

Socio-economic Status and Occupational Mobility of China's Fishery Population: A Quantitative Analysis based on Social-Survey Data

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Introduction

China ranks as the first fishery nation globally in terms of its fishery production. More than 16 million people work in and earn their livelihoods from fisheries, directly or indirectly. A better understanding of the characteristics of this large group of people could lead to an improved appreciation of the human dimensions of China's fisheries. This research uses the China Health and Nutrition Survey (CHNS) to explore socio-economic changes, demographic status, and occupational mobility within China's fishery population, comparing these trends to the overall Chinese population.

Results

Size

Since 2006, the fishery population has been shrinking both in absolute numbers and relative to the total population.

Figure 2. Size of China's fishery population according to the CHNS.

Figure 1 shows the socio-economic trends of China's fishery population. Each indicator is presented in absolute terms (curves 'F') and as a ratio to the total population (curves 'R'), standardized to the first year for comparison.

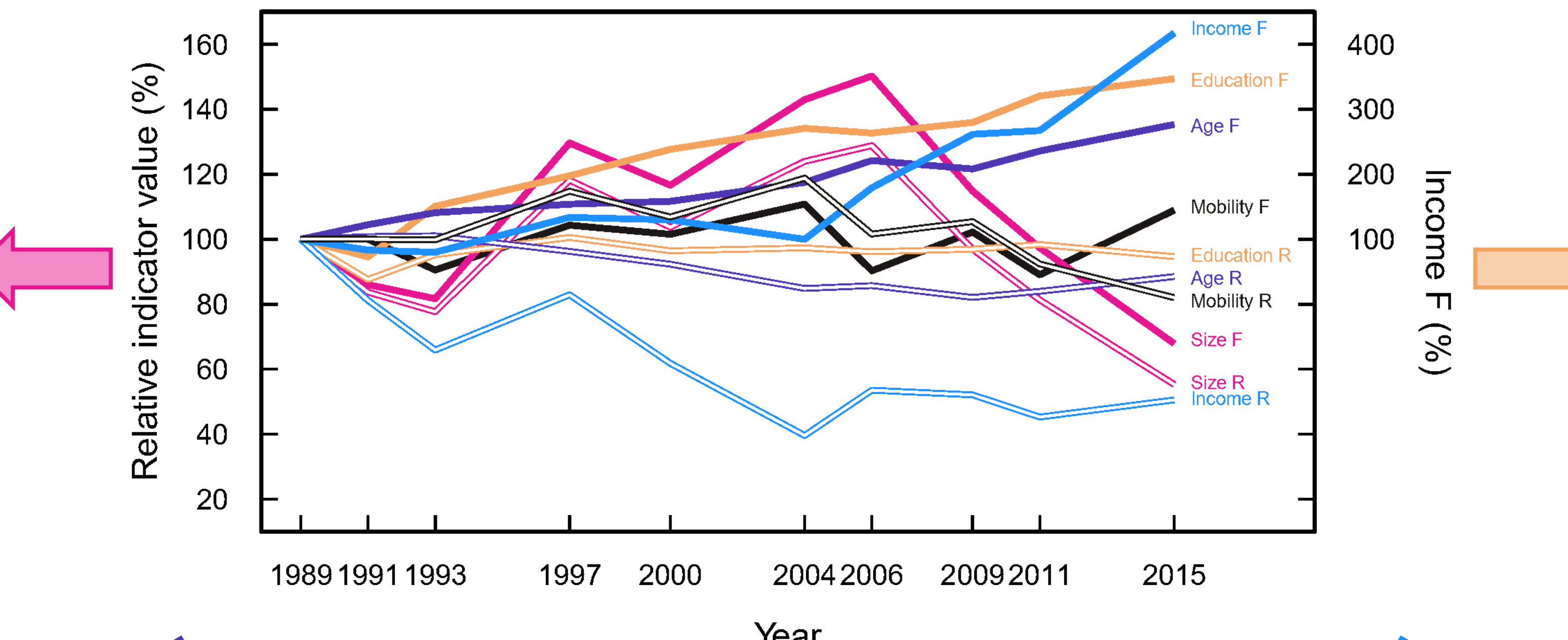


Figure 1. Time series of key indicators of the fishery population's size, age, education, income, and occupational mobility.

Education

The fishery population's average education duration is similar to that of rural residents but lower than that of urban residents and the total population, consistently across all survey years.

Figure 4. Average duration of education in the fishery, rural, urban, and total populations.

Age

The data indicates a gradual aging trend in the fishery population for both men and women, slower than the total population.

Figure 3. Age distributions in the fishery population by gender.

Occupational mobility

The employment of the fishery population is exhibiting a high degree of dynamism, with high rates of occupational mobility between the fishing sector and other sectors. Compared with people working in other sectors, more employees in the fishing industry have chosen to alter their occupational sector.

Figure 6. Frequency distributions of three types of durations of fishery occupation and CHNS participation

Income

The fishery population's incomes have risen in real terms. However, since 2000, their median and average incomes have lagged behind those of the urban population.

