

## **Appendix 1. Supplementary Methods and Results.**

### **Iron-triangles and subsidies. Understanding the long-term role of the government on Swedish commercial fisheries**

#### **1. Supplementary methods**

The Swedish entrance in the European Union in 1995 involved a change in that the majority of the fisheries subsidies were from this year transferred directly from the EU Commission to the fishing industry and organizations linked to the fishing industry. In the Swedish national budget, such expenditures are referred to as “Structural grants to the fisheries sector funded by EU” with no further specification. Therefore, we analyzed separately those expenditures based on raw data from the EU Commission and the corresponding Swedish agency, Swedish Board of Agriculture, disaggregated for each individual project. All those subsidies were categorized according to the same categories as the historical subsidies (project assignment to categories in Table A1.3) and aggregated per category and year. Note that whereas the subsidies preceding 1995 were budget posts (i.e. proposed spending) the data for post-1995 EU structural grants were actual spending. Specifically, during parts of the study, some items were officially budgeted 1000 SEK (a very low number), which technically meant that spending was possible if needed. But in line with earlier work that have used budgets to make inference on economic-political change (Bristol, 2009; Furman, 2006; Moehlmann, 1992) we argue that the difference between using data on budget proposals versus real spending make no crucial difference in interpreting long-term trends in different subsidies and their effect on fishing fleets, and ultimately on sustainability.

In 2011, another important change took place: the agency “Swedish Board of Fisheries” was replaced by “Swedish Agency for Marine and Water Management” (SwAM). The new agency had a broader mandate also including water issues and the marine environment, and consequently not all money distributed to this agency was commercial fisheries related. For 2011-2015 we therefore used the Annual reports of the agency to consider only spending directly related to fisheries management and research.

**Table A1.1.** Types of subsidies to given to Swedish fisheries, and classification following (Sumaila et al., 2010), description and motivation of the classification. See also Appendix Tables A1.1 and A1.2 with a complete list of all subsidies reported in Swedish budget proposals and from EU structural grants, respectively, and for which years they apply. We combined the two *beneficial* subsidy categories (1.1) Fisheries management and (1.2) Fishery research into one category, because research activities were often reported as a part of the management activities and thus not tractable through the whole series.

Type of subsidy	Classification	Description	Motivation to classification
1.1 Fisheries management programs and services and Fisheries Research	Beneficial	Grants to the Swedish Board of Fisheries and its predecessors. In this, also governmental funded fisheries research is included.	Fisheries management and research generally aims at ensuring sustainable exploitation of the resources. Some of the research has in fact been aiming at improving commercial fisheries endeavors (c.f. cat 2.5), but there were not enough details in the data to distinguish the exact purpose of individual research activities.
2.1 Fuel subsidies	Capacity-enhancing	Direct support for fuel purchase and restitution of fuel tax. The fact that diesel for fishing vessels (as for other shipping) is exempted from tax is probably the largest subsidy, it has however not been quantified in this paper as it is invisible in the government budget. Thus our estimate of this is conservative.	Fuel subsidies decrease the operating cost for fishing vessel which leads to a higher fishing effort than without subsidies in the short term, and possibly the indirect effect of higher investment due to higher profitability of fishing operations.
2.2 Vessel construction renewal and modernization programs	Capacity-enhancing	Support for vessel construction and vessel equipment, such as motors, and equipment for fish catching, on-board processing, communication and safety equipment.	Vessel subsidies lead to higher investment in the fishing fleet and thus directly impacting the fleet size.
2.3 Fishing port construction and renovation programs	Capacity-enhancing	Grant towards construction of new ports and renovation/repairation of old ports	Port subsidies supports the infrastructure necessary for commercial fishing operations and thus lead to increased total fishing capacity.
2.4 Price and marketing support, processing and storage infrastructure programs	Capacity-enhancing	Two types of support that are relatively different are aggregated in this category: (1) Direct market support, and (2) Support to processing and storage infrastructure. Direct market support has taken various forms, including fixed or variable amounts paid to fishers by kilo of fish caught, or special export grants for fish. Processing and storage infrastructure include support for building and renovating all types of fisheries infrastructure that is not onboard of vessels (cat. 2.2) and that is not in ports (cat. 2.3), e.g. fish processing facilities.	Price regulation directly influence the cost-benefit equilibrium of individual fishing operations and thus lead to higher fishing effort. Processing and storage infrastructure is a condition for profitable fishing operations and government-supported investments will lead to a higher profitability for the sector.
2.5 Fishery development projects and support services	Capacity-enhancing	This category includes various types of support to the fishing sector, often presented as development projects, with an active involvement by the government. Examples include development of new fishing gears, fishing areas and processing methods, but could also be more direct support to fishing endeavours such as ice-breaking or supply ships for distant water fisheries.	These subsidies aim at developing fishing new types of fishing activities, processing techniques or markets, thereby directly leading to increased fishing effort.
3.1 Fisher assistance program	Ambiguous	Fisher assistance programs aim at providing support to fishers during bad times, temporarily or permanently. Example include support to the unemployment fund and transition support for retraining commercial fishers in other businesses.	These subsidies provide financial security for fishers to <i>not</i> fish, and thereby leads to decreased fishing effort. On the other hand, fishers' knowledge about such government-aided security may lead to over-investment in fishing capacity. It is therefore classified as an ambiguous subsidy.
3.2 Vessel buyback programs	Ambiguous	Grants paid out in exchange for vessel decommissioning/scrapping.	According to a similar logic as for (3.1), vessel decommissioning can lead to an effort decrease, but also to over-investment. Experience also show that money used for decommissioning has often been used for construction of new vessels; this has even been one of the goals of Swedish decommission policy in some periods (SOU, 1992)

