mean historical costs per home care user in each agency's Census division. Therefore, otherwise similar agencies in different geographical areas faced different incentives to cut back on home care costs after the policy change.

Her results are consistent with the predictions of the model. She finds significant declines in the use of home care after the policy was implemented. States that had similar trends in the pre-policy period but faced different levels of restrictiveness had diverging trends later. Those with relatively restrictive caps faced 32% decline in users (compared with

24% among unrestrictive) and 47% decline in number of visits per user (compared with 37%) between 1996-99.

She calculates the impact on a typical state, which received reimbursement for 6.32 fewer visits per user than in the pre-policy period. Controlling for state and year fixed effects, she finds a decline of 3.4 visits per user in the typical state. Adding other controls gives estimates between 2.8 to 4.9, which is consistent with the actual decline of 4.6 between 1996-99.

She finds that the IPS decreased the likelihood of receiving 50 or more visits but did not affect much the number of visits for those receiving 50 or less.

Based on the theory, one would expect relatively unhealthy users to be affected the most. She finds that this is the case: the impact on them is 29 times as large. In fact, those with low predicted costs received 1.5 additional visits, while high-cost users received 13.2 fewer visits. She finds that agencies cut back on those patients most likely to exceed per-patient caps. Higher cost users faced a significant decline in the probability of receiving any care while lower cost users faced a significant increase. For the typical state, Medicare home care spending fell by $365 among higher cost users while it went up by $81 per lower cost user.

She finds no evidence that reductions in home care led to increases in the probability of receiving nursing home care. There is also no evidence that it affected the health status negatively. This may be because 22% of the reductions in home care were offset by increases in out-of-pocket spending. mostly among higher income users. Even among lower-income users, however, she did not find any evidence of increased use of other types of long-term care and adverse impacts on health.

She does raise the following concerns. If the IPS led agencies to cut back on those visits with the lowest marginal value, it is possible that further cuts will have negative impacts

on health. Also, these results could be short-term and agencies have not had the time to fully adjust or health outcomes have not become apparent yet.

"Upstream Intergenerational Transfers" by Sloan and Wang (2002)

Sloan and Wang (2002) analyze an altruistic model in which middle-aged children transfer both time and money to their elderly parents. They look at several different kinds of transfers to examine any substitution or tradeoffs between them.

Their data is from the Health and Retirement Study (HRS), a national panel survey of US households. The first survey was conducted in 1992 and subsequently, every 2 years. It surveyed individuals born between 1931 and 1941 (middle-aged) and collected detailed information on their personal, financial and health characteristics as well as on their family relationships (particularly, living arrangements, financial and time transfers to parents).

For living arrangements, the dependent variable is the probability that the parent and middle-aged child live together or the probability that they live within 10 miles of each other. In these cases, the children are most likely to be able to help their parents.

For money transfers, the dependent variables are the probability that the respondent gave the parent at least $500 over the last 2 years and given that this occurred, the natural logarithm of the actual amount.

For time transfers, they specify 2 dependent variables: the amount of time spent caring for the parent and the amount of time spent doing chores for the parent. Again, they estimate the probability of providing at least this much help and conditional on that, the log of the actual amount of time spent.

Finally, for frequency of contact, they assess the probability of it falling into one of the following categories: (1) more than once a week (2) about once a week (3) one or two times a month (4) less than once a month (5) almost never.

Explanatory variables for the parent include wealth (indicators for being better off financially than respondent and for home-owner), age, whether the parent needs help with basic personal activities, and whether they can be left alone for an hour or more. Explanatory variables for the respondent include wealth and wages, number of children under 18, how important religion is in their life, and generally how satisfied they are with life.

About 4% of respondents lived with a parent and another third lived within 10 miles. Eleven percent made a financial transfer of at least $100 within the last 2 years and of those who did, the mean was $2,600. On average, they contacted their parent about once a week. The average age of the parent was around 80. As a result, only one-fifth of the parents still lived with their spouse, although 34% of them were still married. For about a quarter of the respondents, the parent was wealthier than them. Fourteen percent of the parents needed help with basic activities and 26% could not be left alone for an hour or more. Fifty-eight percent of the parents lived with a spouse or alone. The most common alternative was residence with another child.

Parents who were married, younger and/or did not need help were more likely to live independently. This also held true for parents that were better off financially.

Having more siblings reduced the probability of the respondent living with parent, but being financially worse off than other siblings increased this probability. This is interesting as it suggests even at middle age, children can benefit from living with their parents and vice-versa.

Children with higher wages were less likely to live near parent. The probability of financial transfers fell by 11% when the parent is wealthier than respondent. Parents'

health did not affect the financial transfers. Parents that lived close by were less likely to receive such transfers. Money transfers were unaffected if the parent lived in a nursing home. As expected, wealthier and higher wage respondents were more likely to give and conditional on giving, to give more.

Time transfers largely depend on a parent's health and age. Those who need more, receive more care. If a parent is residing with a sibling, the respondent is less likely to provide care. Relative wealth of the parent and respondent did not affect the care-giving time. However, higher wage respondents provided less care on average.

