Hand in hand:
Using discretionary policies to mitigate some of the perceived negative effects of the Icelandic ITQ system

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Sveinn Agnarsson and Vifill Karlsson
Fisheries Management Act

- The exploitable marine stocks of the Icelandic fishing banks are the common property of the Icelandic nation.
- Sustainable utilisation (conservation)
- Efficient utilisation
- Stable employment
- Stable settlement throughout Iceland
- The first two objectives have taken precedence
Criticism of the ITQ system

- Comprehensive
- Initial allocation of harvesting rights
- Transferability – local/regional implications
- Consolidation
- Entry impossible without access to quota
- High-profile exits
- Use of quota rights as collateral for non-business related debts
- Increased profitability lead to the creation of resource rent – taxation
- The objectives of stable employment and settlement have been disregarded
Natural fluctuations in biomass

Cod catches

- Haddock
- Saithe
- Atlantic wolffish

Shrimp
- Inshore
- Total
- Scallop
Discretionary measures to alleviate problems faced by disadvantaged communities

- Special regional quota allocations in some form have been practiced since 1995
- Regional Institute has since 2013 also allocated quotas – stricter conditions
- Boats that employ longline can get additional quota if
  - The line is baited ashore (20% additional quota in cod, haddock and Atlantic wolffish)
  - The line is prepared (shuffled) ashore (15% additional quota in cod, haddock and Atlantic wolffish)
- Shell and shrimp compensation, since 2003
- Coastal fishing, since 2009
Discretionary measures to alleviate problems faced by disadvantaged communities

- In 2012, regional quotas were allocated to harvesters in 49 communities.
- Communities were on average allocated 82 tons.
- Harvesters in 50 localities were allocated additional quota because they either baited or prepared the longline ashore.
- Average longline allocation 67 tonnes.
- Harvesters in 24 communities received shell and shrimp compensation.
- On average 24 tonnes per locality.
- Small allocations, but can make a difference in localities where catches are small.
Regional quota allocation

Columns show annual allocation in cod equivalents, while the red line depicts allocations as the share of TAC of demersal species.
Statistical analysis

- Data on harvesting and processing in 82 localities during the period 2003-2012
- Includes all catches, demersal and pelagic
- Few communities where pelagic fisheries are important
- Pelagic fisheries not important in fisheries that are allocated additional quotas
- Estimate three separate equations
  - Landings: $\Delta x_{it} = \alpha_i + \Delta b_{it} + \Delta l_{it} + \Delta s_{it} + \Delta h_{it} + \Delta c_{it} + e_{it}$
  - Processing: $\Delta v_{it} = \alpha_i + \Delta b_{it} + \Delta l_{it} + \Delta s_{it} + \Delta h_{it} + \Delta c_{it} + e_{it}$
  - Catches: $\Delta a_{it} = \alpha_i + \Delta b_{it} + \Delta l_{it} + \Delta s_{it} + \Delta h_{it} + \Delta c_{it} + e_{it}$

Where $b =$ regional catches, $l =$ line concession, $s =$ shell and shrimp compensation, $h =$ total quota without any compensation, $c =$ coastal fishing, $x =$ landings, $v =$ processing and $a =$ catches.
Statistical analysis

- Would expect a positive relationship between landings, catches and processing on the one hand and regional quotas, longline concession and shrimp and shellfish compensation on the other hand.
- We do for landings, but not for catches and processing.

<table>
<thead>
<tr>
<th></th>
<th>Landings</th>
<th>Catches</th>
<th>Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional quota</td>
<td>24,048 **</td>
<td>-0,215</td>
<td>23,093</td>
</tr>
<tr>
<td>Longline concession</td>
<td>20,312 **</td>
<td>8,923</td>
<td>17,104</td>
</tr>
<tr>
<td>Shrimp and shellfish compensation</td>
<td>25,006 **</td>
<td>28,372</td>
<td>47,346 **</td>
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<tr>
<td>Total quota</td>
<td>0,189</td>
<td>0,306</td>
<td>-0,252</td>
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<tr>
<td>Coastal fishing</td>
<td>-9,098</td>
<td>-5,064</td>
<td>-11,182</td>
</tr>
</tbody>
</table>
Descriptive analysis

Catches

Landings

Processing
Disadvantaged communities
14 disadvantaged communities with population of 100-300 inhabitants. Development 2003-2012

