



# Are fishers happier? An evidence from a large-scale Indonesian happiness survey



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# Rationales: Policy relevance

- There is a tendency that fishers find it difficult to change occupation, because for them job is more than a job, it is a life style (Binkley 2002; Griffith and Valdés Pizzini 2002; Griffith 1999).
- As a result, declining stock may have not been accompanied by declining fishing efforts, leading to even faster fisheries depletion.
- One of the reasons is that being a fisher gives a satisfaction and happiness unique than other alternative occupation such as the nature of fishing as a physical product, exposure to outdoor activities, good salary and so on, (Treleaven 2014; Hope 2012; ONS 2012; Duc 2009; Clay 2010; Smith and Clay 2010).
- On the other hand, there are also conflicting theories which suggest that being a fisher is actually associated with lower happiness such as the risk involved or being away from the family, government policy issues that are considered burdensome (Kourous 2007, Acheson, 1981; Anna, 2012, King 2015).
- Despite the relevance and the interesting debate about the issue, findings from relevant literatures are still mixed.



# Rationales: Literature gap

There are quite a large number of studies on fishers' life satisfaction. They survey fishers, measure the degree of their satisfaction. However those studies are incomplete or imperfect for the following reasons:

- All recent empirical studies of subjective wellbeing of fishers lack of relevant control as they are only based on surveys among fishers (Pollanc and Poggie 2006; Smith and Clay 2010;Pollnac et al. 2012). Therefore, they cannot really answer whether being a fisher generate higher or lower life satisfaction, after controlling for other aspects of life.
- Majority of the studies also based on rather small samples.
- Using Indonesia as a case study is unique, both because, to our knowledge, no previous study has linked job and happiness for one specific developing country which comparing such common jobs.

This paper is an attempt to fill these gaps.





# Research questions

- General research questions: Are fishers happier than non-fishers?
- Specific questions: After controlling most relevant factors that determines their subjectives' wellbeing
  - Are fishers, generally happier than non-fishers?
  - Are fishers, within various categories of occupation, happier than non-fishers?
  - Are fishers position themselves in higher economic ladder than non-fishers?
  - Are fishers more optimistic in positioning their economic ladder than non-fishers?



# Data: Indonesian Family Life Survey

We use the data of two periods of available data's time (2014 and 2012), from the Indonesia Family Life Survey 2014 (IFLS), and IFLS 2012 for East Indonesia, fielded by the RAND Corporation in collaboration with SurveyMETER. The survey collects data on individual respondents, their families, their households, the communities in which they live, and the health and education facilities they use, including happiness.

The Indonesian 2014 IFLS surveyed 30,000 adult individuals living in 13 of the 27 provinces in the country, representing around 83% of the Indonesian population. IFLS 2014 were taken data from some part of Indonesia, which are North Sumatera, West Sumatera, Lampung, South Sumatera, Bangka Belitung, Jakarta, West Java, Central Java, East Java, Yogyakarta, Banten, South Kalimantan, South Sulawesi, West Nusa Tenggara, and Bangka Belitung.

The IFLS East Indonesia covering a large-scale multi-topic household and community survey of living conditions, surveyed 10,000 adult individuals from 2500 household living in Eastern Indonesia covering East Nusa Tenggara, Maluku, North Maluku, West Papua and Papua.



# Data: Indonesian Family Life Survey

<b>Year Survey</b>	<b>Fishers/Non Fishers</b>	<b>Self employed without worker</b>	<b>Self employed with worker</b>	<b>Unpaid family worker</b>	<b>Casual worker</b>	<b>Total</b>
2012	Non-fishers	450	842	507	108	1,907
	Fishers	72	72	9	4	157
	Total	522	914	516	112	2,064
2014	Non-fishers	2,653	3,531	1,215	1,761	9,160
	Fishers	113	52	1	13	179
	Total	2,766	3,583	1,216	1,774	9,339
2012+2014	Non-fishers	3,103	4,373	1,722	1,869	11,067
	Fishers	185	124	10	17	336
	Total	3,288	4,497	1,732	1,886	11,403

\*The non fishers is consisted of job sectors of agriculture, forestry, hunting, mining and quarrying, manufacturing, electricity gas water, and constructions, wholesale, retail, restaurant and hotel, transportation, storage and communications, finance insurance, real estate, and business services, social services, and other jobs that can not be classified.



