The Supply of Manpower for Care Services from the Viewpoint of Care Insurance

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Abstract   This essay focuses on the supply of manpower that will be needed to provide care services to our elderly population (hereafter called "seniors") through insurance that soon will be available for that purpose. Most of the research on this topic deals with the financial base for the care itself; very little examines the issue from the perspective of manpower supply. The concerns are threefold. First, research indicates that, in sixteen countries studied, the financing necessary for supplying the manpower to assist the aging increased in the 1980s but dropped in the early 1990s due to budgetary deficits. Second, the Council on Health and Welfare for the Aged (CHWA) has underestimated the number of elderly people who will need this support, and there are some contradictions in the fundamental preparations for elderly care. And third, by means of regression analysis using data from 47 prefectures, we have found that there is an extreme shortage of home helpers in various regions. Given the absolute shortage of manpower in about 3,300 municipalities, we must push for administrative policies that will build a cooperative organization for the delivery of care services to alleviate the manpower deficiency.

1.   Introduction

The year 1996 began with a proposal for the establishment of a Care Insurance Law that was expected to be an epoch-making solution to the problems of the elderly in Japan. That January the CHWA presented a second draft of the proposal, and on April 22, 1996, the council submitted another version. On receiving this draft, the Ministry of Health and Welfare (MHW) drew up a tentative plan for the law's implementation, then modified it after receiving the views of various sectors of society and municipalities. On June 6 the ministry submitted an "Outline of the Care Insurance Bill" to CHWA for deliberation. CHWA agreed to the outline and produced a final proposal on June 10. Using the outline as a foundation, MHW prepared the actual bill, which it hoped to submit before the end of the year. As of early September 1996, however, the political regulation process was in chaos. According to the press, because of a disagreement on when the home care

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plan and institutional care plan should begin, Minister of Health and Welfare Naoto Kan, talked about the possibility of implementing them simultaneously.[1]

Seven years earlier, in 1989, the government had launched "the Gold Plan," a ten-year strategy to promote the health and welfare for the aged, with a budget of 6 trillion yen. Then in March 1994 "The Twenty-first Vision of Welfare" proposed "the New Gold Plan" and the construction of a new care system. This led to the creation of the New Gold Plan the following December and ultimately the proposed Care Insurance Law, which would serve as the foundation of care for the elderly in the twenty-first century.

Previous measures for the elderly had been limited to the weak and poor. Yet if a social insurance scheme such as the care insurance is introduced, people will probably come to believe that they have every right to the services it covers.[2] However, the present Care Insurance Bill underestimates this potential demand, and it is thus necessary to take another look at how many elderly people will be in need of care. Moreover, the press has reported that within municipalities, which are projected to be the main administrators of care insurance, there is strong opposition to assuming that responsibility. It is important to consider objectively the significance of such opposition.

Most research on the proposed Care Insurance Law relates to funding; only a few analyses examine its impact on the supply of manpower (human capital) for care services. This study focuses on the security of that manpower, which is a precondition for care insurance. The next section considers the relationship between the means of financing the necessary manpower resources and aging. Issues surrounding the estimate of the elderly who will need care in the future are discussed in section 3. Finally, in section 4, data from prefectures on the availability of care providers is analyzed. A conclusion follows.

2.   An Aging Society and Financial Resources

In an aging society, the productive population decreases as the number of elderly persons needing care rises. Moreover, aging increases the personal and social costs of care. This trend occurs in any advanced country, but with a degree of difference. To lessen these personal and social costs, it is desirable to provide a care support system. By assuming part of the otherwise total cost of the elderly person, care insurance would reduce the recipients' worries substantially and serve as a means of securing one's livelihood. Yet even among the advanced nations, only a few coun-

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[1]   See *Nihon Keizai Shimbun*, August 30, 1996, morning edition.
[2]   See *Asahi Shimbun*, February 19, 1996, morning edition; The view held by Kimihiro Masamura, professor of Senshu University, who is representative of a faction of prudence.

tries besides Germany and the Netherlands provide care insurance which is an indication of the difficulty of its planning and implementation. With aging, social security benefits generally increase initially but then gradually decrease over time. This trend is confirmed by international data and is presented in Table 1.

Table 1 includes data on sixteen countries in three different time periods — 1980, 1985, 1992; where data for 1992 were unavailable, the figures for 1985 were used. It shows the results of regression analysis in which the ratio of social security benefits to national income is the dependent variable and the rate of aging is the independent variable. In almost every country, the correlation figure consisting of the aging rate and the social security benefits percentage rose during the 1980s, but fell from the late 1980s to early 1990s due to budgetary deficits. From 1980 to 1985 the coefficient of the aging rate increased 0.27 points (from 2.60 to 2.87), but between 1985 and 1992 it decreased slightly (from 2.87 to 2.84). During the three different time periods, there was no change in the major trend where a 1% rise in the aging rate increased the social security benefits percentage almost three points, but the correlation coefficients after degrees-of-freedom adjustments, which indicate its accountability, gradually fell. This shows the effect of government spending restrictions in each country; it also indicates that analysis of social security benefits using only the age factor is no longer sufficient and that various measures including the allocation of funds are necessary to cope with aging. Care insurance is one such measure, and taxes are another (in Japan, it is anticipated that tax revenues will pay half of the care insurance bill).

Table 1   Regression units of social security benefits percentage (Y)

on rate of aging (X): (Yi = a + bXi; i = 16 countries)

| Year	a	b	R^2
1980	− 8.634	2.603 (4.66)	0.841
1985	− 11.801	2.867 (2.14)	0.580
1992	− 13.976	2.835 (2.13)	0.495

Notes:
1) The 16 countries are Japan, Australia, Austria, Britain, Canada, Denmark, Finland, France, Germany, Italy, New Zealand, Netherlands, Norway, Sweden, Switzerland, and United States.
2) Y (social security benefits percentage) is the total amount of social security compared to national income (%). Table A1, [1].
3) X (rate of aging) is the percentage of the population over age 65 compared to the total population (%). Table A1, [2].
4) Data are from Table A1, [1] and [2]. (   ) represents t-value.

3.   The Future Prospects of Seniors in Need

3. 1.   The Estimate of Widely Dispersed Seniors under Care

To determine how much manpower will be required in the future, we must know how many people will need to be served — indeed, this should be the focal point of our efforts. The basic data for making these estimates, which appear in CHWA's second (September 1994) and final (1996) reports, are for the years 1993, 2000, 2010, and 2025 based on three categories of care recipients: (1) those who are bedridden, (2) those who are weak [defined in b) below], and (3) dementia patients. This is shown in Figure 1. MHW recently designated these data as the official figures.

According to these data, 2 million seniors in 1993 who were in need of support (they are referred to "seniors under care"), and this figure will increase to 2.8 million by the year 2000 and 5.2 million by 2025. More remarkable than the percentage of people over sixty-five (see Figure 1) is the sheer number of their increase. Although it is uncertain precisely how the estimated values were calculated, there is some evidence that MHW relied on the data in the "Health and
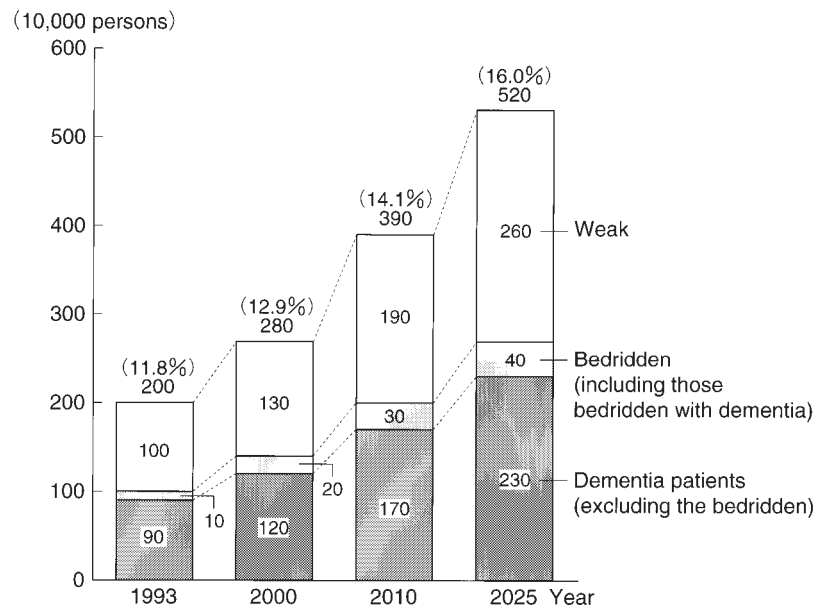
Source: MHW (1996, p. 117).