<table>
<thead>
<tr>
<th>Community</th>
<th>Population</th>
<th>Catches</th>
<th>Landings</th>
<th>Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bakkafjörður</td>
<td>-27,4</td>
<td>-35,1</td>
<td>-8,8</td>
<td>-48,1</td>
</tr>
<tr>
<td>Bildudalur</td>
<td>-27,9</td>
<td>-32,2</td>
<td>-20,0</td>
<td>-30,1</td>
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<tr>
<td>Borgarfjörður eystri</td>
<td>-12,4</td>
<td>-14,9</td>
<td>-13,3</td>
<td>-90,2</td>
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<tr>
<td>Breiðdalsvík</td>
<td>-21,0</td>
<td>151,8</td>
<td>300,0</td>
<td>-88,7</td>
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<tr>
<td>Drangsnes</td>
<td>-16,3</td>
<td>-25,9</td>
<td>-5,1</td>
<td>-24,6</td>
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<tr>
<td>Flateyri</td>
<td>-30,3</td>
<td>-69,2</td>
<td>-74,3</td>
<td>-85,2</td>
</tr>
<tr>
<td>Grímsey</td>
<td>-18,3</td>
<td>-9,9</td>
<td>-10,0</td>
<td>7,5</td>
</tr>
<tr>
<td>Hofsós</td>
<td>-5,0</td>
<td>4,8</td>
<td>84,3</td>
<td>-81,7</td>
</tr>
<tr>
<td>Hrísey</td>
<td>-8,3</td>
<td>-68,5</td>
<td>-17,7</td>
<td>-51,0</td>
</tr>
<tr>
<td>Kópasker</td>
<td>-12,2</td>
<td>354,9</td>
<td>-20,3</td>
<td></td>
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<tr>
<td>Suðureyri</td>
<td>-18,7</td>
<td>-27,8</td>
<td>-48,4</td>
<td>-4,1</td>
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<tr>
<td>Súðavík</td>
<td>-24,5</td>
<td>-75,3</td>
<td>-68,6</td>
<td>-81,3</td>
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<tr>
<td>Tálknafjörður</td>
<td>-21,8</td>
<td>-33,6</td>
<td>-54,5</td>
<td>-12,8</td>
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<tr>
<td>Þingeyri</td>
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<td>127,2</td>
<td>-33,0</td>
<td>-51,6</td>
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<tr>
<td>Median</td>
<td>-18,5</td>
<td>-26,8</td>
<td>-18,8</td>
<td>-51,0</td>
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</tbody>
</table>
Disadvantaged communities

- Negative relationship between regional quotas and landings, catches and processing
- Positive relationship between longline concession and landings, catches and processing
- Negative relationship between shrimp and shellfish compensation and landings, catches and processing
- Negative effect between coastal fishing and landings, catches and processing

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<th>Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional quota</td>
<td>-6,709</td>
<td>-4,333</td>
<td>-9,952 *</td>
</tr>
<tr>
<td>Longline concession</td>
<td>8,636 ***</td>
<td>3,410 ***</td>
<td>6,795 ***</td>
</tr>
<tr>
<td>Shrimp and shellfish compensation</td>
<td>-7,245 **</td>
<td>-2,706</td>
<td>-5,813 **</td>
</tr>
<tr>
<td>Total quota</td>
<td>0,969 *</td>
<td>0,822 *</td>
<td>0,78</td>
</tr>
<tr>
<td>Coastal fishing</td>
<td>-1,375</td>
<td>-0,677</td>
<td>-1,137</td>
</tr>
</tbody>
</table>
Disadvantaged communities

Catches

\[ y = -4.0659x - 27.997 \]

\[ R^2 = 0.0399 \]

Landings

\[ y = 5.9054x - 42.376 \]

\[ R^2 = 0.05532 \]

Processing

\[ y = -9.022x - 60.908 \]

\[ R^2 = 0.149 \]
Disadvantaged communities

• So do regional quotas and special concessions not have an effect?
• Two possible explanations;
  – The regional aid is intended to help out communities already facing diminished catches. Unable to buck this negative trend, but may soften the blow.
  – Harvesters in communities that obtain regional aid, sell off other quotas. Harvesters are minimising cost and the additional quota simply pushes them away from the point on the average cost curve where costs are minimised.
Thank you