**Table A1.2.** All grants to the fishing industry and fisheries management as reported in the budget proposals for the Swedish government 1914-2015, their year of availability and their categorization into descriptive and normative categories according to Sumaila et al. 2010.

Budget post	Category (description)	Category (normative)	Years
Education of fisheries managers	1.1. Fisheries management programs and services	<i>Beneficial</i>	1953-1966
Fisheries superintendents: operating costs	1.1. Fisheries management programs and services	<i>Beneficial</i>	1948-1968
Fisheries superintendents: salaries	1.1. Fisheries management programs and services	<i>Beneficial</i>	1948-1991
Glass eel collection station in Trollhättan	1.1. Fisheries management programs and services	<i>Beneficial</i>	1921
Local fisheries managers	1.1. Fisheries management programs and services	<i>Beneficial</i>	1922-1929, 1931-1934
Surveillance for mitigating negative impacts on fisheries through water pollution	1.1. Fisheries management programs and services	<i>Beneficial</i>	1938-1941
The fisheries management authority: Material	1.1. Fisheries management programs and services	<i>Beneficial</i>	1942
The fisheries management authority: Operating costs	1.1. Fisheries management programs and services	<i>Beneficial</i>	1942-1948
The fisheries management authority: salaries	1.1. Fisheries management programs and services	<i>Beneficial</i>	1942-1948
The Swedish Board of Fisheries, the fisheries inspection unit: operating costs	1.1. Fisheries management programs and services	<i>Beneficial</i>	1958-1966
The Swedish Board of Fisheries, the fisheries inspection unit: salaries	1.1. Fisheries management programs and services	<i>Beneficial</i>	1958-1966
The Swedish Board of Fisheries: inventories	1.1. Fisheries management programs and services	<i>Beneficial</i>	1947
The Swedish Board of Fisheries: operation costs	1.1. Fisheries management programs and services	<i>Beneficial</i>	1948-1968
The Swedish Board of Fisheries: salaries	1.1. Fisheries management programs and services	<i>Beneficial</i>	1948-2015
Fisheries research vessel	1.2. Fishery R&D	<i>Beneficial</i>	1970-1974
Hydrographical-biological research for Swedish waters.	1.2. Fishery R&D	<i>Beneficial</i>	1914-1921, 1926
Hydrographical-biological research for Swedish waters. Contribution to international research station for hydrographical-biological research	1.2. Fishery R&D	<i>Beneficial</i>	1926-1934
Hydrographical-biological research for Swedish waters. Hydrographical data collection	1.2. Fishery R&D	<i>Beneficial</i>	1922-1934
Hydrographical-biological research for Swedish waters. Insurance for research vessel.	1.2. Fishery R&D	<i>Beneficial</i>	1914-1922
Hydrographical-biological research for Swedish waters. Operating cost for research vessel Eystrasalt.	1.2. Fishery R&D	<i>Beneficial</i>	1914-1934
Hydrographical-biological research for Swedish waters. Research	1.2. Fishery R&D	<i>Beneficial</i>	1922-1944
Hydrographical-biological research for Swedish waters. Research vessel Skagerak.	1.2. Fishery R&D	<i>Beneficial</i>	1914-1935
Re-introduction of European plaice	1.2. Fishery R&D	<i>Beneficial</i>	1935-1938
State owned fisheries research vessel: operating costs	1.2. Fishery R&D	<i>Beneficial</i>	1936-1947
State owned fisheries research vessel: other costs	1.2. Fishery R&D	<i>Beneficial</i>	1940, 1945
State owned fisheries research vessel: salaries	1.2. Fishery R&D	<i>Beneficial</i>	1936-1947
Remedy to fishermen for fuel tax payment	2.1. Fuel Subsidies	<i>Capacity-enhancing</i>	1935-1951, 1952-1981
Loans for vessel construction and modernization	2.2. Boat construction, renewal and modernization programs	<i>Capacity-enhancing</i>	1919, 1921, 1931, 1933-1934, 1937, 1949, 1951-1956, 1958-1993