# Subjective wellbeing data

The survey instruments ask the following questions to the respondents subjective wellbeing questions:

- Taking all things together how would you say things are these days? (1=very happy; 2=happy; 3=unhappy; 4=very unhappy).
- On which economic ladder do you consider your self today (current)? (poorest 1,2,3,4,5,6 richest)
- On which economic ladder do you consider your self 5 years ago (past)? (poorest 1,2,3,4,5,6 richest)
- On which economic ladder do you consider your self today 5 years from now (future)? (poorest 1,2,3,4,5,6 richest)
- For the economic ladder we also analyzed the situation of economic step of respondent which compare between future and present (Future-present); Present-past; and future-past.





# Socio-economics-demographics

The survey also collects control variables of socio-demographic-economic characteristics of the respondents such as:

- Age in term of age and age<sup>2</sup>
- Gender (male, female)
- Education level: (1) no education (2) primary; (3) lower secondary/junior high school; (4) upper secondary/senior high school; and (5) university degree.
- Expenditure in term of ln expenditure (can be proxied for income)
- Marital status (married, single)
- Health status (health1: Very healthy; health2: Somewhat healthy; health3: Somewhat unhealthy & unhealthy)
- Regions (provinces): Region is a dummy variable for Sumatera (Island 1), Java (Island2), Bali and West Nusa Tenggara (Island3), Kalimantan (island4), Sulawesi (Island5), Maluku and Papua (Island6).
- Year of data taken (2012 and 2014)





# Econometric Model

- The data is used to estimate the ordered-probit model of the 4 types of subjective well being:

$$\text{Prob}(y_i > k \mid \kappa, x_i, v_i) = \Phi(x_i\beta + v_i - \kappa_k)$$

- where  $y_i = 1$  is the observed individual  $i$ 's response at time  $t$  to happiness questions in a survey that designed to elicit individual subjective well-being,  $k$  is the (estimated) threshold,  $x_i$  is the relevant determinants of subjective wellbeing, included (to be tested) whether the individual is fishers.
- To provide relevant comparison, we also divide the sample by type of occupations i.e., (a) Self employed without workers, (b) Self employed with workers, (c) Unpaid family workers, (d) Casual workers.



# Variables Statistical Performance

All category of work

Self- employed without worker

Self- employed with worker

Unpaid family worker

Casual worker

Variable	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min	Max
happy	19506	3.03	0.49	1	4	happy	3288	2.98	0.50	1	4	happy	4497	3.01	0.49	1	4	Happy	1732	3.01	0.50	1	4	happy	1886	2.94	0.54	1	4
lnpce	19506	13.67	0.67	11.19	16.94	lnpce	3288	13.63	0.67	11.19	16.58	lnpce	4497	13.61	0.66	11.43	16.94	lnpce	1732	13.47	0.64	11.24	15.93	lnpce	1886	13.44	0.61	11.55	16.53
age	19506	39.21	13.15	12	101	Age	3288	43.64	13.49	15	101	Age	4497	44.61	13.14	15	92	Age	1732	38.04	14.42	12	77	Age	1886	38.95	12.86	15	84
agesq	19506	1710.67	1148.99	144	10201	agesq	3288	2086.73	1283.86	225	10201	Agesq	4497	2162.43	1263.55	225	8464	Agesq	1732	1654.57	1205.68	144	5929	Agesq	1886	1682.32	1093.40	225	7056
male	19506	0.62	0.48	0	1	Male	3288	0.63	0.48	0	1	Male	4497	0.68	0.47	0	1	Male	1732	0.26	0.44	0	1	Male	1886	0.75	0.43	0	1
married	19506	0.79	0.41	0	1	married	3288	0.81	0.39	0	1	married	4497	0.89	0.31	0	1	Married	1732	0.77	0.42	0	1	married	1886	0.76	0.43	0	1
primary	19506	0.32	0.47	0	1	primary	3288	0.42	0.49	0	1	primary	4497	0.43	0.49	0	1	Primary	1732	0.42	0.49	0	1	primary	1886	0.45	0.50	0	1
junior	19506	0.18	0.39	0	1	junior	3288	0.19	0.39	0	1	junior	4497	0.19	0.39	0	1	Junior	1732	0.20	0.40	0	1	junior	1886	0.24	0.43	0	1
senior	19506	0.30	0.46	0	1	senior	3288	0.25	0.43	0	1	senior	4497	0.25	0.43	0	1	Senior	1732	0.21	0.41	0	1	senior	1886	0.21	0.41	0	1
tertiary	19506	0.13	0.34	0	1	tertiary	3288	0.06	0.23	0	1	tertiary	4497	0.06	0.24	0	1	Tertiary	1732	0.04	0.20	0	1	tertiary	1886	0.03	0.16	0	1
health1	19506	0.18	0.39	0	1	health1	3288	0.20	0.40	0	1	health1	4497	0.15	0.36	0	1	health1	1732	0.17	0.38	0	1	health1	1886	0.19	0.39	0	1
health2	19506	0.61	0.49	0	1	health2	3288	0.58	0.49	0	1	health2	4497	0.60	0.49	0	1	health2	1732	0.59	0.49	0	1	health2	1886	0.60	0.49	0	1
island2	19506	0.44	0.50	0	1	island2	3288	0.41	0.49	0	1	island2	4497	0.38	0.49	0	1	island2	1732	0.24	0.43	0	1	island2	1886	0.53	0.50	0	1
island3	19506	0.12	0.33	0	1	island3	3288	0.13	0.33	0	1	island3	4497	0.11	0.31	0	1	island3	1732	0.16	0.37	0	1	island3	1886	0.14	0.34	0	1
island4	19506	0.07	0.25	0	1	island4	3288	0.07	0.26	0	1	island4	4497	0.06	0.24	0	1	island4	1732	0.08	0.27	0	1	island4	1886	0.02	0.14	0	1
island5	19506	0.07	0.25	0	1	island5	3288	0.08	0.27	0	1	island5	4497	0.08	0.28	0	1	island5	1732	0.11	0.31	0	1	island5	1886	0.05	0.22	0	1
island6	19506	0.10	0.30	0	1	island6	3288	0.11	0.32	0	1	island6	4497	0.14	0.34	0	1	island6	1732	0.21	0.41	0	1	island6	1886	0.04	0.19	0	1
year	19506	0.85	0.36	0	1	year	3288	0.84	0.37	0	1	Year	4497	0.80	0.40	0	1	Year	1732	0.70	0.46	0	1	year	1886	0.94	0.24	0	1
fishers	19506	0.02	0.14	0	1	fishers	3288	0.06	0.23	0	1	Fishers	4497	0.03	0.16	0	1	Fishers	1732	0.01	0.08	0	1	fishers	1886	0.01	0.09	0	1



