

## **Social Costs of Keeping Pension Fishers in the Community: The Case of Japan**

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### **ABSTRACT**

In this paper, we estimated the costs and benefits of keeping pension fishers in the community. 34% of the 200 thousand fishers in Japan are over the age of 65. Since the fishers over 65 are pensioners, their fishery income is an additional source of livelihood. The average yearly income of coastal fishers is US\$30,000, and the maximum amount of pension that fishers can receive is US\$10,000. The benefits of continuing to fish for pension fishers are their fishery income, certain food supply for themselves, associated benefits of maintaining membership with fishery cooperatives, and their participation with the community. There is no loss, for their opportunity costs are zero, and they are not forced to work. The benefits to the community, on the other hand, can be identified as opportunity costs that might amount if they retire, such as the costs of day-care services provided for free for the elderly and some social security payments provided for the poor. The fishery sector pays additional costs, such as the maintenance costs of fishery infrastructures, hidden costs bared by stagnant fishery reform, and annoying paternalism. The fishing community could have adopted more efficient fishing gears if their total population in the community was 36% less than otherwise, that in turn could have brought additional income or time to remaining young fishers. We compared these costs and benefits and concluded that we will be better off by letting pension fishers fish since the benefits, US\$1.909billion, overwhelm the costs, US\$566million.

**Keywords: aged fishers, retirement, coastal fishery, cost and benefit, Japan**

### **PURPOSE OF STUDY**

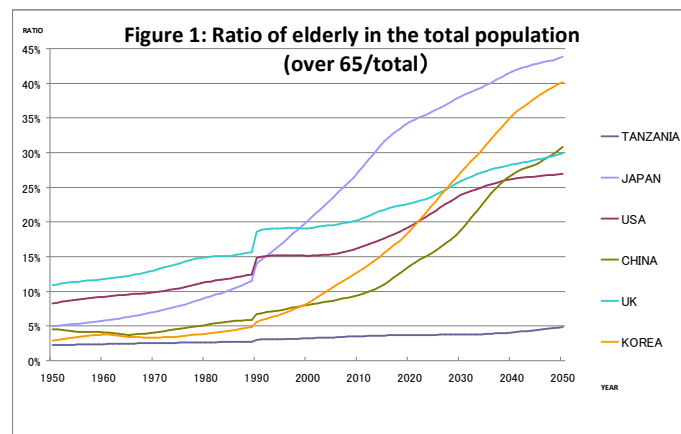
In this paper, we estimated the costs and benefits of keeping pension fishers in the community. The number of fishers did not decrease as much as was officially estimated in Japan. Aged fishers enjoy extra source of income in addition to pensions by continuing to fish. They are typically self-employed coastal fishers who have a certain freedom of choice in both working days at sea and fishing methods. They do not have to market their fish since local fishing cooperatives auction all the harvests daily for the fishers.

Yamashita (2010) found that the reasons fishers do not retire are either that they are forced to work in order to sustain their lives or that they are postponing the age of retirement until they cannot continue working. The latter group, the majority, plans to retire when they become too weak to work or their fishing gear, such as fishing boats, is heavily damaged. In this sense, their opportunity cost is zero, and the rationale of working is that their individual benefit, fishing sales, exceeds their individual direct cost.

The existence of pension fishers brings costs and benefits to their community and the society as a whole. If the loss overwhelms the benefits, it is better to encourage pension fishers to retire. We measured the costs and benefits and concluded that the social cost is smaller than the benefit.

### **PROFILE OF AGING SOCIETY AND LABOR FORCE PARTICIPATION**

Let us start by explaining the situation of aging and the labor force participation of the elderly. The aging rate refers to the ratio of population over 65 years over the total population. The aging rate of developed countries normally exceeds 14% and is identified as an “Aging Society”. When the ratio exceeds 21%, it is named a “Super Aging Society”. As we see in Figure 1, developed countries are already in the category of aging societies, and Japan is ahead of any country, hitting the rate of 27% in 2010. It is, therefore, meaningful to the rest of the world to analyze the case of Japanese aged fishers.

