Collective Share Quotas and Fishermen Organizations Role in Ex-Vessel Price Determination

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Introduction

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- First fishery in Chile to be managed with **collective share quotas** assigned to Fishermen Organizations (FOs).

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- FOs performance

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Background on the Chilean Austral Hake Fishery

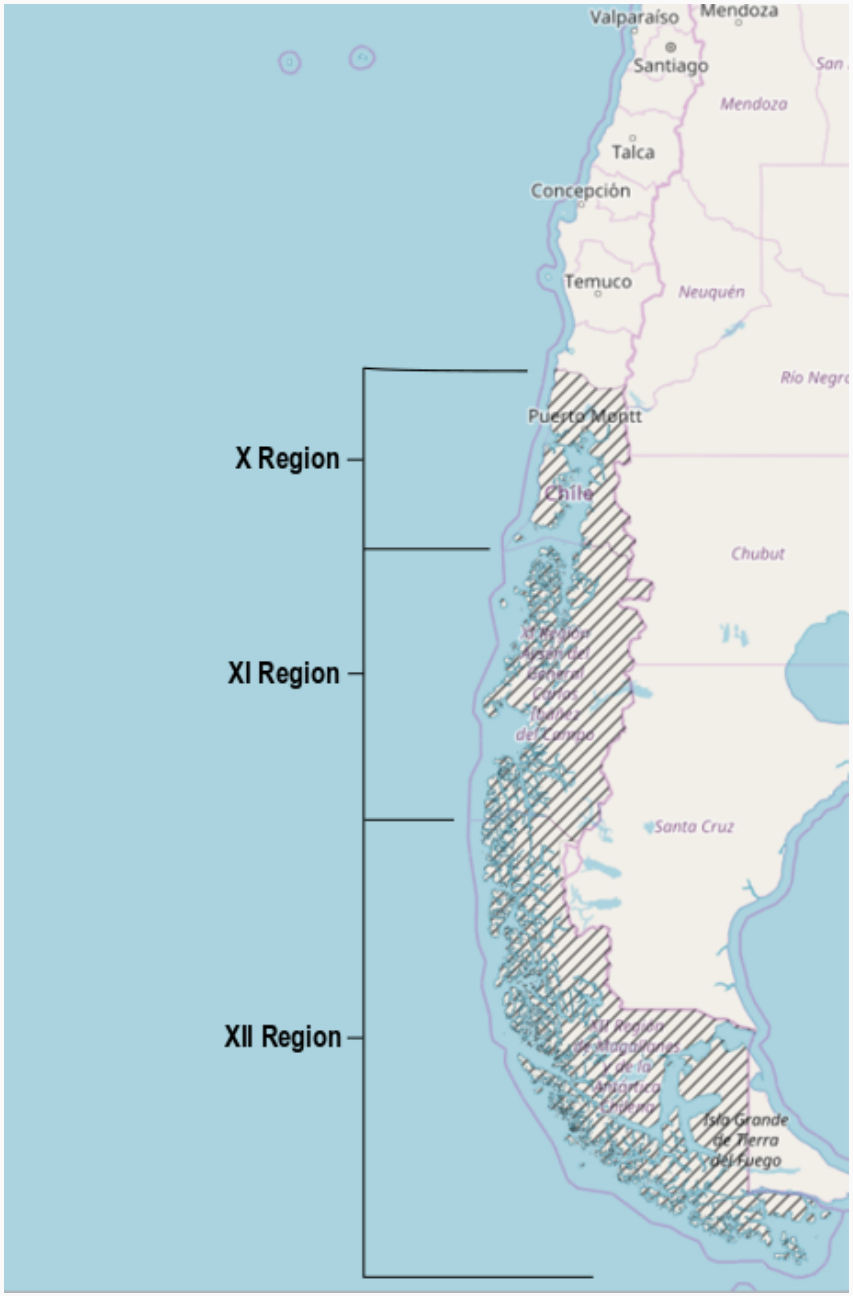

Figure 1: Southernmost area of Chile.