Note: (   ) represents the total percentage of people over age 65 needing care. The population over age 65 is the average figure given by the Institute of Population Problems. Japan's Future Population Projections, September 1992.

Figure 1   The number of seniors needing support because they are bedridden, have dementia, or are weak

Welfare Plan for the Elderly" and totaled the figures that were reported by each prefecture (Keizai Kikaku Cho, 1996, p. 27). If that was the case, it is unknown how the estimated figures were derived. In general, the prospective number of seniors in need of support is calculated from the total elderly population by age and sex, which is based on "bold assumptions," as Uno (1994, p. 224) observes, in regard to the estimation process, and multiplies with each age group of the senior population.[3] In other words, the estimates change radically depending on the assumption of the future percentage of seniors needing care.

This projection of seniors needing support was an important step from the outset of the Gold Plan. The projected number of dementia patients excluding those who are bedridden for the year 2000 is 200,000 seniors. However, according to MHW's 1989 "White Paper on Health and Welfare," which included the Gold Plan, "the estimated 600,000 dementia patients at home in 1985 will reach approximately 1 million in the year 2000, and by 2015 this number will rise to 1.8 million" (p. 71). In Figure 1, bedridden seniors with dementia are classified in the "bedridden" category, and therefore the figures in Figure 1 cannot be compared to those given in the Gold Plan. Nevertheless, there are not many bedridden elders with dementia, since the common symptom of dementia is to wander about; thus, it is generally acceptable to exclude the bedridden in those cases.

Even though the Gold Plan estimated that there would be 1 million dementia patients by the year 2000, only 200,000 — or one-fifth of these cases — are reported in the current plan. (MHW has not given a reason for this significant change.)[4] It is extremely difficult to calculate the cost of care insurance, as well as to forecast the amount of manpower needed and the requisite financial support, when the grounds for the fundamental data are unclear. Consequently, the government should explain how it derived its fundamental data, inform the public of the problems involved in estimation, and conduct simulation planning with different degrees of change built into its forecasts of seniors in need of support.

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[3] Statistics applied to the assumption are from the Ministry of Health and Welfare, "Comprehensive Survey of Living Condition of the People on Health and Welfare" and "Survey on Social Welfare Institution," in which the percentages of emergence of the bedridden (including dementia patients) and dementia patients (excluding the bedridden) are 1.5% and 0% respectively for elders 65–69 years; 3.0% and 1.5% for 70–74 years; 5.2% and 1% for 75–79 years; 10% and 1.5% for 80–84 years; and 20.5% and 3.5% for over 85 years, the percentages increasing with age. However, the ratio of elders needing care among the population of over 65 years has been around 5% so far.

[4] On this point of the gap between the figures, Sojiro Takigami (1996) states, "at the time, when I questioned a particular section chief in the Ministry of Health and Welfare (MHW), I received a response that after careful calculations, it ended up this way. [It] (MHW) adjusts [the figures] to accommodate various policy planning, and therefore even the fundamental data become widely different."

3. 2.   Definition of Seniors Needing Support and Forecasts of the Economic Planning Agency

What, then, is the definition of seniors under care? According to the Secretariat to the Minister of Health and Welfare, Policy Planning and Evaluation Division, and as used in this essay, the categories appearing in Figure 1 are defined as follows. All three categories are considered to include "seniors needing support" and are clearly separated from "seniors needing care." Seniors needing support consist of (1) those needing care and (2) the weak. Those needing care are divided into (3) the bedridden (judged by a 4-rank system based on the degree of their independence or mobility in daily life) not suffering dementia and (4) dementia patients who are not bedridden (judged by a 5-rank system based on the degree of their independence or sickness in daily life). On the other hand, those in category (2) — the weak — are defined as seniors who do not need constant care but who have difficulty managing by themselves due to mental or physical impediments. At this point it is clear that the amount of manpower necessary to assist seniors in need of support will depend on which category of seniors increases: those needing care or the weak. Defined in this way, of the 2 million seniors needing support in 1993, 900,000 "in need of care" were bedridden, 100,000 had dementia, and 1 million were categorized as the weak. Since the government's figures are only estimates, the calculations of researchers may differ.

Due to the wide variance in the quality of the manpower supply for delivering care, data on the location of seniors in need of support can be valuable. To estimate the cost of this support, the Economic Planning Agency (Keizai Kikaku Cho, 1996) classified the seniors by the type of facility involved with their care, as shown in Figure 2. This process included calculations to determine (1) the population percentage by sex and age at the time (1993) according to the location of care provided (hospital, care facility, home) and the patient's condition (bedridden, dementia, weakness), and (2) future estimates of the need for support by multiplying the reported percentages, which were presumed to be fixed in the future, by the future population estimated by MHW, Institute of Population Problems. Thus, 1993 was the starting point for establishing where seniors were receiving care, and with the reported percentages fixed through time, the places for delivering care were projected.

To obtain an accurate picture of where the elderly are presently receiving care, we must determine the number of seniors in administration-based facilities (e.g., hospitals providing extended care for over six months, nursing homes and health institutions for the aged, and institutions with beds for long-term care). Only the total number of seniors needing support at the starting point of 1993 reflects MHW's estimate of 2 million, which is then subtracted from the accumulated figures for institutionalized seniors (mentioned previously), with the remainder con-

New GP
Case
491

Facility-based
Case
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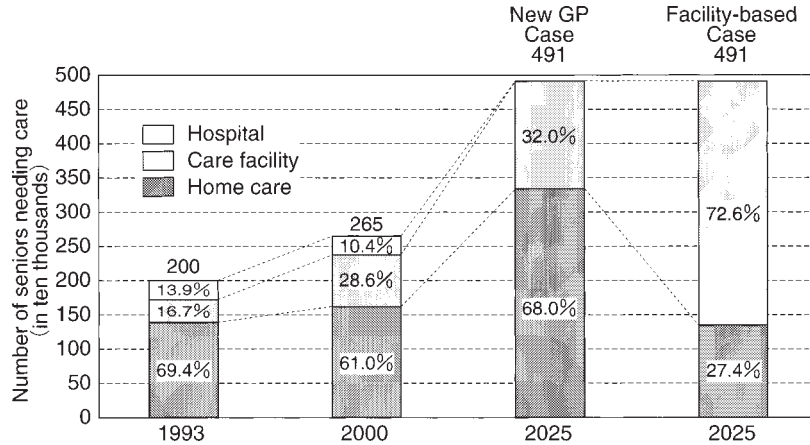
Source: Keizai Kikaku Cho (The Economic Planning Agency, 1996, p. 37).
Notes:
 1) Figures in the bar graph represent the composition ratio: figures outside the bar graph represent the
     actual number (in ten thousands).
 2) "New GP case" reflects implementation of the New Gold Plan from the year 2000. The rate of facility
     (e.g., hospitals and nursing homes) usage remains unchanged after 2000.
 3) "Facility-based case" reflects implementation of the New Gold Plan after the year 2000. It represents a
     case where the population rate after 2000 (number of seniors needing care who are at home ÷ active
     generation) is constant and the rate of institutionalized patients increases.