Frequency of contact depended on distance from parent, availability of siblings to care for parent and competition for respondent's time (number of children). More religious respondents saw their parents more frequently.

"Intergenerational Household Formation, Female Labour Supply, and Informal Care-giving: A Bargaining Approach" by Pezzin and Schone (1999)

Pezzin and Schone (1999) develop a bargaining model with two players, an adult daughter and an elderly parent. They consider only daughters as they are much more likely to be the source of informal care-giving than sons. Each is assumed to maximize their own utility function, with one public good W that enters both utility functions. W represents parental health or well-being. In this way, altruism enters the model and their utilities become interdependent. W is affected by the level of formal and informal care received by the parent. The parent can contribute to W by purchasing formal care, while the daughter can contribute by providing informal care, i.e., through financial and time transfers.

The parent and the daughter must simultaneously decide their own levels of consumption, time to allocate work/leisure (for the daughter), level of formal and informal care, and the optimal living arrangement. They will decide to form an intergenerational household only if their utility from living together exceeds their utilities from living separately. Their

utilities from living separately determine the threat point in this Nash bargaining game. They simultaneously decide the level of formal and informal care they contribute, given their expectations about the other's contribution. Thus, W is determined by assuming a Cournot-Nash equilibrium where each player maximizes his or her own utility, taking the other's strategy as given.

They use their theoretical model to specify the probability of observing a parent-daughter pair choose any one of six combinations of informal care and labour force participation. These are estimated empirically by a simultaneous, multi-equation, endogenous switching model, where the switching is based on the household membership decision. The advantage of this joint estimation approach is that the interdependence of family decision-making is taken into account.

They use data from the 1986-87 Hebrew Rehabilitation Centre for the Aged (HRCA) Survey and the HRCA-NBER Child Survey. The HRCA Survey is an ongoing panel survey of a random sample of elderly (60+) in Massachusetts that began in 1982. In 1986, for all elderly persons who participated and granted permission, they interviewed one child of the respondent. The resulting combined survey provides detailed information on both the parent and the child's characteristics. Their sample size is 424 parent-daughter pairs.

Their dependent variables are living arrangement, labour market participation and informal care provided by the daughter to the parent. Their independent variables can be grouped into five categories. First, those that affect the daughter's value of time, such as marital status, number of children, age, education. Next, those that affect the parent's demand for care, such as gender, age, marital status and health. Third, they include economic variables: non-labour income for both the daughter and the parent. They also include a variable measuring the change in local housing values, expecting shared housing to be more likely given a rise in prices. Finally, they consider two attitude-related variables, one measuring the parent's preference for independent decision-making and

the other an indicator variable equal to one if the parent believes that elderly people should not live with their kids.

Their maximum likelihood estimates are consistent with the theoretical predictions. The probability of shared living declines if the daughter is married and as her number of children increase. Parents who are married are much less likely to co-reside with their daughters, while their level of disability increases this likelihood. The presence of formal care has a strong negative and statistically significant effect on the probability of shared living. Thus, formal care appears to be an important substitute for informal care provided by joint living. Parents' attitudes towards independence also had a significant negative impact on the likelihood of shared living while neither the wealth variables nor the change in housing values had an effect.

Generally, they find limited effects on parental characteristics on labour force participation of the daughter. They do, however, find a strong and negative relationship between parent and daughter's age and the daughter's propensity to work when they co-reside.

They find large and statistically significant effects of parental characteristics on the daughter's propensity to provide informal care. However, informal care does not appear to be affected by the daughter's age or education.

They also look at the correlation between the equations. Although none of them are statistically significant, they do find the expected signs. There is only a small negative correlation between informal care and labour force participation suggesting that there is a modest tradeoff, which is consistent with previous findings.

The authors also simulate the impact of a universal home care policy on the living arrangements of the elderly, their daughters' labour supply and informal care-giving. They find that its impact would be substantial. The public provision of home care would reduce the probability of shared living by 58% and the greatest reduction would occur for

those whose daughters work. Informal care would decline by 46%, most notably again by those daughters who work. There would be a huge 280% increase in the likelihood that daughters will neither co-reside, nor provide informal care nor work.

"The Living Arrangement Dynamics of Sick, Elderly Individuals" by Benoit Dostie and Pierre Thomas Leger (April 2005)

Dostie and Leger (2005) develop a dynamic model to analyze the living arrangement decisions of the elderly in need of care. They examine the transitions from one state to another instead of just comparing individuals at a discrete point in time. They focus on three types of living arrangements: independent living (with or without a spouse), cohabitation with children and nursing home.

Many studies have looked at the determinants of living arrangement decisions of the elderly. These studies have consistently shown that the probability of living in a nursing home is higher for singles and males, lower for those with more children (especially daughters) and for the wealthy. Nursing home use also increases with age and disabilities. The predictive power of these models is limited because they assume that decisions are made for once and for all and independently of each other. However, in reality, many elderly make multiple decisions, which are often related to each other.