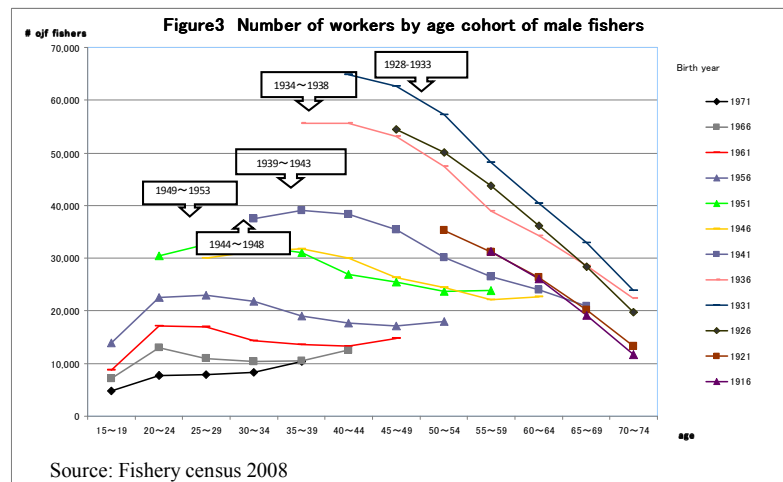
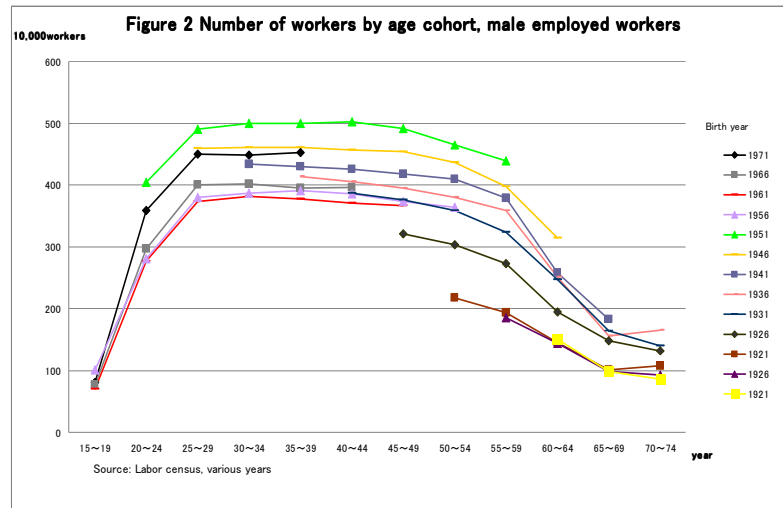


Elderly people, hereafter to refer to people over 65 years old, are entitled to receive a certain amount of pension. Self-employed or unemployed people under the age of 65 years have to join the National Pension System and keep paying certain amount of money. The maximum amount of pension benefit he/she is provided with is \$657/month or \$7,889/year<sup>1</sup>. In the case of employed workers, an additional pension system is piled on the National Pension System, which brings the total amount of pension to \$2,347/month or \$28,188/year, where \$1,690/month is added on the National Pension System. It depends on the location, ownership of house, health, and family composition to judge whether or not the amount of pension is enough to sustain the life of the elderly. In general terms, we will be able to say that the amount of pension paid for employed workers is enough to sustain the elderly lifestyle. Subsisting on only the money from the National Pension System may be very hard.

It is widely known that Japanese people are hard workers. International comparison also verifies that a high ratio of elderly people, particularly males, are willing to continue working<sup>2</sup>. It should be noted that employed workers do not have to work to make their livings after retirement because of the lucrative pension paid. Seike et. al. (2004) explains that the primary reason for them to want to work is for their health, not for money.