Figure 2   The number of seniors needing support, by care facility

sidered to be at home. As indicated in Figure 2, almost 70% of the 1993 seniors
were at home, followed by almost 17% in care facilities and 14% in hospitals. But
the estimated figures for seniors needing care are less than those given by MHW,
with 2.65 million in the year 2000 (MHW = 2.8 million) and 4.91 million in 2025
(MHW = 5.2 million). Moreover, because the New Gold Plan will be established in
2000, and Figure 2 depicts cases in which utilization of facilities will remain un-
changed after the plan's implementation as well as cases in which such usage will
increase.

   These evaluations of the Economic Planning Agency, using the 1993 base, con-
firm the following points. First, many aged Japanese are cared for at home — about
60%, even in the year 2000, when the New Gold Plan is implemented. Within this
group, some seniors receive social home care services but more commonly the
elderly are cared for by their families. Second, there has been a marked decrease in
the number of hospitalized seniors who are criticized for wasting medical services.
Yet this has led to an increase in the use of care facilities, which is the third point.
In the long run, however, since 1993 (when the majority of seniors received home
care) is used as the baseline for projections to 2025, it will be necessary to depend
on family care as before. It is important to recognize, then, that family care will not

disappear with the introduction of the care insurance, and that care services provided outside of the home will only serve to assist family care, not replace it.

3. 3.   Basic Preparations for the Delivery of Care Services

3. 3. 1.   Basic Plan of the Council on Health and Welfare for the Aged

Table 2, cited from CHWA (1996, p. 47), is a rough estimate of how much and in what ways care services are actually supplied to those in need based on trial calculations for care insurance. In the upper part of the table, (1) seniors needing support and (2) the population over age 65 both represent a demand for care services; (3) shows home care service utilization within the overall demand for care; and (4) indicates the number of home helpers it would be possible to hire given the budget in a particular year. On the other hand, (5) involves only seniors needing care (as opposed to support) outside the home. The basic preparations for the delivery of care assume that during the term of the plan, 100% of care services will be provided, but that only 60% of home care services can be included by 2005 and only 80% even by 2010.

Home care service will still be fairly rudimentary in the year 2000; both Case A and Case B reveal relatively low preparation rates of 50% and 40% respectively. As shown here, home care consists of day services/day care and short stays by home helpers as well as nursing visits — see note a in Table 2. The figures specified for home helpers are 220,000 (Case A) and 170,000 (Case B), prescribed according to budgetary limitations. (In the budget, the standard unit cost per hour for home helpers is established by type of housework assistance and care; the number of helpers are then determined based on the total budget for home care.) An estimated 170,000 home helpers are considered to work on a full-time basis but are budgeted for part-time wages in the plan. This operation lacks a supply-side examination of whether professional caretakers would be satisfied with the labor conditions of part-time workers.

As indicated in Table 2, it is anticipated that between the years 2000 and 2010 the number of seniors in need of care (bedridden and suffering from dementia) will grow by 600,000 (from 1.4 million to 2 million), whereas the number of beds in care facilities will increase only by 108,000 (from 692,000 to 800,000). The assumption of a 100% preparation rate for care facilities only shows up in the basic plan. Yet it will be impossible to meet the potential need of 2 million seniors, only half of whom are expected to be covered by care insurance. More specifically, if the number of seniors left out of the home care service category (i.e., those cared for by their families) is calculated by the previous preparation rate, then the result would be 1.004 million (Case A) and 1.205 million (Case B) by the year 2000 and 620,000 as late as 2010.

Table 2 Estimates of basic preparations for elderly care

	1993 Results	2000 Case A	2000 Case B	2005	2010
(1) [Reference] Estimate of seniors needing support (in 10,000)	200.0	280		—	390.0
A. Seniors needing care (bedridden + dementia patients)	100.0	140		—	200.0
B. Weak seniors	100.0	130		—	190.0
(2) [Reference] Population over age 65 (in 10,000)	1,690.0	2,170		2,473.0	2,775.0
(3) Home care service utilizers[a] (in 10,000)	139.0[b]	200.8	200.8	254.0	310.0
C. Seniors needing care (bedridden + dementia patients)	—	70.8	70.8	94.0	120.0
D. Weak seniors	—	130.0	130.0	160.0	190.0
(4) Number of home helpers (in 10,000)	5.0[c]	22.0	17.0	34.0	56.0
(5) Care facility utilizers (in 10,000)	33.5[d]	69.2		76.0	80.0
E. Special nursing home	18.7	28.7		31.6	33.2
F. Health services facility	6.0	24.9		27.4	28.8
G. Extended care facility	8.4	15.6		17.1	18.0
(6) Number of helpers for every 10,000 seniors: (4) / (2) × 10,000	30.0	101	78	137.0	202.0
(7) Number of facility utilizers for every 10,000 seniors: (5) / (2) × 10,000	198.0	319		307.0	288.0
(8) Percentage of home care usage by seniors needing support[e]: (3) / (1) (%)	69.4	71.7	71.7	—	79.5
(9) Within (8), home care usage by seniors needing care: [C] / [A] (%)	—	50.6	50.6	—	60.0
(10) Within (8), facility usage by seniors needing care: (5) / [A] (%)	—	49.4	49.4	—	40.0

Source: Unless otherwise noted above, the figures were calculated according to CHWA (1996, reference 6).

Notes:
  a. Service preparation for facilities is assumed to be 100%, home care 60% in the year 2005, and 80% in 2010; in the year 2000 the preparation percentages for home care services are assumed to be 50% for Case A and 40% for Case B. The targeted basic preparations in 2010 for home care services include 560,000 home care workers, 53,000 workers for day services/day care, 230,000 beds for short-term stays, and 20,000 places for nursing visits; their degree of attainability is the preparation percentage.
  b. Estimate of seniors needing support (1) subtracted from the number of care facility utilizers (5).
  c. Survey of facilities. MHW (1996, p. 108).
  d. Keizai Kikaku Cho (1996, p. 37). There are 280,000 others "institutionalized" in hospitals, but they are not included in (5).
  e. As is written in (a), since the home care preparation percentages are 50% for Case A and 40% in Case B in the year 2000 and 80% in 2010, they represent insufficient utilization of services.

3. 3. 2.   The Shortage of Care Facility Services

The major reason for the overwhelming scarcity of home care service is the shortage of care facilities. Out of the 3.9 million seniors who will require support in 2010, those "in need of care" (the bedridden and dementia patients) will comprise 2 million. And even though the number of facility users in this group is the highest, it will reach only 800,000 during the same period. This figure is less than 40% of the seniors "in need of care"; the rest are expected to rely on home care services.

The Economic Planning Agency (Keizai Kikaku Cho, 1996), which has also pointed out the shortage of care facilities, has hypothesized that a little over 70% of seniors who need care utilize facilities (see Table 2). Niki (1996b, p. 11) harshly criticizes this hypothesis: "this kind of expectation is a vision which ignores international common-sense. For, from a close cost analysis (cost effective analysis) between [*sic*] home care and facility care conducted by several European countries since the 1980's, the fact that home care is not a 'replacement' for facility care, and that only short-term admittance to institutional care can expand and thereby reduce home care service were made clear without any room for doubt; however, the abolition or reduction of long-term admittance is impossible." (Niki, 1995)

3. 3. 3.   Assessment of labor conditions

Several facts are obvious from the lower half of Table 2. First, the plan's budgetary framework severely limits the supply of home helpers, but even by 2010 there will be only 2.02 home helpers for every 100 seniors needing care — a hopeless situation. (Around 1990 the ratio of home helpers to every 100 was 15.6 in Denmark, 9.0 in Britain, 6.2 in France [Ichien, 1996, p. 12].) Second, although the number of seniors needing care is increasing, from 2010, the relative percentage of facility utilization among seniors is on the contrary decreasing. This hypothesis is quite unreasonable (among 10 thousand elders, the number of facility utilizers fall from 319 in the year 2000 to 288 in the year 2010 (Table 2, (7)). Third, the percentages of home care service utilization by elders in need of support is 70% in the year 2000 and 80% in 2010 (Table 2, (8)), but since the estimated percentages of home care service preparation are 40–50% in 2000 and 80% in 2010 (Table 2, Note 4), the content of the service supplied in the year 2000 should be regarded as being far less than the targeted 40–50%. In this situation where the level of supply is restricted, the probability of the weak (among elders needing support) being excluded from service utilization is high. Finally, under this condition, the portion of elders in need of care utilizing the care service shifts from 50–50 for home and facility in 2000 to 60–40 in favor of home in 2010 (Table 2, (9), (10)) and therefore home care service becomes all the more important.