Support for radiotelegraph and radiotelephone equipment on fishing vessels	2.2. Boat construction, renewal and modernization programs	Capacity-enhancing	1950-1969
Port construction	2.3. Fishing port construction and renovation programs	Capacity-enhancing	1914-1919
Port construction in Östra torp (Malmöhus county)	2.3. Fishing port construction and renovation programs	Capacity-enhancing	1914, 1917
Support for minor fishing port facilities	2.3. Fishing port construction and renovation programs	Capacity-enhancing	1919
Bonus for onboard salting of North Sea herring	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1948
Costs for quality control at fish and fish product exports	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1950
Grants for regulating the trade of fresh herring	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1938-1946
Loans for processing and marketing of fish	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1941-1943, 1945-1949, 1951-1953, 1957, 1962-1983
Market support to the fishing industry	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1977-1993
Support for processing and marketing of fish	2.4. Marketing and Storage infrastructure	Capacity-enhancing	1935-1941, 1957-1959
An armed steam ship to support and protect Swedish fishing fleets	2.5. Fishery development projects and support services	Capacity-enhancing	1914-1915, 1920-1932
Bonus for participation in herring fisheries in Iceland	2.5. Fishery development projects and support services	Capacity-enhancing	1937-1939, 1945-1947
Compensation to private water owners for commercial fishing	2.5. Fishery development projects and support services	Capacity-enhancing	1933-1951, 1953-1995
Courses for fishermen	2.5. Fishery development projects and support services	Capacity-enhancing	1970-1983
Coverage for losses for governmental credits to fishermen	2.5. Fishery development projects and support services	Capacity-enhancing	1970-1985, 1990
Fisheries sector support: fisheries support in places of particular importance	2.5. Fishery development projects and support services	Capacity-enhancing	1923-1957
Fishing industry	2.5. Fishery development projects and support services	Capacity-enhancing	1930
Fishing vessel and fishing gear insurances: organization support	2.5. Fishery development projects and support services	Capacity-enhancing	1949, 1951-1953, 1957
Fishing vessel and fishing gear insurances: support at insurance losses	2.5. Fishery development projects and support services	Capacity-enhancing	1949, 1951-1953, 1957-1958, 1960-1961
General support to the fishing industry	2.5. Fishery development projects and support services	Capacity-enhancing	1914-1929, 1931-1993
Grants for the arrangement of navigation courses for fishers in the Bohuslän county	2.5. Fishery development projects and support services	Capacity-enhancing	1914-1926
Grants to "Svenska Fiskarens studieförbund" (The Swedish fishers' educational association)	2.5. Fishery development projects and support services	Capacity-enhancing	1947
Ice-breaking support to the fishing sector	2.5. Fishery development projects and support services	Capacity-enhancing	1945-1993
Loans for fishing gears	2.5. Fishery development projects and support services	Capacity-enhancing	1939-1940, 1947, 1961-1962, 1972-1977, 1980-1982
Safety equipment for fishing vessel navigation	2.5. Fishery development projects and support services	Capacity-enhancing	1936-1956
Support for fisheries in distant waters	2.5. Fishery development projects and support services	Capacity-enhancing	1937-1938, 1946-1969
Support for the "Södra Sveriges fiskeriförening" (the South Sweden fisheries association)	2.5. Fishery development projects and support services	Capacity-enhancing	1914-1934
Support to fishermen due to loss or destruction of fishing gear	2.5. Fishery development projects and support services	Capacity-enhancing	1935-1939, 1958-1961
Support vessel for Iceland herring fisheries	2.5. Fishery development projects and support services	Capacity-enhancing	1950-1969