Figure 2 expresses the number of employed workers by birth cohort. Figure 3 expresses that of fishers. It is apparent that the number of employed workers decreases at the age 60-65 interval since there exists a compulsory retirement age. On the other hand, the curves of each cohort in Figure 3 are dissimilar to what we saw in Figure 2. In the case of fisheries as well as other self-employed workers, the timing of retirement is set up by their own choice. For the birth year cohort of 1938 (73 years old at the year 2012) and earlier than that, labor force participants in fisheries constantly decreased from their forties. It is expected that people who retired earlier would not have stopped working but rather changed jobs, as deep

sea fisheries were constantly shrinking while economic development in the industrial sector allowed them to absorb new workers around the 1970's. In each cohort, there are 10,000 to 30,000 fishers who remain at the age of 47-70. It is apparent for fishers born after 1939 that the number of fishers does not decrease as they get older. Fishers do not retire after they reach the point of receiving a pension.



## REASONS FOR FISHERS NOT TO RETIRE

Yamashita (2010) listed the following as possible reasons for fishers not to retire. First, fishing activity will bring greater utility than another activity. Normally, labor generates negative utility. In the case of fishing, however, fishing is considered to bring at least equal or greater fun to fishers, i. e.,

$$U(\text{fishing, extra income}) > U(\text{pastime}).$$

In other words, the opportunity cost of fishing is zero, as it is totally substitutable to other activities that elderly people can perform. In this case, there is no reason for fishers to stop fishing until they cannot physically go fishing.

The second reason is that a fisher has to work for money because the amount of pension, in addition to some personal savings, are not enough to sustain his/her living or to support his/her family. It is imaginable that such a fisher would be willing to retire if they can or have to retire.

The third reason is the case where a fisher has determined their retirement condition in advance but the time has not come yet. It can be an age, say, 80 years old, the independence of his/her successor, or something else. Among others, the most likely reason to retire is the damage of invested facilities. According to observation and interviews, fishers try to use up their fishing boats and associated facilities. Many of them say that if the additional investment for repairing exceeds their annual income, they will not invest any more. This is the timing or retirement. It should be noted that the third reason is not mutually exclusive with the first and second reason.

A small scale interview and questionnaire survey verifies that the first one is the primary reason that fishers do not to retire. Table 1 shows the results of the survey. Interviewees are pre-pensioners and were selected because of their good performance in Ohita prefecture, Kyushu, Japan. Although we prepared eight choices regarding the reasons for quitting fishing, the majority of them answered that he/she would quit when his/her body does not move. We might have to consider the distortion of the sample. Fishers with good performance will be more positive to fishery work than ordinary fishers, so it may be natural for them to postpone retirement age. On the other hand, these fishers earn higher income than average from fishing, so they will be economically secure since they will have more savings and receive a full pension benefit at the age of 65. Therefore, the effect will be neutral.

Table 1 The result of the questionnaire survey of fishers in good practice in Ohita prefecture

Age	Fishing method	Age of retirement	Primary reason	Other reasons
41	small scale trolling	70	cannot move my body	
43	small scale trolling		cannot move my body	
47	net	70	cannot move my body	
47	fishing with boat		cannot move my body	when my fishing boat is broken, when fish disappeared
48	small scale trolling	70	cannot move my body	
48	gill net	65	cannot move my body	when my successor become independent
48	angling	80	do not like fishing	
48	small scale trolling			
49	angling	life long	cannot move my body	
52	trolling		cannot move my body	
54	diving	75	cannot move my body	
56	diving	75	cannot move my body	
57	shellfish acuaculture	65	the sea became not so attractive	
62	purse seine	100	cannot move my body	
62	purse seine		cannot move my body	(female)
62		70	when my successor become independent	
63	small scale trolling		my son is succeeded	
66	fish processing		cannot move my body	
66	purse seine	60		

Note: Questionnaire survey was conducted on September 2011 in Ohita prefecture, Kyushu, Japan by author. Prepared answers to the question of "When do you retire" are as follows. 1) when I cannot move my body, 2) when fishing gear is broken, 3) when I take care of my grandchild, 4) when my successor become independent, 5) when my savings is enough for the rest of my life, 6) when fish disappears, 7) when other job is found, 8) other reason.