As was examined above, the number of home helpers is completely insufficient. Moreover, for the plan for home service preparation, the maintenance of budgetary

funds is the utmost precondition but it does not take into account the future improvement in wages for manpower. It is the assumption that the future manpower is maintained with unchangeable status and same unit/hour wage as of the present home helpers, but this is too simple. An active, laborer-supporting stance which calls for equal wage for home helpers as that of public welfare workers is anticipated. This way, active participation in this field can be expected as well as the security of qualified manpower.

In Denmark, the majority of care workers are part-time public servants whose wages are equal to those of regular workers. In addition, like nurses, they receive benefits during training period (TAMA Life 21 Association, 1994, p. 57). This is, of course, possible in a country whose revenues come entirely from taxes, but in Japan, the creation of manpower reflects the status quo and lacks the ability to attract new skills.

3. 3. 4. The Potential Demand for Care Services

The extent of the shortage of care services was confirmed by the second "Survey of Actual Demand for Health and Welfare-related Services," conducted by MHW-SID, Statistics and Information Department in 1991 (the first survey was made in 1988). This survey collected data from household members across Japan without the use questionnaires. The findings on home medical treatments and welfare-related services are given in Table 3.

This survey was able to obtain a better understanding of who were actually receiving home care services and who were still waiting for them. First, almost 80% of the people who desired these services were over age 65. Second, as of 1991 a total of 3.48 million seniors had either received home care services or wished to receive them. If the number of facility utilizers is included (330,000 in 1993, as shown in Table 2), seniors needing support exceeded 3.8 million. This figure is slightly over 90% of MHW's 1993. Third, since the sufficiency percentage of home service utilization (utilizers/[utilizers + those wishing to utilize] × 100%) was 20.6% for people over 65 and 24.0% for those over 70, an overwhelming number of seniors who needed these services were not receiving them. Finally, the greatest demand was for home helpers: 2.42 million seniors were waiting for their services, while 220,000 were utilizing them. A total of 1.81 million desired nursing visits, and 1.31 million needed meal service. People other than seniors, such as the physically handicapped, also required care services, but seniors needed them most.

Many care services must be provided by qualified professionals (e.g., medical nurses, public health nurses, certified care workers, dietitians), and to satisfy the potential demand for home service, cooperation between educational facilities awarding similar qualifications is required — a task that cannot be fulfilled in a short period. Above all, the fact that there are elders wishing for home care which

Table 3   The number of seniors utilizing and wishing to utilize health and welfare-related services

	Utilizers (10,000 persons)	% within total no. of household members	Seniors wishing to utilize (10,000 persons)	% within total no. of household members	% of services utilization
Home medical care/welfare-related services					
Total	94	0.8	766	6.2	10.9
Seniors over age 65	72	4.7	276	17.8	20.6
Seniors over age 70	61	6.2	193	19.6	24
Home (visits) nursing / Rehabilitation service	22	0.2	181	1.5	10.9
Home (visits) care / Home help service	22	0.2	242	2	8.3
Bathing (mobile bath) service	9	0.1	101	0.8	8.3
Meal / Grocery delivery service	10	0.1	131	1.1	7.3
Home medical treatment / Nursing / Care equipments /					
Supplies delivery and rental service	11	0.1	111	0.9	9
Day services	18	0.1	43	0.3	29.1
Home medical care/supply of welfare-related					
consultation services	9	0.1	122	1	7.1

Source: MHW-SID (The Ministry of Health and Welfare–Statistics and Information Department, 1991).

Notes:

  1)   % of services utilization = utilizers ÷ seniors wishing to utilize × 100.

  2)   Content of services based on seniors.

greatly exceed MHW's estimate means that when the Care Insurance Law is enforced, demand for these services as a rightful entitlement would emerge, and when this demand cannot be met, it may result in the increasing loss of faith in the new care insurance.

4.   The Course of Manpower for Welfare

4. 1.   Previous Research

There is not as much literature on manpower for care as there is for research concerning costs of care, but several will be introduced here. Takahashi (1988) has widely utilized statistics to carry out surveys. Takahashi (1995), taking up the case of certified care workers, points out that there is a regional gap between the people who have obtained qualifications and elders needing care, and the hint at the maintenance of manpower and the community's administrative role is useful. Furukawa (1996) touches upon a new field of employment called "care management" which was brought about through the care insurance, and also indicates the importance of referring to care service workers as a system: discussion should not simply be on the number of people for the maintenance of care workers, but topics such as structuring of employment classifications and laborer organizations, methods of employing and recruiting, labor conditions such as wage, and specialized research should be discussed as a system. Similarly, Takagi (1993) takes up an example of long-term hospitalization and writes about the difficulty of the workers' capacity to measure and judge in their attempts to shift the demand for service from hospitals to health facilities for the aged, and from welfare institutions to home.

   Quantitative maintenance of welfare facility workers (including home helpers) is a serious and important issue for the future increase of elders needing support, but also with the introduction of the care insurance, the new field of "care management" which makes decisions on the appropriate and fair care service, remains a field with its capacity completely unknown. Additionally, there are estimates in relation to manpower from the Medical Economics Research Organization (1996). These estimates were the aim for model development of demand and supply of manpower for welfare. The special feature of this model is that it establishes potential quantity of supply according to different employment classifications, and from it, multiplies the probability of actually engaging in manpower for welfare, and estimates according to the system dynamics model. The weakness of this model, however, is the absence of consideration for labor conditions. On the other hand, although the aim of Fuji Research Institute (1996) is not to estimate the amount of manpower, it points out using the "Employment Status Survey" that the number of women who quit work to care for their family was 80 thousand in 1991, which

represented 10% of middle-aged/aged women who quit work for that reason — a useful piece as information about women's workers.

4. 2.   The Trend of Home Helpers and Policies

With the increase of elders needing support, manpower engaged in care will naturally increase. Until the Gold Plan came about in 1989, welfare for the aged in Japan was focused on facility care service. The main utilizers of the public home welfare service (care/livelihood assistance) were the poor, and the utilization by the general public was limited as much as possible. The question of since when the ideas surrounding home service changed will be examined by tracing the transition (in welfare) afterwards (refer to the passage below [Ito, 1993]). Public home welfare service for the elders began with "Welfare Worker Dispatching Service to Elderly Households" based on the 1963 Welfare Law for the Aged.

In the beginning, the targeted subjects for dispatching were households receiving public assistance, but this was revised in 1965 and the significance of the "policy-based solution for elders with low income" strengthened. Article 12 of the Welfare Law for the Aged (1963) states, "municipalities are permitted to entrust care services with non-profit social welfare foundations and other organizations to . . . the daily care of elders through dispatching of welfare workers to elderly households." Essentially, then, it was interpreted that although the municipalities were the main enforcing bodies for home welfare, when necessary, they were permitted to entrust private organizations. Consequently, the trend of entrusting this business to private housekeepers' organizations so long as they were financially well-off increased.