Loans to shrimp fishers	3.1. Fisher assistance programs	<i>Ambiguous</i>	1964-1965
Special support to the fishing sector	3.1. Fisher assistance programs	<i>Ambiguous</i>	1994
Special transition support for fishermen	3.1. Fisher assistance programs	<i>Ambiguous</i>	1969-1978
Support for fishermen	3.1. Fisher assistance programs	<i>Ambiguous</i>	1934, 1939-1943
Support for fishers at cancellation of previously sued fishing waters	3.1. Fisher assistance programs	<i>Ambiguous</i>	1970-1983
Support for shrimp fishers	3.1. Fisher assistance programs	<i>Ambiguous</i>	1964-1965
Support to fishermen on the South and East coast and on Gotland	3.1. Fisher assistance programs	<i>Ambiguous</i>	1994
Support for fisheries rationalization etc.	3.2. Vessel buyback programs	<i>Ambiguous</i>	1979-1993
Support for the "Södra Sveriges fiskeriförening" (the South Sweden fisheries association). Housing for the manager.	X. Aquaculture (not included in analysis)	<i>NA</i>	1930-1931
Support for the "Södra Sveriges fiskeriförening" (the South Sweden fisheries association). Setting up aquaculture production facilities.	X. Aquaculture (not included in analysis)	<i>NA</i>	1928-1929
Costs for fisheries investigation in water management court cases	X. Freshwater fisheries (not included in analysis)	<i>NA</i>	1969-1983
Research and experiment station for freshwater fisheries: operating costs	X. Freshwater fisheries (not included in analysis)	<i>NA</i>	1931-1947
Research and experiment station for freshwater fisheries: salaries	X. Freshwater fisheries (not included in analysis)	<i>NA</i>	1931-1947
Research within the Freshwater research laboratory	X. Freshwater fisheries (not included in analysis)	<i>NA</i>	1950-1958, 1960-1969
Recreational fisheries support	X. Recreational fisheries (not included in analysis)	<i>NA</i>	1981- 2011

**Table A1.3.** Grants to the fishing industry and fisheries management from the European fisheries funds 1995 – 2014 and their categorization into descriptive and normative categories according to Sumaila et al. 2010. Abbreviations for the program periods: FIFG: Financial Instrument for Fisheries Guidance, EFF: European Fisheries Fund.

<b>Project description</b>	<b>Category (description)</b>	<b>Category normative</b>	<b>Program period</b>
Common activities	1.1. Fisheries management programs and services	<i>Beneficial</i>	EFF2004-2015
Pilot or demonstration projects	1.1. Fisheries management programs and services	<i>Beneficial</i>	FIFG1995-2007 & EFF2004-2015
Protection of Aquatic resources	1.1. Fisheries management programs and services	<i>Beneficial</i>	EFF2004-2015
Technical Assistance (e.g. studies, exchange of experiences, management and implementation of programmes)	1.1. Fisheries management programs and services	<i>Beneficial</i>	FIFG1995-2007 & EFF2004-2015
Investments onboard of fishing vessels	2.2. Boat construction, renewal and modernization programs	<i>Beneficial</i>	FIFG1995-2007
Change of fishing vessel	2.2. Boat construction, renewal and modernization programs	<i>Capacity-enhancing</i>	EFF2004-2015
Construction of fishing vessels	2.2. Boat construction, renewal and modernization programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Investments onboard of fishing vessels (improvement of energy efficiency, hygiene, onboard safety, product quality, working conditions, selectivity and motor exchange)	2.2. Boat construction, renewal and modernization programs	<i>Capacity-enhancing</i>	EFF2004-2015
Modernization of fishing vessel	2.2. Boat construction, renewal and modernization programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Construction of new port facilities/extension of existing port facilities	2.3. Fishing port construction and renovation programs	<i>Capacity-enhancing</i>	FIFG1995-2007
Equipment in fishing ports	2.3. Fishing port construction	<i>Capacity-</i>	EFF2004-2015