**PROFILE OF AGED FISHERS**

Let us overview the fishing activity and fishery income of aged fishers. Male fishers over 65 years old occupy 34% of overall fishers, or 199,163, in Japan. This 34% is broken down as follows: 29% are coastal, self-employed fishers; 3% are coastal, employed fishers; and 1% are off-shore, employed fishers, according to Fishery Census 2008. Although there are 35,000 female fishers, this paper focuses on male fishers because of the availability of long term age cohort data.

The census data shows that the amount of fishery sales decreases as fishers gets older. 52,955 households have one member of coastal fishers who engaged only in fishery and worked at sea. Based on these households, Figure 4 describes the amount of sales by age group of a head of household. In three sales categories lower than \$50,000, more than half are in the age group of over 65 years old.

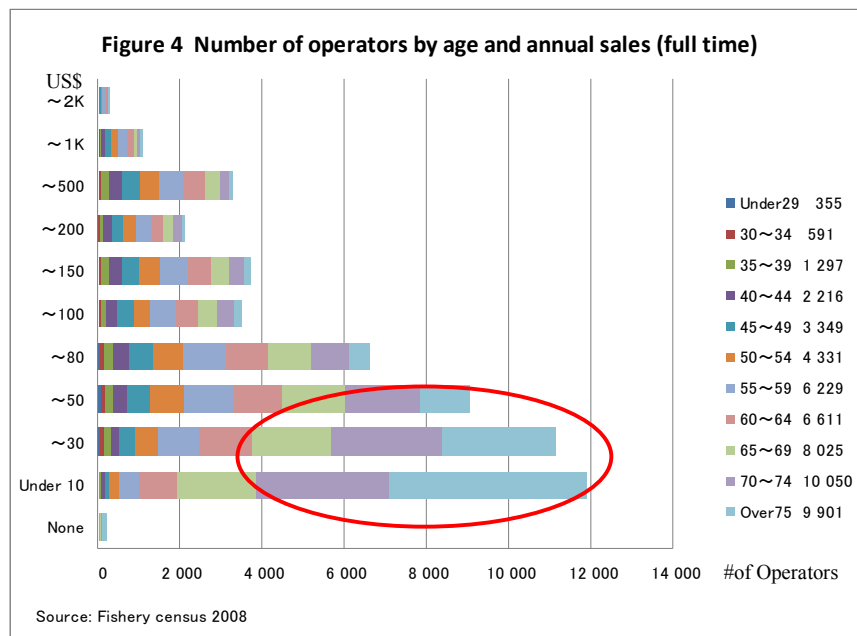
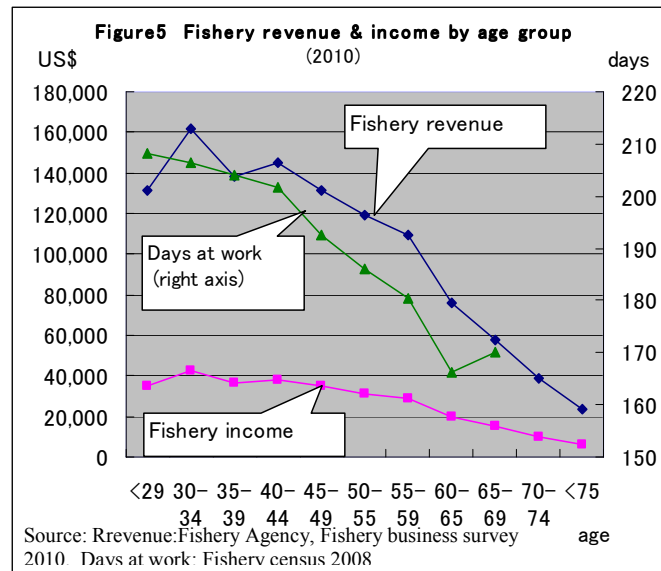