# Probit Model Regression Result for Fishers vs Non Fishers Happiness

		All Samples	Self-employed without worker	Self-employed with worker	Unpaid family worker	Casual Worker	
Happy	Lnpcce	0.125 (0.015)***	0.124 (0.035)***	0.165 (0.032)***	0.166 (0.049)***	0.117 (0.048)**	
	Age	-0.029 (0.004)***	-0.025 (0.010)***	-0.050 (0.010)***	-0.009 (0.013)	-0.045 (0.013)***	
	Agesq	0.000 (0.000)***	0.000 (0.000)*	0.000 (0.000)***	0.000 (0.000)	0.000 (0.000)***	
	Male	-0.039 (0.019)**	-0.093 (0.048)*	-0.040 (0.041)	-0.038 (0.075)	0.009 (0.070)	
	Married	0.437 (0.026)***	0.451 (0.064)***	0.341 (0.062)***	0.216 (0.090)**	0.492 (0.079)***	
	Primary	0.261 (0.044)***	0.139 (0.093)	0.302 (0.075)***	0.410 (0.095)***	0.179 (0.137)	
	Junior	0.311 (0.048)***	0.139 (0.104)	0.324 (0.084)***	0.552 (0.117)***	0.181 (0.146)	
	Senior	0.425 (0.047)***	0.235 (0.101)**	0.438 (0.084)***	0.550 (0.120)***	0.238 (0.150)	
	Tertiary	0.629 (0.050)***	0.311 (0.127)**	0.554 (0.109)***	0.726 (0.180)***	0.515 (0.210)**	
	health1	0.481 (0.032)***	0.460 (0.071)***	0.477 (0.069)***	0.555 (0.104)***	0.406 (0.097)***	
	health2	0.262 (0.025)***	0.284 (0.057)***	0.271 (0.048)***	0.314 (0.079)***	0.303 (0.077)***	
	island2	-0.006 (0.025)	-0.055 (0.061)	0.075 (0.052)	-0.062 (0.091)	0.029 (0.076)	
	island3	0.103 (0.035)***	0.166 (0.085)*	0.110 (0.071)	0.173 (0.110)	0.195 (0.103)*	
	island4	0.217 (0.042)***	0.150 (0.098)	0.266 (0.088)***	0.213 (0.125)*	0.247 (0.183)	
	island5	0.183 (0.045)***	0.097 (0.095)	0.149 (0.092)	0.186 (0.170)	0.289 (0.155)*	
	island6	0.072 (0.060)	0.054 (0.134)	-0.088 (0.117)	0.110 (0.201)	-0.037 (0.287)	
	year	0.092 (0.048)*	0.065 (0.110)	-0.029 (0.094)	0.105 (0.179)	-0.145 (0.255)	
	fishers	0.077 (0.072)	-0.097 (0.108)	0.274 (0.119)**	0.038	0.601 (0.340)*	
	cut1	_cons	-0.586 (0.218)***	-0.711 (0.508)	-0.718 (0.462)	0.500 (0.721)	-1.043 (0.698)
	cut2	_cons	0.500 (0.217)**	0.455 (0.505)	0.402 (0.463)	1.520 (0.728)**	0.038 (0.698)
cut3	_cons	3.155 (0.219)***	3.040 (0.507)***	3.048 (0.467)***	4.176 (0.734)***	2.531 (0.699)***	
N		19,506	3,288	4,497	1,732	1,886	