Background on the Chilean Austral Hake Fishery

Table 1: Austral Hake Artisanal Fishery Statistics

Region	Number of Fishermen Organizations			Number of registered fishermen (2007)			Number of boats in operation 2004-2006	Annual Landings (tons) Average 2000-2011
	2001	2006	2012	# boat owners	# crew members	Total		
X	135	180	208	1952	1654	3606	1535	7268.5
XI	24	60	69	631	758	1389	177	3837.9
XII	n.a.	4	10	120	322	442	45	1767.0
Total		244	287	2703	2734	5437	1757	12873.4

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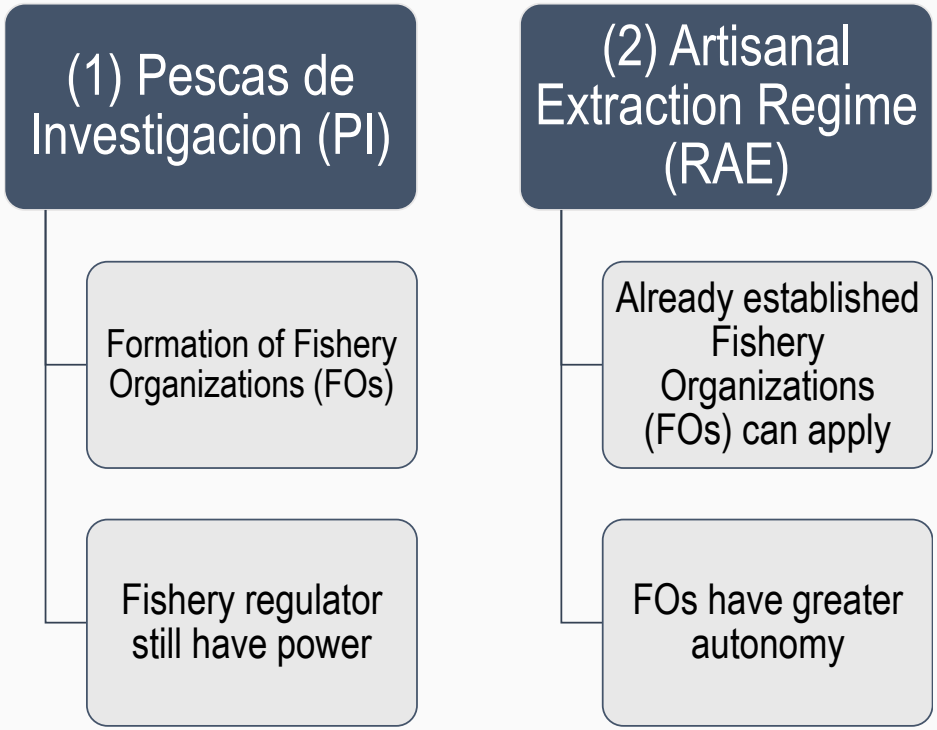