Shinotsuka (1992) explains the case that among the 8600 home helpers in Tokyo at the end of 1990, only 600 were full-time officer and the remainder of 8000 were entrusted to the private housekeepers organizations, and as a result, there were many Brazilian-born Japanese working women as hospital attendants.[5] Furthermore, according to an interim report on the survey on 48 ordinance of prefectures and cities recently conducted by the National Autonomous Labor Association (1996), only 13 cities have home helpers whose employers are under direct management of self-governing organizations while 33 cities entrust the care business to these organizations. The report also states, "the movement towards entrusting [organizations] will increasingly strengthen" (p. 3). The background of this movement began in the 1980's when re-examination of welfare was on the rise, and in the Special Survey Committee's "Administrative Reform" plan, "introduction of civil-

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[5]   It is said that in 1995, home helpers in housekeepers' associations in Tokyo exceeded 10 thousand people, and that there were 4000 registered people who were commissioned as home helpers in Yokohama, but the actual state of municipality level nationwide is unclear — this should become clear when the final report by the National Self-Governing Labor Union is published.

ian power" within the social welfare through the principle of public responsibility was attempted.

In 1982, the "Outline for the Management of Dispatching Welfare Workers to Households" was revised, and with it, charging for home welfare service and commission to private organizations were put forward; also, a change in the position of "full-time by principle" to "non-full-time" was permitted for the welfare workers. At the same time of welfare re-examination, withdrawal of the aged from hospitals was urged as well as the strengthening of the move to thoroughly revise the basis for, and limit entrance into, welfare facilities. In 1989, the entrusted body of the "Welfare Worker Dispatching Service to Households" was expanded not only to the Council of Social Welfare, but also to private enterprises which satisfy conditions in the "guideline for home care service." Finally, in 1990, the revision of 8 welfare-related laws including the revised Welfare Law for the Aged is significant,[6] and at this time, the occupational title of "household welfare worker" changed to that of "home helper," which is used currently.

4. 3.   Place for Manpower Employment

In Table 4, estimates of places of manpower for care from 1980 are indicated. Until then there were many workers in facilities because of the focus placed on welfare facilities — among approximately 230 thousand in 1994, on the other hand, only 59–86 thousand were home helpers, a small portion compared to facility workers. In addition to the quantitative shortage of home helpers as the late comers into the field, the portion of non-full-timers is large and their labor conditions such as wage are insecure, as was discussed in the preceding section.[7] From the data for home helpers, as is represented in the two figures of "D" in Table 4, it is not clear which represents the reality better. The figure of 170,000 (for the year 2000) given by the New Gold Plan was based on the number of home helpers in the first row in section D of Table 4. This figure was based on the data collected for every region by MHW,

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[6]   This is a revision made for fundamental preparation for the promotion of the Gold Plan, and in accordance with the idea of the promotion of home care welfare service, 8 laws related to welfare including the Welfare Law for the Aged, Law for the Welfare of Physically Disabled Persons, and Law for the Welfare of People with Mental Retardation were collectively revised. The revision advocated basis for major reform, including the active promotion of home care welfare service, unification of home care welfare service and facility welfare service, and the drawing up of the care insurance plan for the aged in municipalities as well as prefectures ("Social Welfare White Paper 1996 Edition," p. 111).

[7]   A labor union for home helpers calling for legal assessment of wages as professional care takers is coming to be established. "Even if experience is accumulated and qualification as a certified care worker is obtained, position or even pay doesn't improve." To take up this issue of why this is so, home helpers are taking up bargaining rights and consequently, "public home helper" which changed from non-full-time to full-time, are increasing (*Nihon Keizai Shimbun*, August 5, 1996, evening edition).

Table 4   Location of welfare workers for the aged

	1980	1985	1990	1994	Avg. growth rate (%) 80–90	90–94
A. Total institutionalized seniors (1) + (2) + (3) (in 1,000)	161.8	207.8	284.9	396.2	5.8	8.6
(1) Total welfare facilities for the aged	157.4	201.0	241.9	291.9	4.4	4.8
Old-age homes	66.4	66.5	65.1	64.6	− 0.2	− 0.2
Special seniors' homes	79.5	119.0	160.5	205.7	7.3	6.4
Old-age homes with moderate fees	11.5	15.5	16.3	21.4	3.5	7.0
Day centers, etc.	—	—	—	—	—	—
(2) Fee-charging homes for the aged	4.4	6.8	13.5	18.7	1.9	8.5
(3) Health services facilities for the aged (capacity)[a]	—	—	29.5	85.6	—	30.5
B. Total workers (1) + (2) + (3) (in 1,000)	65.0	90.1	141.7	230.2	8.1	12.9
(1) Total welfare facilities for the aged	64.0	88.5	124.3	179.1	6.9	5.9
Old-age homes	18.3	18.8	19.1	19.6	0.4	0.6
Special seniors' homes	37.0	57.3	81.8	112.7	8.3	8.2
Old-age homes with moderate fees	2.6	3.8	4.0	5.1	4.4	6.3
Day centers, etc.	6.1	8.7	15.3	35.2	9.6	23.2
(2) Fee-charging homes for the aged	1.0	1.6	4.1	6.9	15.2	13.9
(3) Health services facilities for the aged (workers)[b]	—	—	13.3	44.2	—	35.0
C. Total institutionalized seniors per 1 worker	2.49	2.31	2.01	1.72		
(1) Total welfare facilities for the aged	2.49	2.27	1.95	1.63		
(2) Fee-charging homes for the aged	4.40	4.25	3.29	2.71		
(3) Health services facilities for the aged (capacity)	—	—	2.22	1.91		
D. Home helpers[c]	13,200	21,613	35,905	59,005	10.5	13.2
Home helpers for the aged[d]	12,187	20,128	38,945	86,223	12.3	22.0
Workers in fields other than agriculture and forestry (in 10,000)[e]	5,004	5,343	5,839	6,108	1.6	1.1

Sources:
   a.   MHW-SID (1995, p. 173); estimated number of workers per capacity of 100 entrants (45.3 persons in 1990, 51.6 persons in 1994).
   b.   Others from MHW-SID, "Report on the Survey of Social Welfare Institutions," pp. 38–39. End-of-year figures.

c. Surveyed by MHW — Bureau of Social Welfare Services for the Aged. Includes any worker dispatched even once during the year in every region, as well as those other than helpers for the aged. MHW (1996, p. 108).

d. Same source as b. End-of-year figures.

e. Management and Coordination Agency, "Manpower Survey."

Table 5   Number of care workers in welfare facilities for the aged, by occupation

	1989	1994	1994 Constituted percentage	Average rate of increase in actual number 1989–94	Goal of New Gold Plan by end of 1999
Total number	109,443	179,069	100.0	10.3	
Facility heads	5,350	9,827	5.5	12.9	
Life/child advisers, trainers for juvenile delinquents	4,845	9,772	5.5	15.1	
Occupational work advisers	66	156	0.1	18.8	
Doctors	4,252	4,501	2.5	1.1	
Therapists[a]	1,120	1,384	0.8	4.3	15,000 seniors
Mental/Functional judges	9	5	0.0	−11.1	
Health nurses, midwives, nurses	8,134	14,612	8.2	12.4	100,000 seniors
Dormitory attendants	48,768	79,934	44.6	10.4	200,000 seniors
Care assistants	—	6,528	3.6	—	(annual rate of 18.4%)
Dietitians	3,391	5,043	2.8	8.3	
Cooks	14,877	22,378	12.5	8.5	
Office clerks	8,911	12,368	7.0	6.8	
Janitors, other	9,720	12,361	6.9	4.9	

Source: MHW-SID, "Report on the Survey of Social Welfare Institutions," 1989, 1994.

a.   This category includes physical therapists, occupational therapists, and others.