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

# Probit Model Regression result for fishers vs non fishers Current, Future and Past Economic Ladder

		All Samples	Self-employed Without Worker	Self-employed With Worker	Unpaid Family Worker	Casual Worker			All Sample	Self-employed Without Worker	Self-employed With Worker	Unpaid Family Worker	Casual Worker			All-Samples	Self-employed without worker	Self-employed with worker	Unpaid family worker	Casual worker		
ladder	Lnpce	0.221	0.164	0.297	0.336	0.168	ladder5f	Lnpce	0.225	0.213	0.297	0.321	0.178	Ladder5p	lnpce	0.11	0.076	0.127	0.165	0.121		
		(0.013)***	(0.030)***	(0.027)***	(0.044)***	(0.043)***				(0.013)***	(0.031)***	(0.027)***	(0.042)***		(0.042)***			(0.012)***	(0.029)***	(0.026)***	(0.043)***	(0.041)***
	Age	-0.001	0.009	0.008	0.005	-0.004			Age	-0.023	-0.018	-0.013	-0.015		-0.026		age	-0.006	0.007	-0.001	-0.001	0
		-0.004	-0.009	-0.008	-0.012	-0.012				(0.004)***	(0.009)**	-0.008	-0.012		(0.012)**			-0.004	-0.008	-0.008	-0.011	-0.012
	Agesq	0	0	0	0	0			Agesq	0	0	0	0		0		agesq	0	0	0	0	0
		0	0	0	0	0				(0.000)*	0	0	0		0			(0.000)***	0	0	0	0
	Male	-0.218	-0.243	-0.279	-0.04	-0.168			male	-0.172	-0.202	-0.234	-0.024		-0.172		male	-0.118	-0.094	-0.163	-0.058	-0.026
		(0.016)***	(0.041)***	(0.036)***	-0.064	(0.060)***				(0.016)***	(0.041)***	(0.036)***	-0.067		(0.062)***			(0.016)***	(0.040)**	(0.035)***	-0.065	-0.059
	Married	0.077	0.213	0.101	0.001	0.071			married	0.057	0.132	0.111	0.032		0.009		married	-0.051	-0.017	-0.072	-0.131	-0.144
		(0.022)***	(0.055)***	(0.053)*	-0.081	-0.069				(0.022)***	(0.054)**	(0.052)**	-0.082		-0.068			(0.022)**	-0.052	-0.051	(0.076)*	(0.068)**
	Primary	0.322	0.358	0.25	0.377	0.222			primary	0.306	0.362	0.277	0.324		0.295		primary	0.221	0.263	0.271	0.286	-0.06
		(0.047)***	(0.091)***	(0.080)***	(0.098)***	(0.134)*				(0.044)***	(0.086)***	(0.074)***	(0.095)***		(0.132)**			(0.044)***	(0.088)***	(0.075)***	(0.093)***	-0.126
	Junior	0.443	0.465	0.269	0.509	0.4			junior	0.419	0.456	0.395	0.49		0.463		junior	0.306	0.333	0.265	0.329	0.076
		(0.049)***	(0.098)***	(0.085)***	(0.110)***	(0.141)***				(0.047)***	(0.094)***	(0.081)***	(0.106)***		(0.139)***			(0.047)***	(0.097)***	(0.081)***	(0.108)***	-0.135
	Senior	0.661	0.661	0.446	0.554	0.456			senior	0.578	0.622	0.482	0.53		0.522		senior	0.481	0.466	0.515	0.502	0.086
		(0.048)***	(0.097)***	(0.085)***	(0.109)***	(0.144)***				(0.046)***	(0.092)***	(0.080)***	(0.110)**		(0.141)***			(0.046)***	(0.096)***	(0.081)***	(0.108)***	-0.137
	Tertiary	0.941	0.945	0.588	0.673	0.586			tertiary	0.81	0.876	0.621	0.576		0.793		tertiary	0.682	0.814	0.691	0.7	0.476
		(0.051)***	(0.112)***	(0.103)***	(0.150)***	(0.200)***				(0.048)***	(0.114)***	(0.098)***	(0.145)***		(0.194)***			(0.048)***	(0.112)***	(0.099)***	(0.147)***	(0.208)**
	health1	0.236	0.236	0.208	0.28	0.124			health1	0.237	0.247	0.23	0.284		0.141		health1	0.155	0.169	0.163	0.09	0.138
		(0.027)***	(0.062)***	(0.057)***	(0.086)***	-0.083				(0.026)***	(0.061)***	(0.056)***	(0.088)***		(0.082)*			(0.026)***	(0.060)***	(0.056)***	-0.084	(0.081)*
health2	0.131	0.091	0.177	0.171	0.1		health2	0.081	0.095	0.073	0.22	0.09		health2	0.099	0.091	0.145	-0.006	0.089			
	(0.021)***	(0.048)*	(0.040)***	(0.065)***	-0.065			(0.021)***	(0.049)*	(0.041)*	(0.067)***	-0.067			(0.020)***	(0.048)*	(0.040)***	-0.064	-0.065			