	and renovation programs	<i>enhancing</i>	
Investments in fishing ports	2.3. Fishing port construction and renovation programs	<i>Capacity-enhancing</i>	EFF2004-2015
Modernisation of existing port facilities	2.3. Fishing port construction and renovation programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Fish processing and marketing - construction, equipment or modernization of sales units	2.4. Price and marketing support, processing and storage infrastructure programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Fish processing and marketing - construction, equipment or modernization of processing unit	2.4. Price and marketing support, processing and storage infrastructure programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Promotional activities - advice, sales support, sales campaigns, and other services	2.4. Price and marketing support, processing and storage infrastructure programs	<i>Capacity-enhancing</i>	EFF2004-2015
Promotional activities - market and consumer surveys, trade fairs.	2.4. Price and marketing support, processing and storage infrastructure programs	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Quality certification and product labelling operations	2.4. Price and marketing support, processing and storage infrastructure programs	<i>Capacity-enhancing</i>	FIFG1995-2007
Branch common activities - establishment of producer organization (PO)	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	EFF2004-2015
Branch common activities - other activities	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	EFF2004-2015
Development of fishing areas	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	EFF2004-2015
Operations by members of the trade (setting up producer organisations, aid to assist their drive to improve quality etc.)	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	FIFG1995-2007
Setting-up aid for young fishermen	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Support to small-scale coastal fishing	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	FIFG1995-2007 & EFF2004-2015
Support to small-scale coastal fishing - integrated and collective projects	2.5 Fishery development projects and support services	<i>Capacity-enhancing</i>	EFF2004-2015
Temporary cessation of activities and other financial compensation	3.1. Fisher assistance programs	<i>Ambiguous</i>	FIFG1995-2007 & EFF2004-2015
Exportation/Reassignment/Transfer of vessel to third country	3.2. Vessel buyback programs	<i>Ambiguous</i>	FIFG1995-2007 & EFF2004-2015
Rebuilding of vessel to non-fisheries purpose	3.2. Vessel buyback programs	<i>Ambiguous</i>	EFF2004-2015
Scrapping of vessel	3.2. Vessel buyback programs	<i>Ambiguous</i>	FIFG1995-2007 & EFF2004-2015
Increase in aquaculture production capacity	X. Aquaculture (not included in analysis)	<i>NA</i>	FIFG1995-2007 & EFF2004-2015
Increase in number of fish smolt from hatchery	X. Aquaculture (not included in analysis)	<i>NA</i>	EFF2004-2015
Modernisation of existing aquaculture units	X. Aquaculture (not included in analysis)	<i>NA</i>	FIFG1995-2007 & EFF2004-2015
Construction of inland vessels	X. Freshwater fisheries (not included in the analysis)	<i>NA</i>	FIFG1995-2007 & EFF2004-2015
Inland fisheries - other activities	X. Freshwater fisheries (not included in the analysis)	<i>NA</i>	EFF2004-2015
Investments in inland fisheries facilities	X. Freshwater fisheries (not included in the analysis)	<i>NA</i>	EFF2004-2015
Modernisation of inland fishing vessels	X. Freshwater fisheries (not included in the analysis)	<i>NA</i>	FIFG1995-2007 & EFF2004-2015
Other measures to assist inland fishing	X. Freshwater fisheries (not included in the analysis)	<i>NA</i>	FIFG1995-2007

## 2. Supplementary results

**Table A1.4.** Model selection table for statistical models explaining total subsidy levels for 1914-1994. Average parameter values calculated from weighting all models are given in Table A1.6. Only first 30 models shown.