Therefore, Dostie and Leger look at state and duration dependence: the likelihood of an individual transiting out of a particular living arrangement and where they go are hypothesized to depend on their current living arrangement (state) and how long they have been there (duration).

They construct the entire living arrangement history of elderly individuals in need of care using the Panel Study of Income Dynamics (PSID)'s Parental Health Supplement survey (1991).

Some of the main summary statistics from their sample are as follows. Mothers are more likely to live in a nursing home (33% compared to 25.3% for fathers) and to cohabit (33.8% compared to 20.7% for fathers). They are also less likely to live independently (25.8%) than fathers (43.2%). This is probably because women tend to outlive men and men may not be able to look after their ailing spouses as well as women are.

They find that a large number of elderly transit out of their initial living arrangement. Also the means by which they arrive at their final state is important. For example, many enter a nursing home via cohabitation, indicating that cohabitation may serve as a substitute and lead-in to institutionalization.

Mothers spend much more time in each living arrangement than fathers, once again probably due to the fact that they live longer and are better able to look after themselves.

They estimate a simultaneous competing risks model to estimate the impact of demographic and health characteristics on the time spent in a particular living arrangement. They control for unobserved heterogeneity among individuals by including a random effects component, which allows transition rates to vary between individuals. For example, differences in transition rates could reflect a taste for stability, in which case the durations across different living arrangements would be positively correlated. To their knowledge, this has not been done before.

First, they just look at transitions out of independent living. Growing older makes it more likely to transit out of independent living. Controlling for age, health and demographic characteristics, individuals are more likely to transit to nursing home and less likely to transit to cohabitation as time spent in independent living increases. Females are more likely to transit to nursing home and cohabitation from independent living than males. This may be because they tend to outlive their spouses and have better ability to provide home-making services in cohabitation. Having more children decreases the likelihood of moving to a nursing home. Married individuals are less likely to reside in a nursing home (unconditional probability) however, more likely to transit from independent living to a

nursing home (conditional probability). This is probably because they are less likely to move from cohabitation to a nursing home. Having certain health problems such as stroke and cognitive disabilities increases the transition rate to nursing home. However, other problems such as heart disease lessen the likelihood of moving to a nursing home, probably because they can be more easily cared for at home.

Second, they look at transitions out of cohabitation. Individuals are much less likely to transit out of cohabitation to independent living as time goes by. They do not find a duration effect for transitions out of cohabitation to nursing homes. Mothers are much less likely to transit out of cohabitation to nursing homes. Having more children reduces the likelihood of moving from cohabitation to independent living. Being married reduces the risk of moving from cohabitation to nursing home.

Third, they look at transitions out of nursing homes. As time spent in nursing home increases, individuals are less likely to transit to cohabitation and independent living. Being married increases the probability of moving from nursing home to independent living and having more children increases the probability of moving to cohabitation. This shows the importance of informal caregivers.

Finally, they examine whether the results of previous studies are robust under this new framework. Previous studies[7] have consistently found that men are more likely to be institutionalized than women. Their results suggest that the greater unconditional probability of men to be in nursing home may be because of the lack of the cohabitation option as a living arrangement choice for men.

Previous studies[8] have also shown that married individuals are less likely to live in nursing homes. They find that married individuals are more likely to transit from

[7] Stern (1996); Garber and MaCurdy (1990); Hiedemann and Stern (1999).
[8] (Greenberg and Ginn (1979); Branch and Jett (1982); Cohen, Tell, and Wallack (1986); Garber and MaCurdy (1990); Stern (1996); Pezzin and Schone (1999); Hiedemann and Stern (1999); Engers and Stern (2002)

independent living to nursing home but less likely to move from cohabitation to nursing home.

Consistent with previous studies[9], they find that having more children reduces the likelihood of moving to a nursing home and increases the probability of cohabitation. Therefore, children appear to be important substitutes for formal nursing home care. Also consistent with the literature[10], they find that having more health problems increases the likelihood of moving to a nursing home.

3. Literature Review: Own Analysis

In this section, I synthesize the main findings of the papers reviewed in the previous section as well as present my own analysis. I discuss where the various authors agree and disagree and address some of the questions brought up in the introduction.

All of the papers presented here deal with the impact of public provision of home care on one or more of the following issues: (1) the living arrangement decisions of the elderly, (2) informal and formal care use (as well as the substitution between them) and (3) health of the elderly.

The motivation behind this line of research has been to see whether home care use reduces nursing home use, particularly in the US, where the nursing home costs have been escalating. However, a recurrent finding in these papers is that even when home care use leads to a reduction in nursing home use; that in itself does not imply its cost-effectiveness. Often, the various authors discussed in the review above, find that the cost-effectiveness of home care varies for different sub-groups of the elderly population, being greater for those most highly at-risk for institutionalization. This had lead to a consensus in the literature for the targeting of home care benefits to this population. At the same time, however, targeting raises some important equity concerns.

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[9] Ibid.
[10] Ibid.