island2	0.119	0.107	0.16	0.053	0.246		island2	0.207	0.131	0.198	0.102	0.396		island2	0.071	0.057	0.042	0.051	0.206			
	(0.020)***	(0.050)**	(0.041)***	-0.073	(0.062)***			(0.021)***	(0.053)**	(0.044)***	-0.079	(0.067)***			(0.020)***	-0.048	-0.042	-0.075	(0.060)***			
island3	-0.011	0.054	0.074	-0.179	0.057		island3	0.045	0.092	0.103	0.11	0.168		island3	-0.076	-0.127	-0.077	-0.092	-0.046			
	-0.029	-0.07	-0.059	(0.083)**	-0.09			-0.029	-0.072	(0.060)*	-0.087	(0.091)*			(0.028)***	(0.068)*	-0.059	-0.086	-0.09			
island4	0.224	0.288	0.235	0.133	0.146		island4	0.074	-0.01	0.051	0.104	0.183		island4	0.162	0.228	0.188	0.091	0.207			
	(0.034)***	(0.079)***	(0.067)***	-0.091	-0.189			(0.035)**	-0.081	-0.07	-0.105	-0.173			(0.035)***	(0.077)***	(0.073)***	-0.099	-0.197			
island5	-0.036	-0.07	-0.042	-0.028	-0.007		island5	0.021	-0.17	0.075	0.118	0.113		island5	-0.075	-0.164	-0.102	-0.077	0.071			
	-0.037	-0.085	-0.072	-0.126	-0.133			-0.039	(0.087)*	-0.078	-0.143	-0.141			(0.038)**	(0.086)*	-0.079	-0.13	-0.139			
island6	-0.134	-0.227	-0.246	-0.236	-0.278		island6	-0.185	-0.229	-0.224	-0.375	-0.234		island6	-0.135	-0.19	-0.171	-0.174	0.041			
	(0.054)**	(0.135)*	(0.099)**	-0.158	-0.266			(0.053)***	(0.123)*	(0.101)**	(0.163)**	-0.229			(0.055)**	-0.138	-0.104	-0.156	-0.251			
Year	0.33	0.349	0.271	0.424	-0.043		year	0.167	0.181	0.108	0.237	-0.044		year	0.215	0.204	0.206	0.261	0.133			
	(0.043)***	(0.114)***	(0.078)***	(0.132)***	-0.226			(0.043)***	(0.103)*	-0.082	(0.141)*	-0.188			(0.045)***	(0.116)*	(0.086)**	(0.129)**	-0.21			
Fishers	-0.027	-0.064	0.052	0.549	-0.386		fishers	0.072	0.018	0.11	0.573	-0.07		fishers	-0.012	-0.014	0.093	0.068	-0.355			
	-0.059	-0.081	-0.114	-0.349	-0.312			-0.058	-0.086	-0.107	(0.226)**	-0.269			-0.062	-0.09	-0.113	-0.324	-0.287			
cut1	cons	2.497	2.074	3.477	4.418	1.387	cut1	_cons	0.964	0.934	2.027	2.819	0.278	cut1	cons	1.156	1.074	1.459	2.087	1.116		
		(0.190)***	(0.461)***	(0.409)***	(0.622)***	(0.638)**			(0.188)***	(0.464)**	(0.404)***	(0.612)***	-0.621			(0.183)***	(0.441)**	(0.397)***	(0.601)***	(0.619)*		
cut2	cons	3.378	2.978	4.39	5.207	2.281	cut2	_cons	1.749	1.756	2.843	3.541	1.035	cut2	cons	2.224	2.063	2.5	3.027	2.118		
		(0.191)***	(0.464)***	(0.410)***	(0.624)***	(0.639)***			(0.188)***	(0.462)***	(0.406)***	(0.614)***	(0.621)*			(0.184)***	(0.441)***	(0.398)***	(0.604)***	(0.620)***		
cut3	cons	4.725	4.305	5.683	6.427	3.536	cut3	_cons	2.569	2.569	3.681	4.362	1.81	cut3	cons	3.165	2.92	3.437	3.828	3.007		
		(0.192)***	(0.468)***	(0.413)***	(0.630)***	(0.641)***			(0.188)***	(0.463)***	(0.408)***	(0.616)***	(0.622)***			(0.184)***	(0.443)***	(0.399)***	(0.607)***	(0.620)***		
cut4	cons	5.928	5.306	6.83	7.371	4.568	cut4	_cons	3.499	3.441	4.565	5.216	2.718	cut4	cons	3.899	3.584	4.12	4.521	3.714		
		(0.195)***	(0.476)***	(0.420)***	(0.640)***	(0.647)***			(0.189)***	(0.465)***	(0.409)***	(0.619)***	(0.624)***			(0.186)***	(0.447)***	(0.401)***	(0.609)***	(0.622)***		
cut5	cons	6.376	5.702	7.261	7.823	5.005	cut5	_cons	4.421	4.24	5.449	6.051	3.491	cut5	cons	4.593	4.295	4.828	5.342	4.315		
		(0.197)***	(0.476)***	(0.424)***	(0.650)***	(0.648)***			(0.190)***	(0.468)***	(0.412)***	(0.624)***	(0.624)***			(0.187)***	(0.453)***	(0.405)***	(0.618)***	(0.622)***		
N		19,433	3,270	4,479	1,725	1,877	N		18,507	3,071	4,222	1,642	1,757	N		19,396	3,262	4,467	1,718	1,875		