Figure 5 is the estimation of annual income and working days out of the census data. As we see in the figure, both fishery sales and working days decrease as fishers get older. Fishery income is an estimation derived from fishery sales. It also decreases as fishers get older in such a way that fishers of age 65-69 earn \$15,000, 70-74 earn \$10,000, and fishers over 75 earn \$6,200<sup>3</sup>. As we stated earlier, the amount of pension that self-employed people receive is less than employed workers. The difference is \$20,000. Additional income fishers earn will fill this gap, to some extent.

**BENEFIT OF AGED FISHERS TO REMAIN IN FISHERY SECTOR**

We estimated the benefit for aged fishers to continue fishing in monetary terms. We measured the opportunity cost of letting elderly people retire. The following three costs are considered.



The first is the compensation of income earned. If they do not earn some amount of money from fishing, and if their pension benefit is not enough to sustain their living, they will apply for Social Security Subsidy, a stipend given to the poor by the government. Since the amount given to a local, single person of 68 years old is \$626.40/month or \$7,517/year, the total amount of the subsidy is \$505.67million, as 67,272 fishers are over 65 years old. The government evades this amount of expenses, though, since aged fishers continue working and earning to make their own living. It is therefore regarded as a benefit for society. Actually, the average amount of fishery income is higher than the amount of subsidy up to age 74, as we see in Figure 5.

The second is the compensation of pastime at sea. If they do not go fishing, they might fill their vacant days by going to a “day care center” for the elderly. Such centers are also operated by government subsidy, where the operation which costs \$62.76/day/person is financed by the public insurance fund<sup>4</sup>. Assuming that a retired fisher goes to the center 170 days/year, the annual expense from the public insurance fund is \$717.74 million. The payers of compulsory public insurance avoid this expense because aged fishers do not go to the center. It is therefore regarded as a benefit for the society as well.

The third is the fisher’s function as a guard of the sea. According to the estimation of Fishery Agency (2003), fishing activities on the sea function as guards of the coastline and sea lane. In other words, the existence of fishers works as a positive externality. In addition, fishers on the sea sometimes find and rescue boat riders at sea, and fishing boats are used to deliver rescue goods in the case of national disasters. These functions would have to be performed by coast guards if fishers did not exist. It is estimated that the benefit is worth \$2.017 billion. 34% of aged fishers may contribute 34%. Therefore, the fishery operation of aged fishers is worth \$685.78 million.

The overall benefit from aged fishers continuing to fish rather than retire is \$1.9092 billion.

**COST OF AGED FISHERS TO REMAIN IN FISHERY SECTOR**

**Discussion on New Entry and the Amount of Catch**

We estimated the cost of aged fishers to continue fishing. Before starting the estimation, we had to consider the following two agendas. The first question is whether we assume that new, young entrants enter into the fishing sector if 34% of the old fishers retire. For young fishers, fishing becomes easier, with more freedom, after the retirement of old fishers who tend to occupy important decision-making posts and try to keep traditional rules. A new regime will be attractive to the new entrants. On the other hand, new fishers will face their retirement age, 65, in the future. If they cannot continue working at their own will, the working condition of self-employed fishers is reduced to the same as that of employed workers. Fishers will find the work less attractive than they might otherwise. Setting a retirement age affects the young fishers from both sides. We will therefore assume that the number of young fishers does not increase.

The next question is if we assume a total amount of catch decrease or not. It is natural to think that the total amount of catch will decrease by 34% or less than that since the number of fishers decreases by 34%. Currently, the Japanese coastal fishery is operated under severe technical and input control. For example, vessel tonnage, mesh size, and the number of fishing gears are controlled. Fishing time and season is also limited according to national and local rules. Such rules and regulation implies that fishing facility and effort is excessive, compared to the marine resources. There is a room to release some strict rules to let the remaining fishers fish more freely and efficiently and to increase the catch per fisher up to the current level. There is also a discussion whether the total amount of catch will even increase if the rules are eliminated. We do not assume this case, however, because TAC and fishery management has been performed in some fisheries in order to maintain marine resources. Therefore, we assume that the total amount of catch does not change.