Some of these papers also seek to assess the impact of home care expansion and reduction, which has important policy implications. Pezzin and Schone (1999) simulate the impact of a universal home care program in the US. McKnight (2004) examines the impact of a policy change, which resulted in a 30% reduction in home care use on the health of the elderly, and the probability of nursing home use.

Now I discuss some of the main findings of the papers presented in the review. Hoerger et al (1996) find that current Medicaid subsidy levels are too low to reduce the probability of nursing home entry. However, they do find that these subsidies make it more likely for the elderly to live independently rather than with their kids. In order to prevent nursing home entry, the authors argue that the subsidies would need to be much higher. At these higher required levels of funding, they are not sure if Medicaid expenditures would be reduced.

Ettner (1994), on the other hand, finds that the public provision of home care through the Medicaid program *at current levels of funding*, does reduce nursing home entry. She estimates that without the Medicaid subsidy, 18% of home care users in her sample were likely to be institutionalized, whereas with the subsidy, only 8% were.

Her results are specific to an elderly population, highly-at-risk of being institutionalized, supporting the notion of targeting home care benefits to this group. She emphasizes that an expansion in home care is more cost-effective if accompanied by a corresponding decrease in nursing home expenses (by reducing the number of beds in the nursing home facility, for example). Otherwise, it may well lead to overall cost increases.

She suggests reimbursing only those home care services for which it is hard to substitute between formal and informal care, i.e., mainly those which are medical or specialized in nature. However, I would caution that there is the danger of home care substituting for acute care, which it is not really suited to do. Home care is a combination of home-making and other activities, and should not be just limited to medical services. She also suggests that appropriate incentives should be put in place to encourage informal care-

giving. Some ways in which this could be achieved is by reimbursing informal caregivers (at a lower rate than formal caregivers) and tax incentives.

Pezzin et al. (1996) find that the substitution effects of expanded home care on informal care tend to be small, either directly on hours or indirectly through living arrangements. However, this is probably due to their sample, which included only those who are very poor with little or no informal care giving support. Therefore, naturally, the effect on it would be negligible. Thus, their conclusion that expanding public home care would primarily benefit the elderly by increasing their level of care should be interpreted with caution, as they are not really able to see its effect on those elderly with some informal support at least. It could be argued that targeting to this needy group is justified, especially if (the benefits are greater). However, this would be neglecting the informal caregivers who could continue to have to care for their elderly with little or no support.

Their study differs from Hoerger et al.'s (1996) by including separate regressions for married and unmarried elderly, which they argue are expected to have differing responses. As a result, they find that the unmarried elderly are the most likely to benefit from the increased provision of public home care. It can be called into question whether a program targeting a specific group can be justified on equity grounds. Are the benefits of targeting this group worth the costs? This again is an ethical question that is necessary for policy-makers to think about for which there are no obvious answers.

Coyte and Stabile (2001)'s paper is the one of the two articles presented here which examines home care specifically using Canadian data. Their model predicts that in Canada an increase in public funding of home care would lead to formal care substituting for informal care. They find that empirically this is indeed the case; there is an inverted U-shape relationship between informal care and the generosity of the public home care. Despite this, they find that an increase in formal care leads to an improvement in self-reported health care status. This is an encouraging finding for the public provision of home care. They state that their model is the first of its kind to examine the impact of expanding home care on the health care status of recipients. In addition, they argue that

an increase in formal care would, presumably, help ease the burden on informal caregivers. Therefore, they conclude that the substitution effect of formal for informal care does not eliminate the potential benefits of increased home care.

Back to the US, McKnight (2004) exploits a one-time policy change in 1997 to examine the impact when reimbursement caps are imposed on publicly funded home care. What are the costs and the benefits? She finds that reimbursement caps lead agencies to cut back on the number of high-cost users while taking on more low-cost users. The empirical results are in line with the predictions of her profit-maximizing agency model. However, she does not find any evidence that this negatively impacted the health or increased the probability of institutionalization. Overall, she concludes that the welfare effects from this change are ambiguous, as the welfare losses incurred by the unhealthy users would depend on individual and social welfare functions.

The next two articles more specifically focus on what influences the informal care-giving. According to Pezzin and Schone (1999), informal caregivers provide around 90% of total home care in the US. They use a bargaining model and focus on the informal care provided by daughters, who are much more likely to be the providers than sons. Consistent with previous findings, they observe that there is only a modest tradeoff between informal care and labour force participation of daughters. Formal care has a strong and statistically significant negative effect on the probability of shared living.

In light of recent interest in expanding home care in the US, they simulate the impact of a universal home care program. Their results suggest that this will have a huge impact on living arrangements and informal care giving. Also to the extent that shared living allows daughters to provide substantially more informal care to their parents than living separately, the provision of formal care may actually end up reducing the total amount of care received by the elderly. Formal care would also substitute for informal care, which is provided at no cost to the government. However, they do have some concerns about their simulation, such as limited sample size, which have to be improved upon in future research.