# Probit Model Regression result for fishers vs non fishers Future minus current Economic Ladder

		All-Sample	Self-employed without worker	Self-employed with worker	Unpaid Family	Casual Worker
dladder1	Lnpce	0.069	0.104	0.085	0.079	0.059
		(0.013)***	(0.031)***	(0.026)***	(0.041)*	-0.044
	age	-0.023	-0.027	-0.019	-0.013	-0.023
		(0.004)***	(0.010)***	(0.008)**	-0.011	(0.012)**
	agesq	0	0	0	0	0
		0	0	0	0	0
	male	-0.011	-0.008	-0.01	0.023	-0.085
		-0.016	-0.042	-0.036	-0.067	-0.061
	married	0.001	-0.047	0.04	0.021	-0.058
		-0.022	-0.055	-0.052	-0.081	-0.068
	primary	0.089	0.149	0.099	0.07	0.137
		(0.045)**	(0.087)*	-0.076	-0.093	-0.134
	junior	0.13	0.2	0.217	0.159	0.206
		(0.047)***	(0.095)**	(0.084)***	-0.106	-0.142
	senior	0.139	0.218	0.198	0.204	0.231
		(0.046)***	(0.093)**	(0.082)**	(0.106)*	-0.146
	tertiary	0.171	0.245	0.187	0.149	0.455
		(0.048)***	(0.111)**	(0.100)*	-0.155	(0.189)**
	health1	0.069	0.081	0.098	0.077	0.065
		(0.027)**	-0.06	(0.057)*	-0.093	-0.085
	health2	-0.005	0.035	-0.039	0.12	0.034
		-0.021	-0.049	-0.042	(0.066)*	-0.07
	island2	0.162	0.097	0.12	0.077	0.305
		(0.021)***	(0.054)*	(0.044)***	-0.08	(0.067)***
	island3	0.084	0.056	0.087	0.328	0.187
		(0.029)***	-0.073	-0.06	(0.090)***	(0.094)**
	island4	-0.12	-0.278	-0.139	0.001	0.029
		(0.037)***	(0.084)***	(0.078)*	-0.106	-0.182
	island5	0.105	-0.08	0.173	0.236	0.229
		(0.040)***	-0.084	(0.083)**	(0.142)*	(0.139)*
	island6	-0.076	-0.042	-0.036	-0.194	0.083
		-0.054	-0.12	-0.106	-0.167	-0.232
	year	-0.11	-0.097	-0.131	-0.126	0.018
		(0.045)**	-0.097	-0.089	-0.148	-0.198