Department of Health and Welfare for the Aged, adding up every case throughout the year where a home helper was dispatched. Compared to this figure, note "d" for home helpers (section D of Table 4) is the number of home helpers actually dispatched at the end of the year according to MHW, Statistics and Information Department. Since the difference of the two statistical references in 1994 reaches 270,000, the estimates for a plan can become inaccurate depending on which data are used as the base.

It is evident from Table 4 that, in the 90's, there is a rapid increase in manpower in day centers combining home service and in health services facilities for the aged, besides the former facility workers. Due to an annual decrease in the number of elders receiving institutional care to every worker, services in facilities have improved. On the other hand, although the actual number of home helpers is far less that of the workers in facilities, the rate of the annual increase from the start of 1990 is remarkable. Workers other than in the agriculture and forestry industry are included at the bottom of the table for reference: the average percentage of annual increase through the 80's is 1.6% while in 1990 the percentage declines to 1.1%, indicating how large the increase of demand for manpower is for welfare compared to general employment.

Table 5 takes the institutional workers and illustrates the number of workers classified by different occupations from the beginning to the mid-period of the Gold Plan. The occupation with the most increase is that of the advisor such as work advisors, and others include that of the public health nurses, midwives, nurses, dormitory attendants, and licensed cooks. When looking at the composition percentage, dormitory attendants make up the most, over 40%, and when the percentage of care assistant is added, the portion makes up the majority of the whole. As well, the inclusion of dietitians and licensed cooks into this portion raises the percentage to almost 80%. With Table 3 already showing the low sufficiency rate of utilization for home service (less than 10%), services such as nursing visits, home nursing, and those of bathing and meal were examined to improve home service; however, to maximize home service, not only that of home helpers but every occupation in Table 5 is needed.

Using the time series from Table 5, Table 6 gives the results of a regression analysis with the percentage of elderly population over 65 years as the independent variable and manpower for institutional care and home helpers as the dependent variables. Since only the variable for manpower is transformed into the natural logarithm while the elderly percentage is the actual number, the coefficient indicates by how much the increase rate for manpower rises when the aging rate increases by 1%. The number of facility workers is more often constrained by the fixed number of positions in each facility: while the coefficient for institutional workers is small at about 0.2, that of the home helpers is twice as much in scale

Table 6   Regression analysis of manpower for welfare and estimates for the year 2000

only Y is in natural logarithm; ln Y = a + bX   ( ) is *t*-value, *n* is the number of the sample

ln Y	Time period	Constant	X Ratio to population over age 65	R^2	*n*	Estimated value for year 2000	
Number of workers in facilities for the aged	1980–94	9.278	0.203 (47.8)	0.996	15	320,000	(About 1.8 times that of Y 170,000 seniors in 1994)
	1985–94	9.333	0.198 (33.0)	0.998	10	320,000	
Number of home helpers for the aged	1980–94	5.446	0.404 (22.7)	0.991	15	240,000	(3.3–3.8 times that of Y 73,000 seniors in 1994)
	1985–94	4.980	0.441 (25.9)	0.996	10	280,000	

Source: Appendix, Table A3, [1], [2], [3].
Note: The estimated values used the increase of 2.9 points in population over age 65 from 1994 to 2000 (14.1% to 17.0%) and multiplied it by b to get the magnification *ln* Y, which was squared to the initial value of Y in 1994.

(0.4), representing the elasticity to the rise in the aging rate. The change in the coefficient is larger for home helpers than for institutional workers with staff limitations when the estimation period is changed from after 1980 to after 1985.

The column on the right in Table 6 takes this coefficient and calculates the amount of manpower by inserting the population ratio of elders over 65 years of 17% into the year 2000 from the future population estimate of MHW, Institute of Population Problems. The results are demand for 320 thousand institutional workers and 240–280 home helpers in 2000. In the previous Table 2, the values for the plan for home helpers are 220 thousand in Case A (the preparation rate for home service of 50%) and 170 thousand in Case B (that of 40%), and when compared to my calculations in Table 6, there are shortages in the plan of the number of home helpers in 2000, about 20–60 thousand in Case A and 70–110 thousand in Case B.

On the other hand, there are no values for the fundamental preparations of institutional workers, but instead it is estimated that the number of facility utilizers in the year 2000 will be 692 thousand and that it will be possible to admit all of them (Table 2). If we assume that for every institutional worker there are 1.72 facility utilizers which is a fixed 1994 figure (using a figure of Table 4, "C"), then about 400 thousand institutional workers (692 thousand/1.72) will be necessary in 2000. Yet, since the estimated result in Table 6 is 320 thousand institutional workers in 2000, this projection has a shortage of 80 thousand workers. From the projection based on time series regression which used the data taken after the 1980's, it becomes clear that with the preparation rate of manpower estimated by the New Gold Plan, there will not be sufficient amount of care services in facilities as well as at home by the year 2000.

4. 4.   Maintaining Manpower in Communities

If the Care Insurance Law is enforced, then the municipalities would likely be the managing the insurance bodies. In other words, the municipalities must hold responsibilities for the financing of the insurance and must work on improving the supply of the care services. With the revision of 8 welfare-related laws in 1990, as mentioned previously, the central governmental authority shifts a welfare administration to the municipalities, going along the line of decentralization. However, with this kind of administrative shift to the communities, problems such as the security of manpower emerge. For one thing, even if we look at certified workers for example, it is not the case where those who received qualifications are working in their local community (Furukawa, 1996).

Manpower for care until now was mainly concentrated around institutional workers and was prepared strategically in every community to cope with aging (even though there was a shortage in its absolute number). While the utilization of home service shifted from households on public assistance to those with low income

since its commencement — and in the 1990's even the utilization for the general elderly people became possible — the absolute number of home helpers has been completely lacking. Figure 3 and Figure 4 are correlation diagrams in relation to 47 prefectures depicting the ratio of the number of institutional workers per every 10 thousand elders to the percentage of the elderly over 65 years, and the ratio of the number of institutional workers per every 10 thousand elders to the percentage of elders needing support (in the population of over 65 years) respectively (data from the additional Table 1 at the back of this volume).

In Figure 3 there is a positive correlation indicating that the higher the aging rate in a particular community, the greater the number of institutional workers, while on the contrary, a negative correlation in Figure 4 indicates that the greater the percentage of elders needing support in a particular community, the smaller the number of institutional workers. The significance of these results lies on the point that since the number of institutional workers is decided usually through budgetary measures, the greater the proportion of the aged in a community, the more the number of facilities that are built, and hence the positive relation between the establishment of facilities and the facility staff.

Table 7 establishes home helpers and the manpower for facilities respectively in 47 prefectures as the explained variables, and displays the results of a regression analysis using the percentages of the aged in 1990 and 1994. Because the preparation by each community is meager, the relation between the number of home helpers set out through a policy to relieve poverty and the ratio of the aged cannot be seen. Therefore the institutional workers and home helpers are added together and the variable of the total manpower in a community is added on top of the sum. On the other hand, for the facility workers, the effect that the ratio of the aged has
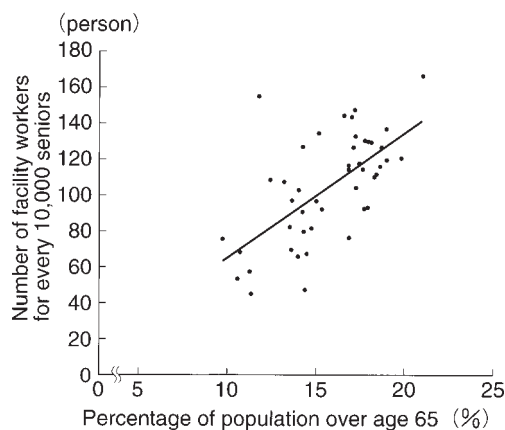

Figure 3   Correlation between the number of workers in care facilities and the percentage of the population over age 65 (data from 47 prefectures, 1994)