Figure 5. Net annual incomes of the rural, urban, fishery, and total populations inflated to the 2015 level.

Materials and methods

The China Health and Nutrition Survey (CHNS) is a long-term, questionnaire-based study conducted over 10 years in 12 diverse provinces and cities. Using a multistage random cluster process, the survey samples about 15,000 individuals, tracking many of the same respondents over time. The survey covers demographics, work activities, and income. We identified the fishery population based on fishery-related questions.

There were 1016 respondents from 10 survey years fishery respondents, representing 645 unique individuals. Changes in the number of fishery respondents over the years are shown in Table 1. We calculated statistical weights for the CHNS total sample and the fishery sample, comparing them to China's total and fishery populations, respectively.

We consider three measures of engagement duration in the fishing sector: continual duration, summed duration, and total duration. Figure 8 illustrates the differences among the definitions of these three measures with an example.

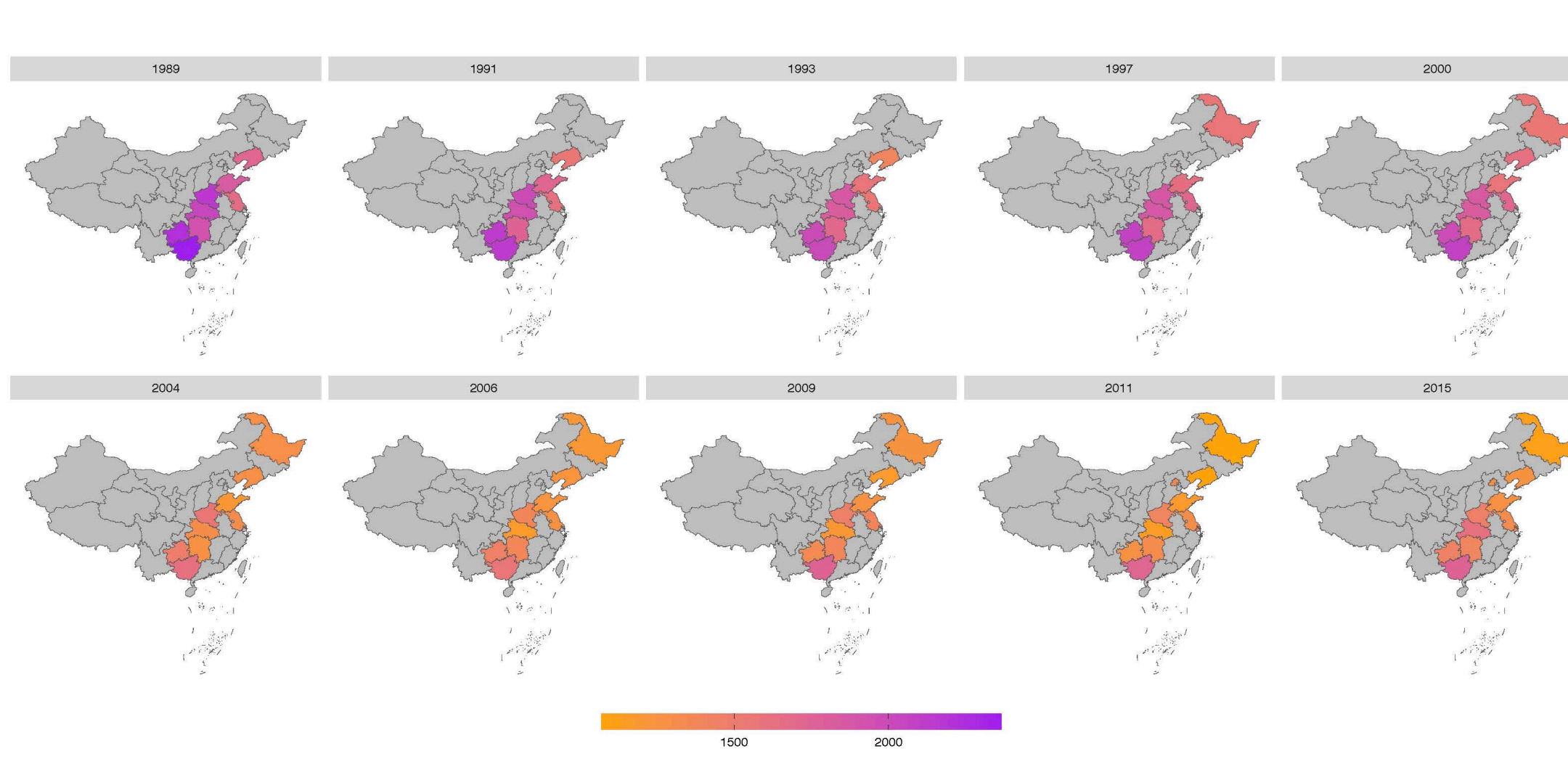


Figure 7. Number of respondents in the CHNS.