Mod nr	Interc .	AR1	AR2	AR3	AR4	AR5	dMan ufact	Land val	Oil	Pol	Yr	df	logLik	AIcC	delta	weigh t
1	0	0.775	NA	NA	NA	NA	NA	NA	NA	NA	0.187	4	-29.145	66.817	0	0.036
2	0	0.671	NA	NA	NA	NA	NA	NA	0.085	NA	0.235	5	-28.295	67.397	0.572	0.027
3	0	0.74	NA	NA	NA	0.084	NA	NA	NA	NA	0.149	5	-28.388	67.577	0.76	0.025
4	0	0.641	NA	NA	NA	0.08	NA	NA	0.082	NA	0.198	6	-27.595	68.325	1.508	0.017
5	0	0.789	NA	-0.119	NA	0.137	NA	NA	NA	NA	0.164	6	-27.642	68.419	1.602	0.016
6	0	0.68	NA	-0.146	NA	0.145	NA	NA	0.099	NA	0.226	7	-26.483	68.5	1.683	0.015
7	0	0.767	NA	NA	NA	NA	-0.03	NA	NA	NA	0.191	5	-28.86	68.519	1.702	0.015
8	-0.051	0.756	NA	NA	NA	NA	NA	NA	NA	+	0.192	6	-27.834	68.803	1.986	0.013
9	0	0.812	-0.047	NA	NA	NA	NA	NA	NA	NA	0.195	5	-29.052	68.905	2.088	0.013
10	-0.062	0.71	NA	NA	NA	0.103	NA	NA	NA	+	0.146	7	-26.696	68.926	2.109	0.013
11	0	0.762	NA	NA	0.028	NA	NA	NA	NA	NA	0.175	5	-29.071	68.941	2.124	0.012
12	-0.114	0.734	NA	NA	NA	0.173	NA	0.081	NA	+	NA	7	-26.713	68.961	2.143	0.012
13	0	0.793	NA	-0.03	NA	NA	NA	NA	NA	NA	0.196	5	-29.082	68.964	2.147	0.012
14	0	0.824	NA	NA	NA	0.137	NA	NA	NA	NA	NA	4	-30.251	69.028	2.211	0.012
15	0	0.724	-0.093	NA	NA	NA	NA	NA	0.101	NA	0.26	6	-27.954	69.044	2.227	0.012
16	0	0.775	NA	NA	NA	NA	NA	0.008	NA	NA	0.183	5	-29.126	69.053	2.235	0.012
17	0	0.716	-0.146	NA	NA	0.107	NA	NA	0.105	NA	0.225	7	-26.805	69.145	2.328	0.011
18	0	0.756	NA	NA	-0.099	0.156	NA	NA	NA	NA	0.159	6	-28.007	69.15	2.333	0.011
19	0	0.807	-0.097	NA	NA	0.103	NA	NA	NA	NA	0.159	6	-28.024	69.183	2.366	0.011
20	0	0.693	NA	-0.05	NA	NA	NA	NA	0.092	NA	0.255	6	-28.114	69.363	2.546	0.01
21	0	0.647	NA	NA	-0.128	0.172	NA	NA	0.095	NA	0.218	7	-26.959	69.452	2.635	0.01
22	0	0.674	NA	NA	NA	NA	-0.02	NA	0.078	NA	0.234	6	-28.171	69.477	2.659	0.009
23	0	0.734	NA	NA	NA	0.08	-0.026	NA	NA	NA	0.155	6	-28.174	69.483	2.666	0.009
24	0	0.663	NA	NA	NA	NA	NA	0.021	0.092	NA	0.229	6	-28.18	69.495	2.678	0.009
25	0	0.736	NA	NA	NA	0.093	NA	0.023	NA	NA	0.136	6	-28.256	69.648	2.831	0.009
26	0	0.667	NA	NA	0.014	NA	NA	NA	0.083	NA	0.228	6	-28.275	69.686	2.869	0.009
27	-0.085	0.692	NA	NA	NA	0.131	NA	0.059	NA	+	0.107	8	-25.874	69.748	2.931	0.008
28	-0.056	0.759	NA	-0.119	NA	0.156	NA	NA	NA	+	0.163	8	-25.919	69.838	3.021	0.008
29	-0.095	0.786	NA	NA	NA	0.152	NA	NA	NA	+	NA	6	-28.429	69.993	3.176	0.007
30	0	0.8	NA	NA	NA	0.145	NA	0.047	NA	NA	NA	5	-29.642	70.084	3.267	0.007

**Table A1.5.** Model selection table for statistical models explaining subsidy colour (fraction beneficial to capacity enhancing subsidies) for 1914-1994. Average parameter values calculated from weighting all models are given in Table A1.7. Only first 30 models shown.