In terms of the overall debate in home care, it is useful to know what encourages informal care-giving. The next paper by Sloan and Wang (2002) examines not only time transfers between parents and children (as addressed by Pezzin and Schone(1999)) but also financial transfers. They find that help from children for elderly parents is limited, even for those with poor health. This suggests that there is considerable scope for publicly funded home care programs. Some of the factors that they find influences informal care-giving are distance from parent, availability of siblings, competing demands on their time (number of children) and even religion (religious respondents saw their parents more often). They observe that financial transfers are consistent with their altruism model, while time transfers provide much less support for it. Their finding that parents in nursing homes received less financial support suggests some crowding-out of private financial transfers by public transfers.

Finally, Dostie and Leger (2005)'s paper seeks to extend the existing state of the literature analyzing the determinants of living arrangements of the elderly. They argue that current cross-sectional analysis, which compares individuals at a discrete point in time, does not reflect the dynamic nature of decision-making. In reality, the current living arrangement (state) of the elderly as well as how long they have been there (duration) influences where they will go next. Incorporating these into a simultaneous competing risks model, they compare their results to those of previous studies to see how they hold up. They find that their results provide new insights into the determinants of living arrangement decisions of the elderly.

Based on their results, they propose that policies will be more effective if tailored towards certain subgroups of individuals. For example, in order to reduce nursing home use, policies should be targeted. Among those living independently, the policy should target married females with fewer children, and among those cohabiting, the policy should target single fathers. To encourage individuals to return to independent living from nursing homes, it will be more effective to target those in early stages of nursing home stay. However, once again, there may be some ethical issues involved in targeting

certain types of individuals over others. For example, what about for the mother whose number of children exceeds the threshold amount, however, none of them are able or willing to support her?

4. Policy Recommendations

Given that home care provision is essentially a policy issue, it is important to look at some key policy documents that have come out recently specifically dealing with this issue. The two chosen here are both from Canada, as the US does not seem to have any national, comprehensive policy documents dealing with home care at this time.

The Romanow Report. "Home care: the next essential service." by the Commission on the Future of Health Care in Canada (2002)

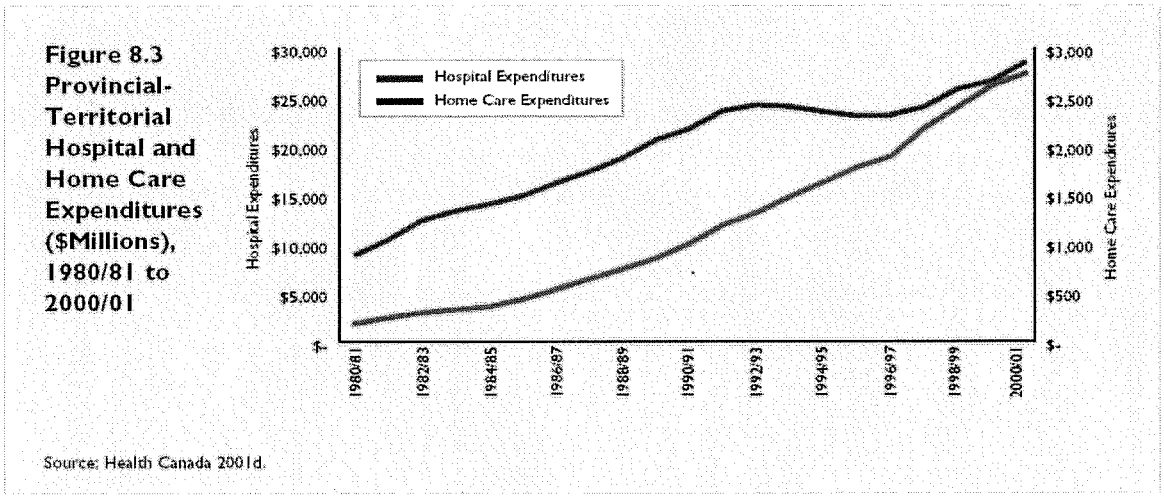
First, to provide some background, the Romanow Report is authored by the Commission on the Future of Health Care in Canada, headed by former Saskatchewan Premier Roy Romanow. The Commission's mandate was to "review Canada's health care system, engage Canadians in a national dialogue on its future, and make recommendations to enhance the system's quality and sustainability."[11] Its final report "Building on Values: The Future of Health Care in Canada" was released in November 2002.