Table 7　Regression analysis of welfare workers for the aged (from 40 prefectures)

Explaining variable X / Explained variable Y		Constant	% of population over age 65	Ratio of seniors needing care to R^2 population over age 65	R^2	Note Average value of explained variable Prefectures		Reference
						(for every 10,000 people)	(actual number)	(actual number nationwide)
1. Workers in old-age facilities*	1990	10.76	4.96**		0.46	78	2,246	[11.5]
	1994	4.51	6.84**		0.63	104	3,468	[17.9]
2. Workers in old-age facilities*	1990	148.90		−9.77**	0.42			
	1994	182.40		−12.78**	0.40			
3. Workers in old-age facilities*	1990	75.58	3.85**	−6.87**	0.54			
	1994	56.47	6.14**	−8.09**	0.68			
4. Home helpers for seniors*	1990	9.73	0.48		0.14	16	527	[3.0]
	1994	25.12	0.29		0.05	30	1,203	[7.3]
5. Facilities+ helpers*	1990	20.49	5.39**		0.45	94	2,773	[14.5]
	1994	20.62	7.13**		0.53	133	4,671	[25.2]
6. Facilities+ helpers*	1990	89.57	4.2**	−7.32**	0.52			
	1994	91.01	6.33**	−9.34**	0.58			

Source:　Appendix Table A2.

Notes:

1) For number of home helpers for the elderly (for every 10,000 people) over age 65: [1].

2) For percentage of population over age 65: [2].

3) For percentage of population over age 65 needing care: [3].

4) For number of workers involved in the welfare of the elderly: [5]

 * The number of workers for every 10,000 seniors.

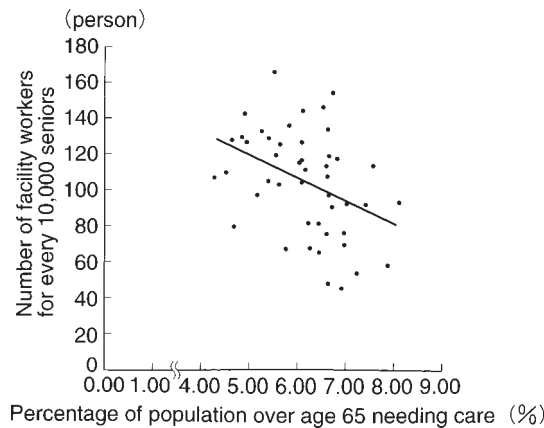** Denotes significance at the 1% level in the t-value testing.

Figure 4   Correlation between the number of workers in care facilities and the per-
centage of the population over age 65 needing care (data from 47 prefec-
tures, 1994)

on manpower is positive (as seen in Figure 3), and increases from 1990 to 1994. The coefficient representing the increase of those in need of care is negative as seen in Figure 4, and the negative coefficient becomes greater from 1990 to 1994.

   According to the press, the municipalities are said to have a sense of uneasiness over the introduction of the care insurance because of the uncertain financial status, but these results suggest that the delay in the plan to secure manpower for care serves as a source for resistance and anxiety. From the survey conducted by Saku City in Nagano Prefecture (1996) where the care system was put into effect earlier than any other municipalities, it was revealed that, contrary to the trend of the present policy, the desire for family care was stronger than the utilization of public home service. The greater voice of the city residents calls for facility service only when family care is not possible. This kind of municipality with stronger dependency on traditional family care dislikes having strangers coming into their home, and consequently, measures for home care service get deferred even longer.

5.   Conclusion

The intention of this paper is not to aimlessly call for the postponement the intro-duction of the care insurance. Until now, manpower for care was centered around institutional care, but with the shift in the policy towards home care service, the standpoint taken is that the supply of data for security of manpower should include not only the number of workers but also labor conditions such as wage.

   Regarding the increase of the future elders needing support, especially those in need of care (the bedridden and dementia patients), there is an absolute shortage of

manpower which applies not only to home helpers but also to facilities. If the care insurance is enforced ignoring this circumstance, expectations for nationwide care services would not be met and thereby causing an eruption of dissatisfaction, and the danger of causing a setback in the care insurance system — whose public appeal has strengthened at great pains — is great.

What is needed at present is for the nearly 3300 municipalities to go beyond an administrative unit to rebuilding a cooperative organization for care service, and how well they can form into this welfare administrative unit determines their success.[8] The present state is such that unless the municipalities establish meal service centers and bathing service that are jointly supplied and used, and economize both the finances and manpower, there would not be enough funds nor human skills. Time is naturally necessary for regional reunification from regional decentralization, a path that was also taken by various countries in Northern Europe. It is therefore desirable to discuss the matter of manpower for care along that line.

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[8]   For example, in Nahari town in Kochi prefecture, a conference on home care service area with a radius of 5 towns/villages was initiated. This was due to situations where there was a village with only 1 home helper, or where day service centers with meal and bathing rehabilitation services existed in only 2 towns, situations which the existing administrative units can no longer cope with. There are even cases where, for the only reason being that there were bathing services twice a week, elderly couples have sold their houses and farms to move into a town with these services (*Asahi Shimbun*, March 17, 1996, morning edition).

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Appendix

Table A1   International comparisons of population data

	[1] Social security benefits as a % of national income			[2] % of population over age 65 (%)			[3] Suicidal death rate over age 65 (ten thousands), 1992		[4] Per capita national income ($)	
	1980	1985	1992	1980	1985	1992	Male	Female	1992	1994
Australia	18.3	14.0	14.0 (85)	9.7 (81)	10.72 (87)	15.2 (92)	25.5	7.3	13,746	15,144
Austria	28.9	33.1	33.1 (85)	15.5 (80)	14.30 (85)	15.2 (92)	81.8	20.6	20,590	24,667
Canada	16.9	20.8	20.8 (85)	9.5 (80)	10.42 (85)	11.8 (92)	25.8	5.6	16,572	15,579
Denmark	35.8	35.2	35.2 (85)	14.4 (80)	15.10 (85)	15.6 (92)	58.1	28.1	22,099	23,105
England	22.6	25.1	24.5 (91)	15.1 (80)	15.10 (85)	15.7 (92)	13.9	5.5	16,022	15,653
Finland	23.7	29.8	29.8 (85)	12.0 (80)	12.48 (85)	13.5 (91)	49.6	10.2	16,599	15,063
France	32.9	36.8	34.9 (91)	14.1 (80)	12.90 (85)	14.2 (92)	68.0	22.1	19,826	19,824
Germany	30.0	30.1	29.7 (91)	15.5 (80)	14.90 (85)	15.0 (92)	58.5	23.8	21,395	21,744
Italy	20.3	12.4	12.4 (85)	13.5 (80)	13.98 (84)	14.8 (91)	36.0	8.4	18,539	15,322
Japan	12.3	13.7	15.3 (93)	9.1 (80)	10.30 (85)	13.5 (93)	44.6	30.8	23,464	29,244
Netherlands	33.9	34.8	34.8 (85)	11.5 (80)	11.97 (85)	13.0 (92)	27.4	12.2	18,594	19,249
New Zealand	20.2	22.8	22.8 (85)	9.7 (80)	10.25 (85)	11.2 (91)	23.8	5.5	10,381	12,429
Norway	27.4	38.8	38.8 (85)	14.8 (80)	15.58 (84)	16.3 (92)	29.1	11.6	21,649	23,521
Sweden	39.5	39.3	49.1 (91)	16.2 (80)	17.20 (85)	18.2 (92)	45.6	14.5	23,679	18,432
Switzerland	14.6	14.9	14.9 (85)	12.1 (80)	14.54 (85)	15.0 (92)	61.8	20.1	32,763	34,367
U.S.A.	15.8	15.1	18.0 (91)	11.4 (81)	11.95 (85)	11.7 (92)	41.7	6.4	20,356	22,379

[1]   OECD, "The Cost of Social Security, National Accounts"; MHW-SID (1992, p. 291, and 1994, p. 307).