Mod Nr	Inter c.	dManufact	Land val	Oil	pol	AR1	AR2	AR3	AR4	AR5	Y r	d f	logLik	AICc	delta	weight
1	0.349	NA	NA	NA	+	0.641	NA	NA	NA	NA	NA	5	-74.877	160.55	0	0.023
2	0.373	NA	NA	NA	+	0.669	NA	NA	NA	0.105	NA	6	-73.911	160.96	0.402	0.019
3	0	NA	NA	NA	NA	0.667	0.211	NA	NA	0.136	NA	5	-75.113	161.03	0.473	0.018
4	0.322	NA	NA	NA	+	0.581	0.163	NA	NA	0.139	NA	7	-72.843	161.22	0.667	0.016
5	0	NA	NA	NA	NA	0.637	0.194	NA	NA	0.165	0.112	6	-74.086	161.31	0.752	0.016
6	0.365	NA	NA	NA	+	0.636	NA	NA	0.155	0.203	NA	7	-72.908	161.35	0.796	0.015
7	0	NA	NA	NA	NA	0.773	NA	NA	NA	NA	NA	3	-77.539	161.39	0.836	0.015
8	0	NA	NA	NA	NA	0.663	0.147	NA	NA	NA	NA	4	-76.584	161.69	1.14	0.013
9	-0.34	NA	NA	NA	+	0.642	NA	NA	NA	0.137	0.11	7	-73.114	161.76	1.208	0.012
10	0.312	NA	NA	NA	+	0.579	0.104	NA	NA	NA	NA	6	-74.418	161.97	1.417	0.011
11	0	NA	NA	NA	NA	0.759	NA	NA	NA	0.122	0.133	5	-75.631	162.06	1.508	0.011
12	0	NA	NA	NA	NA	0.73	NA	NA	NA	NA	0.09	4	-76.84	162.21	1.653	0.01
13	0.344	0.054	NA	NA	+	0.633	NA	NA	NA	NA	NA	6	-74.583	162.3	1.747	0.01
14	0.327	NA	NA	NA	+	0.621	NA	NA	NA	NA	0.06	6	-74.608	162.35	1.797	0.009
15	0	NA	NA	NA	NA	0.806	NA	NA	NA	0.085	NA	4	-76.913	162.35	1.799	0.009
16	0.297	NA	NA	NA	+	0.565	0.15	NA	NA	0.164	0.09	8	-72.208	162.42	1.863	0.009
17	0.355	NA	NA	NA	+	0.633	NA	0.095	NA	0.145	NA	7	-73.506	162.55	1.993	0.008
18	0.337	NA	NA	NA	+	0.616	NA	NA	0.139	0.221	0.09	8	-72.298	162.6	2.042	0.008
19	0	NA	NA	NA	NA	0.664	0.179	NA	0.1	0.194	NA	6	-74.743	162.62	2.066	0.008
20	0	NA	NA	NA	NA	0.768	NA	NA	0.158	0.189	NA	5	-75.914	162.63	2.075	0.008
21	0.328	NA	NA	NA	+	0.577	0.126	NA	0.116	0.205	NA	8	-72.321	162.64	2.089	0.008
22	0	NA	NA	0.06	NA	0.665	0.213	NA	NA	0.152	NA	6	-74.754	162.64	2.09	0.008
23	0	NA	NA	NA	NA	0.729	NA	NA	0.143	0.214	0.12	6	-74.793	162.72	2.166	0.008
24	0.351	NA	0.021	NA	+	0.64	NA	NA	NA	NA	NA	6	-74.832	162.8	2.245	0.007
25	0	0.063	NA	NA	NA	0.765	NA	NA	NA	NA	NA	4	-77.146	162.82	2.264	0.007
26	0.345	NA	NA	0.008	+	0.642	NA	NA	NA	NA	NA	6	-74.871	162.88	2.323	0.007
27	0.348	NA	NA	NA	+	0.638	NA	NA	0.006	NA	NA	6	-74.874	162.88	2.329	0.007
28	0.347	NA	NA	NA	+	0.638	NA	0.005	NA	NA	NA	6	-74.875	162.89	2.332	0.007
29	0	NA	0.068	NA	NA	0.625	0.183	NA	NA	0.169	0.16	7	-73.721	162.98	2.422	0.007
30	0.368	0.039	NA	NA	+	0.661	NA	NA	NA	0.098	NA	7	-73.756	163.05	2.493	0.007

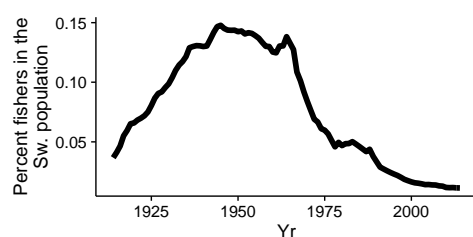


**Table A1.6.** Average weighted parameter values for statistical models (mean and 95 % confidence intervals) for models for total subsidy level for 1914-1994.