Since home care is not considered a medically necessary service under the Canada Health Act (CHA), its provision is left up the discretion of the provinces. Therefore, there is a great deal of variation across Canada, in regards to which services are covered and to what extent. In terms of who funds home care, currently, provincial governments 76%, followed by the private sector 23%, and the federal government 1%. The private sector consists of insurance and out-of-pocket payments. The proportion of provincial health care budgets spent on home care ranges from close to 10% by New Brunswick to less than 2% by Nunavut. Between 1980-2000, provincial spending on home care grew on average by 14%, compared to 6.2% for hospitals and 7.1% for overall expenditures

[11] http://www.hc-sc.gc.ca/english/care/romanow/

(Romanow Report 2001). The overall trends in provincial/territorial home care vs. hospital care expenses between 1980/81-2000/01 are shown in Figure 4.1

Figure 4.1 (Romanow Report 2002, 175)



The Commission provides a series of recommendations with respect to home care. They recommend the expansion of the CHA to include home care services, in recognition of the shift that is taking place in the site of care from the hospitals to the home (Coyte 2000, Richards et al. 1998). In order to control costs, they suggest that priorities should be placed on home care for mental health, post-acute care and palliative care. A new national program should also be set up to support informal caregivers in these areas through Employment Insurance. Provincial government resources currently tied up in these areas would be freed up to provide other necessary care.

The Commission believes it is important to address the provincial disparities described above by including medically necessary home care services under the coverage of the CHA. A floor of services must be set, funded by the new Home Care Transfer and available all across the country. The Commission suggests that transfer would provide $1 billion to kick-start the program in the first two years, after which it would be rolled into the long-term Canada Health Transfer.

Further it is recommended that once home care is covered under the CHA, steps must be taken to integrate it fully into the continuum of care. There must be an adequate and well-

trained supply of health human resources, particularly in case management. The delivery of care should be continuous and well-coordinated, with all the different parts working together. Home care screenings should be routinely conducted in the hospitals. Home care should also be integrated with primary care to allow sharing of information.

"Health Transition Fund: Home Care" by Prof. Evelyn Shapiro, Dept of Community Health Services, Faculty of Medicine, University of Manitoba, for Health Canada (2002)

Shapiro's report summarizes key findings from 45 projects on home care, out of a total of 141 different projects conducted across Canada between 1997-2001. The aim of these projects was to test innovative and cost-effective ways to deliver health care to Canadians. An inter-governmental committee selected the national-level projects following a call for proposals, while each province or territory brought forward their own projects, with the approval of the federal government. It was a time-limited fund, meaning that all projects had to be completed and evaluated within 4 years. The total cost of all the projects was $150 million.

"The National Evaluation of the Cost-effectiveness of Home Care" project had fifteen sub-studies, one of which examined the cost-effectiveness of home care versus residential care in British Columbia[12]. It was one of the first of its kind. It found that home care is cheaper at all levels. The cost of home care to the province was one-half to three-quarters of the cost of residential care. The majority of the costs (30-60%) for home care are related to hospital use, while other home care services account for one-third to one-half. Overall, home care provides at least the same quality of care. However, residential care may be better at keeping clients out of the hospital.

Several studies investigated whether home care is a cost-effective substitute for acute care. The evidence was mixed. One study[13] looked at intravenous therapy for cellulitus

[12] Sub-study 1: "Final Report of the Study on the Comparative Cost Analysis of Home Care and Residential Care Services."
[13] (NA101-11) Substudy 11: An Economic Evaluation of Hospital-Based and Home-Based Intravenous Antibiotic Therapy for Individuals with Cellulitis.

patients in the hospital and the home. It found that many people had to go to the emergency room as home care was not available when they needed it. However, home care and emergency services cost only about half as much as staying the hospital and the quality of life scores were much higher (about double). Another project[14] looked at the cost-effectiveness of redirecting people from emergency rooms back to their homes instead of admitting them into the hospital. It found that home care costs less than hospital care but does not save total dollars unless hospital beds are closed. Some studies found that the costs of home care were higher than hospital care. For example, one[15] that looked at the costs of home versus hospital services for breast-feeding mothers. Another[16] found that the benefits of geriatric day hospital outweighed its costs.

A group of projects also focused on improving access to underserved communities such as aboriginals, mental health and palliative care patients. They found that mental health patients are rarely eligible to receive home care services and for the few that do, the service that they receive are often not as appropriate or effective as they should be. One project[17] looked at the treatment of acute psychosis patients at home instead of the hospital. The results were positive, modest savings were made with good outcomes and families were satisfied. However, three barriers must be addressed. First, the fee structure that pays psychiatrists more for treatment done in the hospital than in the office, and second, the perception that the main reason for expanding home care is to save money and third, the shortage of mental health workers to treat people in the home.

One project[18] monitored the health of elderly patients discharged from the hospital after an episode of acute heart failure. It used technology to monitor and transmit vital signs via the telephone to the nurses. After one month, the rate of readmissions for both hospital and home patients was 4%. Although it did not achieve its primary goal of reducing hospital readmissions, the satisfaction levels were much higher for the home

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[14] BC421. Carelinks project, British Columbia.
[15] (NA101-12) Substudy 12: Cost-Effectiveness of Home versus Hospital Support of Breastfeeding in Neonates.
[16] (NA101-13) Substudy 13: The Geriatric Outcome Evaluation Study.
[17] (BC121) Home-Based Program for Treatment of Acute Psychosis.
[18] (ON121) Integrated Cardiac Home Monitoring Pilot Project.

care patients. In addition, economies of scale are possible as the program can handle many more patients without increasing manpower. Therefore, further experimentation is desirable.