### **Estimation of the Costs**

There are three sources of cost generated by the existence of aged fishers. One is the maintenance cost of fishery infrastructure. There are 3,000 fishing ports in Japan, and the majority of them are small scale ports for the local use of coastal fishers. The annual public budget for the maintenance of fishing ports, fishing grounds, and fishing villages amounts to \$843.16 million<sup>5</sup>. Recently, the budget has been used to equip cranes at the quay in order for aged fishers to land their harvest from their boats more easily. In the absence of aged fishers, such equipment is not necessary. Some small fishing ports can be closed down to integrate landing places. 34% of the public budget, \$286.67 million, is regarded as a cost of keeping aged fishers.

The second is the forgone income that could have been obtained by young fishers. We assumed in the beginning of this section that Japanese fishers shared income generated from a limited amount of marine resources. The amount of fishery income earned by the elderly, \$280.04 million, is regarded as a loss for young fishers.

The third is the cost generated by the old-fashioned industry structure that had been maintained by the existence of aged fishers. Chairpersons and board members of fishery cooperatives are often occupied by senior fishers. In fact, it is not rare to find a chair person aged over 80 years old. The fact that one third of the members of a fishing community are elderly may retard the alteration of fishing methods and fishing gears. New management schemes will also be difficult to introduce. Thus the structural change does not proceed and the fishery sector gets left behind the other industrial sectors. Since it is difficult to describe

the industry structures that could have been realized in the absence of aged fishers, we cannot monetize the cost.

The overall cost of keeping aged fishers is \$566.7 million.

## CONCLUSION

The benefit of keeping aged fishers is \$1.9092 billion, and the cost of this is \$566.71 million. The benefit is 3.37 times higher than the cost. Even if we could monetize the cost of the third category, structural change, and add on the cost, it is plausible to conclude that the social cost of keeping pension fishers is likely to be smaller than the benefit. Therefore, we make the policy suggestion that a particular arrangement to promote the retirement of aged fishers is unnecessary.

According to the Fishery Agency (2012), the number of fishers will be half of the current level, 100,000, while Managi et.al. (2010) estimate that the optimum number of fishers is 74,000. Therefore, if we do not promote earlier retirement, it will take more than 30 years to reach an optimum level. If the policy goal is set to facilitate the change of industrial structure towards an efficient and competitive one, we will have to re-consider the cost of keeping aged fishers from a different viewpoint, taking timeframe into account<sup>6</sup>.

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## ENDNOTES

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<sup>1</sup> This is the maximum amount that is provided for an individual who continuously paid for more than 30 years as of 2012. We will express monetary amount in US dollar converting JPY100=US\$1. Please note that current



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exchange rate as of November 2012 is JPY80=US\$1 but we rather convert a hundred yen to a dollar since it had been a long term trend and easier to convert back to original currency.

<sup>2</sup> Yamashita (2010) stated this according to the OECD research.

<sup>3</sup> Since fishery income by age group is not available in the census, we instead defined that 26.5% of the fishery sales are reduced to fishery income, as the ratio 73.5% is the average operation cost. Working days are the data of that of successors.

<sup>4</sup> In addition to the public expense, a visitor has to pay \$7 per day. We do not count on this amount.

<sup>5</sup> The amount is the initial budget of the fiscal year 2010. Since the Great Earthquake and Tsunami destroyed the fishery infrastructure of the Pacific coast in the end of the fiscal year, the budget after the year 2011 is much higher than previous years.

<sup>6</sup> This study is financially supported by JSPS research aid Kiban C 23580311.