		All-Sample	Self-employed without worker	Self-employed with worker	Unpaid Family	Casual Worker
	fishers	0.124	0.064	0.1	0.209	0.337
		(0.061)**	-0.097	-0.106	-0.197	-0.248
cut1	_cons	-3.699	-3.174	-3.222	-2.775	-3.123
		(0.259)***	(0.525)***	(0.476)***	(0.655)***	(0.665)***
cut2	_cons	-3.464	-2.278	-3.049	-2.344	-2.793
		(0.225)***	(0.484)***	(0.459)***	(0.602)***	(0.643)***
cut3	_cons	-3.11	-1.495	-2.793	-1.832	-2.244
		(0.202)***	(0.475)***	(0.426)***	(0.593)***	(0.626)***
cut4	_cons	-2.514	-0.174	-2.161	-1.179	-1.655
		(0.191)***	-0.476	(0.401)***	(0.588)**	(0.622)***
cut5	_cons	-1.857	1.13	-1.467	0.048	-0.351
		(0.188)***	(0.477)**	(0.397)***	-0.591	-0.624
cut6	_cons	-0.554	1.936	-0.165	1.374	0.941
		(0.188)***	(0.478)***	-0.398	(0.593)**	-0.625
cut7	_cons	0.85	2.578	1.209	2.237	1.662
		(0.188)***	(0.479)***	(0.399)***	(0.595)***	(0.627)***
cut8	_cons	1.684		2.02	2.824	2.229
		(0.188)***		(0.399)***	(0.598)***	(0.632)***
cut9	_cons	2.328		2.682		
		(0.189)***		(0.400)***		
cut10	_cons	2.775		3.063		
		(0.192)***		(0.407)***		
cut8	_cons		3.077			
			(0.484)***			
cut9	_cons				3.387	2.745
					(0.621)***	(0.636)***
N		18,488	3,068	4,218	1,640	1,752

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

# Probit Model Regression result for fishers vs non fishers Current minus Past Economic Ladder

		All	Self-employed without worker	Self-employed with worker	Unpaid family worker	Casual worker
dladder2	<b>Lnpce</b>	0.097 (0.012)***	0.079 (0.028)***	0.153 (0.025)***	0.158 (0.040)***	0.036 -0.044
	<b>Age</b>	0.005	-0.002	0.01	0.007	-0.006
		-0.003	-0.008	-0.008	-0.011	-0.011
	<b>Agesq</b>	0 (0.000)***	0	0 (0.000)***	0	0
	<b>Male</b>	-0.074 (0.016)***	-0.134 (0.041)***	-0.079 (0.035)**	-0.003 -0.064	-0.118 (0.060)**
	<b>Married</b>	0.131 (0.021)***	0.234 (0.052)***	0.17 (0.050)***	0.124 -0.077	0.223 (0.068)***
	<b>Primary</b>	0.089 (0.039)**	0.057 -0.076	0.009 -0.066	0.06 -0.084	0.25 (0.117)**
	<b>Junior</b>	0.127 (0.042)***	0.085 -0.086	0.042 -0.073	0.161 -0.098	0.296 (0.128)**
	<b>Senior</b>	0.144 (0.041)***	0.113 -0.085	-0.061 -0.073	0.023 -0.099	0.333 (0.130)**
	<b>Tertiary</b>	0.175 (0.044)***	-0.025 -0.108	-0.142 -0.094	-0.092 -0.152	-0.06 -0.21
	<b>health1</b>	0.051 (0.026)*	0.036 -0.059	0.025 -0.056	0.167 (0.089)*	-0.028 -0.081
	<b>health2</b>	0.017 -0.02	0.011 -0.046	0.011 -0.039	0.146 (0.065)**	0.011 -0.064
	<b>island2</b>	0.042 (0.020)**	0.043 -0.051	0.106 (0.042)**	0.019 -0.076	0.016 -0.063
	<b>island3</b>	0.075 (0.029)***	0.186 (0.069)***	0.158 (0.060)***	-0.046 -0.092	0.089 -0.089
	<b>island4</b>	0.045 -0.035	0.007 -0.079	0.034 -0.075	0.048 -0.101	-0.115 -0.16
	<b>island5</b>	0.061 -0.038	0.117 -0.087	0.096 -0.077	0.105 -0.14	-0.095 -0.131
	<b>island6</b>	0.024 -0.051	0.006 -0.124	-0.034 -0.1	-0.008 -0.155	-0.343 -0.229
	<b>yard</b>	0.103 (0.041)**	0.133 -0.102	0.077 -0.083	0.169 -0.134	-0.198 -0.189
	<b>fishers</b>	-0.011 -0.059	-0.043 -0.085	-0.05 -0.109	0.495 (0.280)*	-0.016 -0.248