Two studies looked at the role of home care in delivering palliative care. One of them[19] found that palliative care program that integrated home care, long-term care and acute care was satisfactory to informal caregivers. The other study[20] found that a lack of 24-hour access to home care was probably the main reason why there was no reduction in the rate of hospitalization.

Several studies attempted to reduce hospital emergency room use and readmissions, but only a few managed to achieve that goal. The most notable one was the Carelinks project in British Columbia, in which savings were realized when hospital beds were simultaneously closed. Therefore, Shapiro notes that the proposition that home care can substitute for hospital care needs to be thoroughly tested before being implemented. Even if hospital use declines, savings may not be realized unless hospital bed stock is reduced and resources are transferred to home care.

She also cautions against implementing the innovations unless the project has been completed and is methodologically sound. Especially if the project was carried out in another jurisdiction with different home care policies, further experimentation is necessary.

In its policy recommendations, the report proposes setting up a national Home Care Program. The current situation in which where Canadians live, rather than what they need, determines whether they receive home care and how much they pay for it, runs counter to the principles of the CHA and needs to be changed.

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[19] Palliative Care Services Review in Saskatchewan (SK121)
[20] Rural Palliative Home CareDemonstration Project: A Collaborative Project Between Nova Scotia and Prince Edward Island (NA131),

Some other noteworthy suggestions made by the Health Transition Fund (HTF) report include the elimination of user fees that discriminate between those with medical needs and those with needs for support services. These create perverse incentives to use inappropriate care because it may be cheaper for the user, although more expensive for the government to provide. Therefore, instead the provision of services should depend on professionally assessed need. In addition, within-province inequities must be eliminated and jurisdictional authority established clearly, in order to prevent multiple decisions from being made. Standardized assessment tools and case management practices need to be developed. This will make it much easier to make comparisons across provinces and learn from each other's experiences. A national database system would be very useful, as several projects that dealt with quantitative data had to begin by collecting baseline data, often with the result of not being able to complete it on time.

5. Policy Recommendations: Own Analysis

The Romanow Report (henceforth referred to as RR) and the HTF both advocate expanding the Canada Health Act to include home care. However, while the RR provides general guidelines and strategies, the HTF's emphasis is on the lessons learned from the projects reviewed and how that can help inform the policy debate. Therefore, although the RR is useful to setting out the vision of where the Canadian health system needs to go next, the HTF is able to be much more detailed and practical in its recommendations. The HTF projects were actually able to evaluate in several cases such crucial issues as the cost-effectiveness of home care vs. other long-term care options, substitutability between formal and informal care and the barriers facing integrating home care into the CHA.

They both agree that priority must be placed on mental health and palliative care. Both also emphasize that the current case management of home care needs to improve. More broadly, RR states that there should be an adequate and well-trained supply of health human resources professionals and the continuum of care as streamlined as possible. HTF suggests that in the case of mental health, it might be better to reassign existing mental health workers from hospitals to home care instead of training home care workers.

However, in its projects, it often found a resistance to change among professionals. This was due to changes in professional responsibilities coupled with the lack of authority to direct other professional providers of service. This emphasizes the need for managers to develop strategies to encourage buy-ins.

The HTF also discusses the public/private split in health human resources. When home care services are contracted out to external agencies, there is lack of continuity of home care workers. This was cited as one reason for choosing long-term care over home care. Projects that experimented with hiring the same workers over the period reported much more satisfaction among clients. Home care agencies and case managers should also be encouraged to be located close to each other in order to allow for informal information sharing.

Both reports also agree that the site of care is shifting from the hospital to the home. However, the HTF cautions against home care substituting for hospital services that require intensive and specialized resources, especially when that detracts from its primary responsibility of providing long-term care.

The RR advocates providing financial support to informal caregivers via a new national program set up in conjunction with Employment Insurance. The HTF does not bring up the issue of informal caregivers, except to say that data should be collected on them to highlight their concerns.

The main difference between RR and HTF occurs in the area of primary care reform. The RR proposes that home care be integrated with primary care, in order to allow sharing of information. The HTF report advises against re-organizing home care to integrate it with primary care. It argues that home care is a unique and complex service, and not a primary health service.

6. Extensions and Conclusions

The papers examined here have discussed the substitutability of formal care and informal care, the cost-effectiveness of home care vs. other long-term care options, and more generally, the determinants of living arrangement decisions of the elderly. Their approaches have ranged from neo-classical economic models to bargaining models. On the policy side, two important documents dealing with the Canadian health care system were analyzed: the RR, which presents a roadmap of how the Canadian health care system should evolve, and the HTF report which provides interesting insights based on various home care projects. By providing this overview, it is hoped that the issues surrounding home care become clearer.