Year	1989	1991	1993	1997	2000	2004	2006	2009	2011	2015
Respondents	125	101	85	131	126	110	105	76	90	67
Respondents remaining in subsequent surveys		33	26	11	8	5	2	3	5	3
Respondents dropped out										
From fishery activity		81	58	53	82	78	59	64	41	52
From CHNS		11	11	7	11	25	16	14	8	20
Respondents added										
To fishery activity		65	49	77	78	82	56	34	33	29
To CHNS		3	4	29	10	5	14	15	30	20

Table 1. Total sample sizes and respondent retention of fishery respondents in the CHNS.

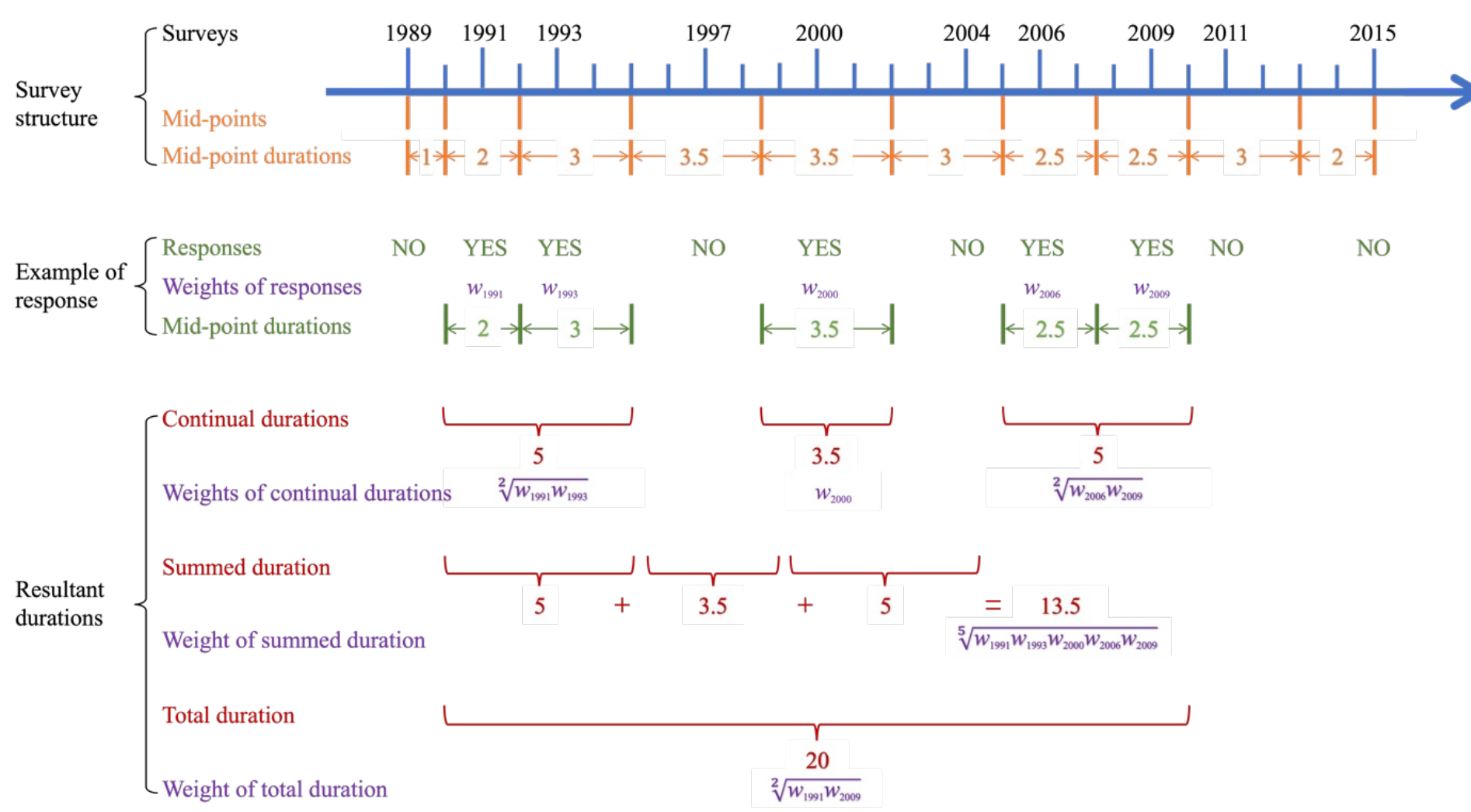


Figure 8. Schematic description of three alternative quantitative measures of engagement duration.

Discussion

We hope that our analyses can help decision-makers better to understand this segment of the general population, as a necessary first step towards finding workable solutions to the complex challenges faced by China's fishery industry and fishery population. We believe that decision-makers in fishery management and researchers in fishery science can benefit from an enhanced analytical focus on, and resultant quantitative understanding of the fishery population. How to realize the sustainable development of the fishery industry under the premise of ensuring the livelihoods of the fishery population is the key question managers, scientists, and fishers need to solve together.