[2]   Management and Coordination Agency, World Statistics, 1980, 1985. For countries where data could not be obtained for the corresponding year, figures for the preceding or following year were used. The 1992 figures for Norway are from "Population Trends," 1985; for all other countries they are from World Statistics, 1996, and MHW (1996).

[3]   World Health Organization, World Health Statistics Annual, 1992, 1993; MHW-SID (1994, p. 221).

[4]   MHW-SID (The Ministry of Health and Welfare–Statistics and Information Department, 1995, p. 322).

Table A2   The supply and demand for care in Japan, by prefecture

	[1] No. of home helpers per 10,000 seniors		[2] % of population over age 65		[3] % of population over age 65 needing care		[4] No. of welfare facilities for the aged		[5] No. of workers in welfare facilities for the aged per 10,000 seniors	
	1990	1994	1990	1994	1990	1994	1990	1994	1990	1994
National total	20.02	41.56	12.1	14.1	7.49	6.36	5,529	9,827	77.3	101.8
Aichi	13.78	25.12	9.8	11.4	8.21	6.93	132	248	30.5	44.1
Akita	15.29	25.13	15.6	18.7	7.31	6.14	78	149	101.1	125.7
Aomori	19.85	28.63	12.9	15.3	7.82	6.64	113	177	114.1	132.6
Chiba	12.54	18.29	9.2	10.8	7.63	6.28	153	185	67.3	66.7
Ehime	16.92	38.89	15.4	18.0	9.45	8.12	78	141	70.0	91.8
Fukui	28.69	49.79	14.8	17.2	6.56	5.63	57	102	94.0	124.6
Fukuoka	5.69	10.97	12.5	14.5	6.84	5.77	173	246	62.7	66.7
Fukushima	12.19	27.91	14.3	16.9	8.28	6.98	99	172	58.1	75.4
Gifu	13.13	51.87	12.7	14.8	7.61	6.45	101	187	52.3	80.4
Gunma	15.52	22.52	13.0	15.1	7.80	6.64	84	181	54.9	95.0
Hiroshima	10.54	23.20	13.4	15.4	8.63	7.43	129	242	68.5	91.0
Hokkaido	14.02	20.04	12.0	14.3	5.92	4.94	323	497	113.9	125.3
Hyogo	15.31	33.45	11.9	13.7	8.22	7.00	186	348	42.2	68.8
Ibaraki	9.35	13.30	11.9	13.6	7.37	6.25	115	199	60.9	80.7
Ishikawa	13.04	19.78	13.8	15.8	6.21	5.41	65	118	70.4	103.7
Iwate	20.75	34.47	14.5	17.3	7.78	6.56	119	213	105.9	145.7
Kagawa	11.63	23.26	15.4	17.7	7.63	6.63	69	130	84.4	113.2
Kagoshima	16.88	31.87	16.6	19.1	6.69	5.85	176	261	115.6	135.2
Kanagawa	9.76	23.51	8.9	10.6	8.92	7.27	111	195	39.0	52.8
Kochi	13.66	22.47	17.2	19.9	6.34	5.56	65	117	87.7	118.3
Kumamoto	18.11	40.94	15.5	17.8	5.63	4.85	122	249	93.3	128.5
Kyoto	9.46	20.59	12.6	14.4	7.61	6.67	64	94	36.5	46.7
Mie	9.37	14.26	13.6	15.6	6.57	5.63	91	169	76.3	101.9

Table A2 — *continued*

Miyagi	12.48	17.16	11.9	14.1	7.85	6.48	61	115	44.4	64.9
Miyazaki	31.67	59.69	14.3	16.7	7.20	6.12	87	158	117.0	143.2
Nagano	19.78	30.77	16.1	18.5	7.20	6.20	154	317	75.3	109.9
Nagasaki	14.32	29.13	14.7	17.1	5.67	4.91	125	244	113.5	141.8
Nara	18.75	51.17	11.6	13.3	5.02	4.26	66	113	83.6	106.1
Niigata	20.42	31.11	15.3	17.8	8.2	7.03	91	223	56.9	91.3
Oita	12.89	33.42	15.5	18.0	6.26	5.41	77	161	94.9	127.9
Okayama	12.00	27.33	14.8	17.0	8.75	7.60	113	198	87.0	112.9
Okinawa	16.33	25.27	10.0	11.8	8.20	6.76	72	110	140.1	153.6
Osaka	6.52	18.72	9.7	11.3	9.21	7.91	187	312	44.2	56.6
Saga	15.11	34.34	15.2	17.3	6.01	5.26	65	117	95.8	131.6
Saitama	9.36	26.74	8.3	9.7	8.08	6.64	188	294	59.2	74.8
Shiga	12.08	29.31	12.1	13.7	6.11	5.17	50	107	62.4	96.0
Shimane	16.88	29.69	18.2	21.1	6.33	5.52	95	159	120.0	165.2
Shizuoka	12.38	18.54	12.1	14.4	5.62	4.67	139	216	65.5	78.8
Tochigi	8.04	15.57	12.3	14.3	7.96	6.74	73	142	56.0	89.5
Tokushima	20.02	37.81	15.6	18.3	5.41	4.64	77	131	102.3	126.9
Tokyo	51.28	99.39	10.6	12.5	7.82	6.64	325	612	75.6	107.0
Tottori	21.44	32.70	16.2	18.7	7.01	6.09	39	87	68.1	114.6
Toyama	17.73	28.32	15.1	17.4	7.09	6.12	63	125	68.5	102.9
Yamagata	10.65	17.96	16.3	19.1	7.82	6.67	74	133	86.9	117.8
Yamaguchi	17.58	33.14	15.9	18.4	5.21	4.53	98	184	89.7	108.8
Yamanashi	10.34	23.47	14.9	16.9	7.10	6.12	83	119	88.0	115.9
Wakayama	17.49	27.95	15.3	17.5	7.89	6.84	49	111	82.0	116.4
Average	15.60	29.80	13.60	15.80	7.20	6.20	109.70	193.80	78.20	103.60
Standard deviation	7.36	14.63	2.35	2.69	1.09	0.91	60.22	100.64	25.27	29.14

[1]   End-of-year figures. MHW (1994, Table 9).

[2]   Management and Coordination Agency, "National Survey," 1990, 1994; MHW-SID (1990, 1995).

[3]   Management and Coordination Agency, "Comprehensive Survey of Living Conditions of the People on Health and Welfare," 1992, vol. 3, table 19.

[4]   MHW, "Report of the Survey of Social Welfare Institutions," vol. 1, 1994, tables 1 and 20; 1990, tables 1 and 19.

[5]   Management and Coordination Agency, "National Survey," 1990, 1994; MHW-SID (1990, 1995).

Table A3 Number of workers in welfare facilities for the aged, number of home helpers for the aged, and proportion of population over age 65, 1980–1994

	[1] No. of workers in welfare facilities for the aged	[2] No. of home helpers for the aged	[3] % of population over age 65
1980	64,093	9,709	9.1
1981	69,516	9,827	9.3
1982	75,446	10,053	9.6
1983	79,234	13,533	9.8
1984	83,354	14,405	9.9
1985	88,543	14,973	10.3
1986	92,666	15,914	10.6
1987	97,962	17,486	10.9
1988	103,343	19,180	11.2
1989	109,443	23,151	11.6
1990	124,301	29,888	12.1
1991	135,229	37,544	12.6
1992	150,649	47,900	13.1
1993	167,898	58,917	13.5
1994	179,069	73,086	14.1

[1] From table 5 for each year.
[2] MHW (1994, p. 249).
[3] Management and Coordination Agency, "National Survey" (for each year); MHW-SID (1990, 1995).