Central to the policy debate is the issue of the cost-effectiveness of home care. Evidence from the economic literature appears mixed. Hoerger et al. (1996) couch this issue in terms of whether it results in the reduction of nursing home use. They conclude that the current level of public funding for home care in the US has not reduced the probability of nursing home care because the level of funding is too low. However, they do find that it enables the elderly to live independently, rather than with their children. On the other hand, Ettner (1994) does find that public provision of home care through the Medicaid program *at current levels of funding* reduces nursing home entry. This difference in conclusions is probably because her sample consists only of those on Medicaid and using formal home care, who tend to be poorer and sicker, on average. Hoerger et al.'s sample is composed more generally of those over 65, and needing help with one or more activities of daily living. Since Ettner's sample is much more at high-risk of institutionalization, the marginal impact of the Medicaid subsidy is higher in her study.

Intertwined with the issue of the cost-effectiveness of home care is the question of whether formal care substitutes for, or complements, informal care. If the net effect is substitution, then a government funded home care program might reduce the overall amount of home care provided through its provision of formal care at the same time as increasing costs. Once again, there are no simple answers. Several papers do find a

significant substitution effect between formal and informal care. Ettner finds that the substitution effect is concentrated in non-specialized services, while for medical services, there is little or no substitution. She proposes reimbursing only those home care services for which it is hard to substitute between formal and informal care, i.e., mainly those which are medical or specialized in nature. In addition, Pezzin and Schone (1999), based on the results of their simulation of a universal home care program in the US, conclude that it would greatly reduce the probability of shared living and informal care giving.

However, there are innovative home care programs currently in use that may help deal with this problem. For example, Tilly et al. (1999) examine consumer-directed home care programs in five countries, Austria, Germany, France, the Netherlands, and eight states in the US. Consumer-directed home care is a new development in the US and Europe, which gives the consumers instead of home care agencies control over the provision and delivery of home care. It is up to the consumer's discretion to hire, train, supervise and fire the home care worker. By allowing for the hiring of informal caregivers, it gives more options to consumers, supports informal care-giving and results in higher levels of satisfaction for clients. Tilly et al. (1999) found that only a minority of home care workers hired under this program quit their full-time jobs as a result.

There are some disadvantages to such consumer directed programs. For example workers do not get fringe benefits and there is no emergency backup for the client when they get sick. In addition, there is little or no training for consumers to learn how to direct their own home care. Therefore, Tilly et al. (1999) conclude that it is not for everyone, as some elderly may like the security of agency-based help and not having the hassle of managing their own care.

Another area of consensus is that in order to be cost-effective, home care policies should be targeted to those who need it. According to Stum et al. (1998), only a small minority of the disabled elderly bear majority of the costs. However, targeting may not be so simple, as Dostie and Leger (2005)'s paper suggests. In order to be truly cost-effective, policies may have to target subgroups, such as married females with fewer children

among those who live independently, who are the most likely to move to nursing homes. A troubling implication is that such targeting may induce people to change their behaviour in order to be eligible for the maximum amount of publicly funded home care.

Most authors also agree that cost savings cannot be realized unless along with the expansion of home care there is a reduction in hospital or nursing home capacity. Such restructuring may not be a popular policy option for the government to implement. More research has to be undertaken before it can become a feasible option. Preliminary results from the HTF have been encouraging. Its Carelinks project assessed the impact of a 1999 regional restructuring in British Columbia that simultaneously closed down thirty hospital beds while shifting resources to home care. The project realized cost savings of close to $1 million and the clients reported greater health improvement compared to a control group[21].

The policy documents stressed that home care, with its complex network of services, needs to be better organized. It is often fragmented compared to the well-structured institutional sector. One way to deliver better-organized and more cost-effective home care to the elderly is through seniors' housing or cluster care. In the HTF cluster care project, a team of two full-time home care workers addressed the needs of all home care clients in two high density apartment buildings. Since many elderly people tend to live in high-density buildings, cluster care may be an efficient way to deliver home care. Providers and clients expressed high levels of satisfaction with the program and its flexibility. This approach was also documented to have a positive impact on their health. Seniors' housing can also provide them with social interaction and an informal support network. Such home care projects are not uncommon in Canada and relatively easy to set up.

Although this paper primarily focused on home care within the United States and Canada, if time had permitted, it would have been interesting to extend this analysis to the experiences of other developed countries, such as Australia. This may prove informative

[21] BC421. Carelinks project, British Columbia.

to the policy discussion, as there is often a lot to be learnt from the experiences of other similar countries. Furthermore, it would have been interesting to include a section comparing the practices of elderly care between developed and developing countries. To a certain extent, how society treats its elderly is related to its fundamental attitude towards them and in this regard, developed countries may have something to learn from developing countries.

To conclude, it is evident that home care is an important part of the health care system and is bound to become even more so. In fact, over the last two decades, it has been the fastest growing component of the health care expenses in Canada (Romanow Report 2002). This can mainly be attributed to the shift from hospital-based to home-based care due to technology as well as cost-cutting measures that have been implemented over this time.

Although there are problems in the provision of home care, most of the papers presented here are optimistic about its role in the health care system. Moreover, there is a preference for home care among the elderly over institutionalization. Therefore, all efforts must be made to achieve a workable solution.

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