		All	Self-employed without worker	Self-employed with worker	Unpaid family worker	Casual worker
Cut1	<b>_cons</b>	-1.616 (0.195)***	-1.828 (0.454)***	-1.07 (0.419)**	-0.313 -0.597	-2.746 (0.652)***
cut2	<b>_cons</b>	-1.372 (0.190)***	-1.634 (0.446)***	-0.69 (0.397)*	-0.075 -0.593	-2.396 (0.646)***
cut3	<b>_cons</b>	-0.905 (0.183)***	-1.158 (0.434)***	-0.194 -0.38	0.266 -0.576	-2.011 (0.623)***
cut4	<b>_cons</b>	-0.239 -0.18	-0.489 -0.429	0.522 -0.374	0.799 -0.576	-1.337 (0.625)**
cut5	<b>_cons</b>	0.485 (0.180)***	0.171 -0.429	1.266 (0.373)***	1.517 (0.574)***	-0.603 -0.624
cut6	<b>_cons</b>	1.618 (0.180)***	1.351 (0.429)***	2.412 (0.375)***	2.682 (0.577)***	0.603 -0.624
cut7	<b>_cons</b>	2.928 (0.181)***	2.559 (0.430)***	3.665 (0.377)***	3.821 (0.581)***	1.851 (0.626)***
cut8	<b>_cons</b>	3.906 (0.184)***	3.581 (0.438)***	4.631 (0.383)***	4.76 (0.590)***	2.773 (0.637)***
cut9	<b>_cons</b>	4.489 (0.190)***	4.268 (0.470)***	5.094 (0.392)***	5.35 (0.610)***	
cut10	<b>_cons</b>	4.742 (0.198)***	4.471 (0.489)***	5.275 (0.404)***	5.634 (0.634)***	
cut9	<b>_cons</b>					3.65 (0.707)***
N		19,371	3,258	4,462	1,716	1,871

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$



# Highlight from the Result (1)

- Standard variables of subjective wellbeing determinants (other than being a fishers) are statistically significant and have correct signs. (See tables of regression results)



## Highlight from the Result (2)

- Using model with all sample we find that being a fishers is not associated with higher or lower happiness.
- When we separate observation into relevant employment group, we find that fishers are happier than alternative occupation within self-employed with workers and within casual workers group.
- Self-employed with workers are business owner that are relatively more well-off. One possible explanation is that fishers are happier (after controlling for other factors) from enjoying things unique to fishing activities such as being in outdoor and so on. This happiness gain is more likely if the fishers have more time to do this as he is a fisher-employer.





## Highlight from the Result (3)

- We don't find that being a fisher are associated with their subjective position of economic ladders (it applies to whether it is their self assessment of current, past or future ladders), except for unpaid family workers category at future ladder.
- However, we find that in positioning their relative economic position within society, when come to the difference between current and past economic ladder, as well as current and future prospect of economic ladder, defined as the difference between future and current position, for all sample category, fishers are more optimistic..



# Concluding remarks

- Existing empirical literatures cannot really answer whether being a fisher generate higher or lower life satisfaction due to lack of control group in their surveys.
- This study is based on a survey of almost 11,000 individuals which contain information of various socio-economic and employment characteristics as well as several life-satisfaction question which include their subjective happiness and their subjective position on economic ladders (5 ladders, from poorest to richest).
- We applied ordered-probit regressions model of subjective well being as a function of relevant factors including whether the individual is fisher or non-fishers.
- We find that, for at least two type of employment groups i.e., self-employed with worker and casual workers, being fishers is associated with higher happiness.
- We also find that in general, fishers are more optimistic in positioning their current economic ladder relative to the past as well as future economic ladder relative to their current situation.

# Thank you