Figure 2: Regulations schemes

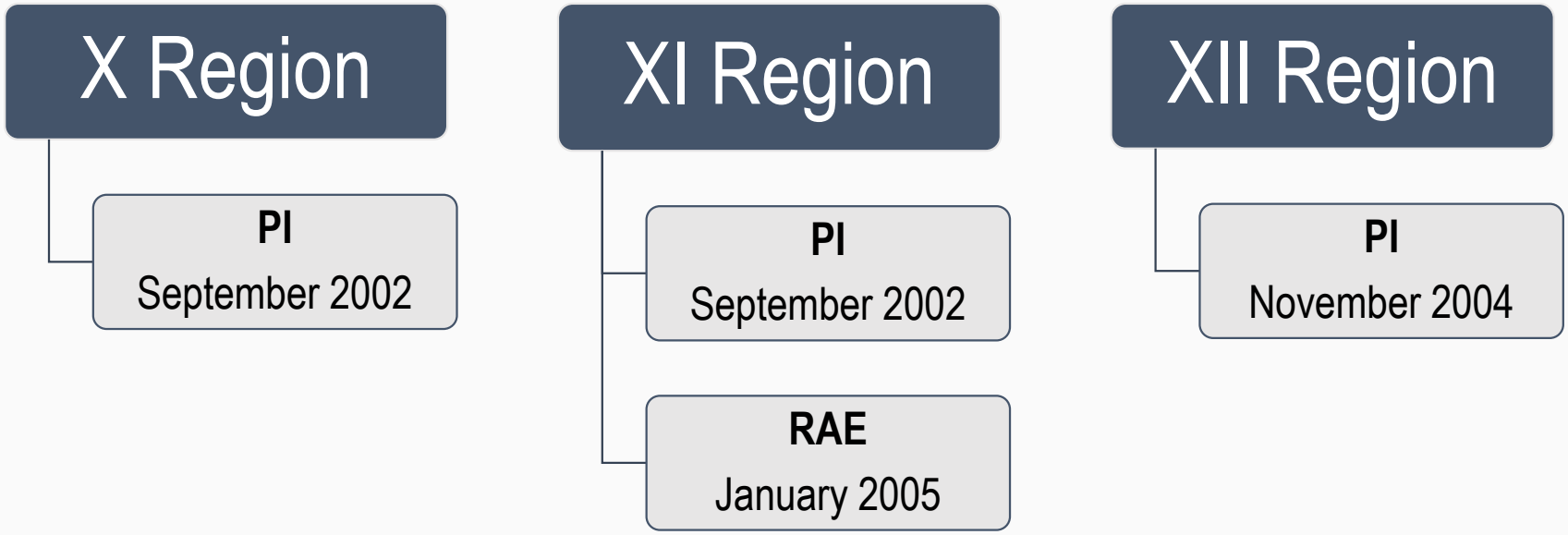

Figure 3: Regulation periods

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Consequences of the new regulation on price-determination?

- Harvest sector:
  - Enhance collective fishing rights
  - Formation of price bargaining associations (between FOs)
  - **Bargaining power**
- Buying sector:
  - Started to behave as a **monopsony**.
- **Bilateral monopoly price bargaining** (region-specific).

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Methodology

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- We test the overall impact of regulations on ex-vessel prices using region-specific dummy variables in a **reduced-form model**

Methodology

- *Data:*
  - Monthly data for most of the variables.
  - January 2000 to December 2011 (132 observations; August excluded)
- We used **cointegration analysis**:
  - *Endogenous variables:* Regional ex-vessel prices; Regional artisanal landings
  - *Exogenous variables:* Fish size, export price, HHI and fuel price.
  - Base period: First years of operation of imperfectly-enforced PI Programs.

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Table 2: Long-run coefficients (cointegrated vectors)

Variable	P_X	P_{XI}	P_{XII}
Q_X	0.458***	0.779***	-0.100
Q_{XI}	-0.139***	-0.070	0.199***
Q_{XII}	0.152**	0.189**	0.391***
PI_X	-0.052	0.167**	
RAE		-0.027	
PI_{XII}			-0.001
$Constant$	3.980***	1.303**	4.449***

*Test (p-value): β_{RAE}= 0.483; $\beta_{PI} + \beta_{RAE} = 0.087$

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- Large scale operation and more FOs at X region
  - X region: 6 artisanal fishermen federations;
  - XI region: Only one artisanal fishermen federation;
- Allocation of quotas
  - XI region: Crew members and boat owners.
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Table 3: Short-run coefficients (VEC estimation)

Variable	ΔP_X	ΔP_{XI}	ΔP_{XII}	ΔQ_X	ΔQ_{XI}	ΔQ_{XII}
Endogenous Lagged						
$\Delta P_{X,t-1}$	0.487***	0.259***	—	-1.163***	—	—
$\Delta P_{XI,t-1}$	—	0.421***	0.128**	—	—	—
$\Delta P_{XII,t-1}$	—	—	0.412***	—	—	—
$\Delta Q_{X,t-1}$	-0.032**	-0.065***	—	0.389***	—	—
$\Delta Q_{XI,t-1}$	—	—	—	—	0.214***	—
$\Delta Q_{XII,t-1}$	—	—	—	—	—	—
Exogenous						
$\Delta Size^{X}_{t-1}$	0.831***			-0.526		
$\Delta Size^{XI}_{t-1}$		-0.232			1.121	
$\Delta Size^{XII}_{t-1}$			-0.036			1.110
ΔHHI_{export}	-0.005	-0.148***	-0.095**	-0.788***	-0.198	0.075
ΔP_{diesel}	0.032	0.201**	0.016	-0.680**	0.354	0.147
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- Right-based fishery management cannot be separated from its **institutional** background.
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Thank you for your attention!

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