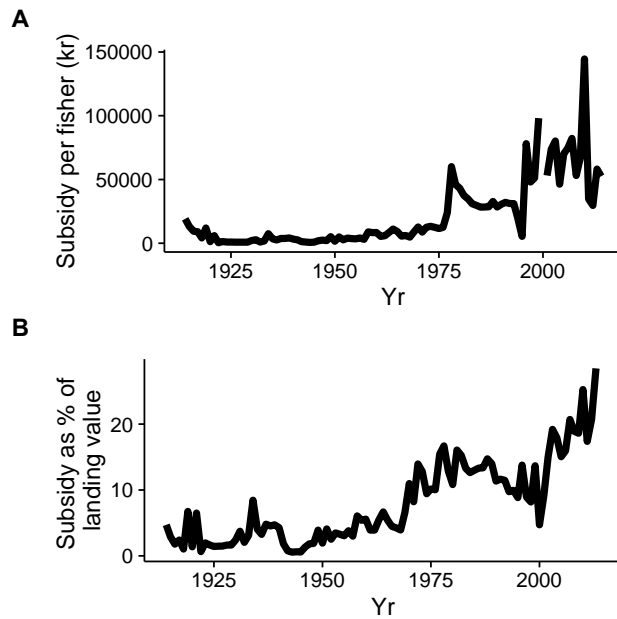
	mean	lower	upper
Intercept	-0.024	-0.161	0.113
AR1	0.753	0.517	0.988
AR2	-0.02	-0.173	0.133
AR3	-0.026	-0.179	0.127
AR4	-0.001	-0.146	0.144
AR5	0.081	-0.117	0.278
Yr	0.147	-0.076	0.371
Oil	0.029	-0.089	0.146
dManufact	-0.006	-0.054	0.041
polright	0.068	-0.184	0.32
polsocial	0.02	-0.114	0.153
Landval	0.013	-0.056	0.082

**Table A1.7.** Average weighted parameter values for statistical models (mean and 95 % confidence intervals) for models for subsidy color (fraction beneficial to capacity enhancing subsidies) for 1914-1994.

	mean	lower	upper
Intercept	-0.161	-0.58	0.257
polright	0.227	-0.377	0.831
polsocial	0.215	-0.31	0.739
AR1	0.659	0.424	0.894
AR2	0.064	-0.156	0.284
AR3	0.007	-0.12	0.134
AR4	0.026	-0.138	0.189
AR5	-0.095	-0.315	0.125
Landval	-0.01	-0.102	0.081
dManufact	0.014	-0.079	0.106
Yr	0.045	-0.118	0.209
Oil	0.006	-0.08	0.092



**Fig A1.1.** Percent fishers in the Swedish population. Note that the fishing has never been a major Swedish industry (the fisher population never exceeded 0.15 %) but has decreased further since the 1960s. In 2014, the Swedish population was 9.7 million and the number of fishers were 1100, which yields the fraction fisher of the total population 0.01 %.



**Fig A1.2.** Time series of subsidy levels (all three categories): (A) per fisher, and (B) per total gross landing value. Note that both subsidy per fisher and subsidy in relation to landing value has increased strongly over time.

### 3. Supplementary References

Bristol, N., 2009. Obama allocates funds for health-care priorities. *Lancet* 373, 881–882.

Furman, J., 2006. Two wrongs do not make a right. *Natl. Tax J.* 59, 491–508.

Moehlmann, J., 1992. Initiative on biotechnology research in Bush budget proposal. *Bioscience* 42, 455.

SOU, 1992. Statens Offentliga Utredningar 1992:136. Svenskt fiske. Nuläge och utvecklingsmöjligheter.

Sumaila, U., Khan, A.S., Dyck, A.J., Watson, R., Munro, G., Tyedmers, P., Pauly, D., 2010. A bottom-up re-estimation of global fisheries subsidies. *J. Bioeconomics* 201–225. doi:10.1007/s10818-010-9091-8