The nature of scale of irrigation subsidies in Spain and Mediterranean region

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Objetives

1. Evaluate subsidies to Spanish irrigation sector

2. Establish conclusions about access to economic data

3. Make recommendations about methods to monitor economic flows linked to irrigation water management
Two methods to evaluate irrigation subsidies

GSI’s methods:

1. Net cost to water supplier: cost-revenue

2. Net benefit for the user: Value-cost
Subsidies sources

1) Very narrowly defined subsidies: includes direct O&M costs incurred by the Government not paid for by the farmers or end users. This may include energy costs, personnel costs or costs associated with repairing and maintaining infrastructure.

2) Narrowly defined subsidies: includes projects with preferential financing schemes involving low interest rates or inadequate annualisation calculations—used to create new (or improve existing) irrigation infrastructure.

3) Broadly defined subsidies: includes subsidies defined in points a) and b) and applied to general infrastructures. Also, the provisioning of water in multi-user projects resulting in cross-subsidisation between sectors or the state being responsible for any shortfalls in meeting the cost of the project (Malik, 2008, elaborates the problems encountered with multiple-purpose facilities).

4) Very broadly defined subsidies: includes point c) plus nil or low returns for capital investments for irrigation infrastructure.

5) Economically inefficient: prioritising the use or access to water for the purpose of irrigation over uses which have a higher economic value.
Previous studies

• Martín Mendiluce (1993): nivel de subvención del 80% en Andalucía

• Berbel (2005): 71% in Guadalquivir

• Groot & Sánchez Chóliz (2006) and Bielsa et al. (2009):
  – Inflation 0, cost recovery 102%
  – Presently 52% of investments.
• Pérez y Barreiro (2007): 52% in Gállego (Cuenca del Ebro).

• Valsecchi et al. (2009) subsidies 165 mill €.

• MMA (2007)
Previous studies in Spain based on full supply cost principles.

### TABLE 2.3: FARMERS’ PAYMENTS FOR IRRIGATION WATER SERVICES IN SPAIN IN 2001–2002 (ONLY IN THE INTERREGIONAL BASINS), ALL FIGURES EXPRESSED IN EUROS

<table>
<thead>
<tr>
<th>Basin</th>
<th>Groundwater</th>
<th>Surface</th>
<th>Surface and Groundwater</th>
<th>Financial cost recovery rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost per ha</td>
<td>Cost per m³</td>
<td>Distribution (paid to WUA)</td>
<td>Per ha WUA and basin tariff</td>
</tr>
<tr>
<td>Duero</td>
<td>500</td>
<td>0.095</td>
<td>19.88</td>
<td>46</td>
</tr>
<tr>
<td>Ebro</td>
<td>829</td>
<td>0.15</td>
<td>49</td>
<td>12</td>
</tr>
<tr>
<td>Guadalquivir</td>
<td>744</td>
<td>0.15</td>
<td>101</td>
<td>70</td>
</tr>
<tr>
<td>Guadiana</td>
<td>232</td>
<td>0.048</td>
<td>19</td>
<td>102</td>
</tr>
<tr>
<td>Júcar</td>
<td>383</td>
<td>0.074</td>
<td>81</td>
<td>16</td>
</tr>
<tr>
<td>Segura</td>
<td>789</td>
<td>0.163</td>
<td>34</td>
<td>151</td>
</tr>
<tr>
<td>Tajo</td>
<td>541</td>
<td>0.1</td>
<td>36</td>
<td>67</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>0.09</td>
<td>50</td>
<td>56</td>
</tr>
</tbody>
</table>

Source: MMA (2007b)
Sources


• Informes de los Organismos de Cuenca y Gobiernos Autonómicos (DMA)


• Academic literature


• Estudios diversos:
Difficulties

• Data not compiled for performing economic analyses
• Lack of time dimension (t)

• MMA (2007) incomplete in:
  • Sources and methods
  • Poor definition of methods
  • Highly aggregated data

• Historical methods for capital evaluation

IT IS NOT POSSIBLE TO OBTAIN ACCURATE EVALUATIONS OF IRRIGATION SUBSIDIES IN SPAIN
Resultados

### Aggregate support to the irrigation sector in interregional basins

<table>
<thead>
<tr>
<th></th>
<th>(1) Imputed costs (per cent)</th>
<th>(2) Cost recovery (per cent)</th>
<th>(3) Water distribution subsidy rate (per cent)</th>
<th>(4) Subsidy rate (per cent)*</th>
<th>(5) Actual price (€/m³)</th>
<th>(6) Full-cost rate (€/m³)</th>
<th>(7) Subsidy (€/m³) (6)-(5)</th>
<th>(8) Total subsidy (million Euros) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebro</td>
<td>55.71</td>
<td>72.77</td>
<td>8.21</td>
<td>0.66</td>
<td>0.02</td>
<td>0.05</td>
<td>0.03</td>
<td>119.05</td>
</tr>
<tr>
<td>Duero</td>
<td>59.55</td>
<td>58.58</td>
<td>11.52</td>
<td>0.72</td>
<td>0.04</td>
<td>0.12</td>
<td>0.08</td>
<td>188.54</td>
</tr>
<tr>
<td>Tajo</td>
<td>82.67</td>
<td>100</td>
<td>2.33</td>
<td>0.17</td>
<td>0.04</td>
<td>0.05</td>
<td>0.01</td>
<td>7.29</td>
</tr>
<tr>
<td>Júcar</td>
<td>45.79</td>
<td>57.8</td>
<td>7.21</td>
<td>0.89</td>
<td>0.05</td>
<td>0.32</td>
<td>0.27</td>
<td>429.90</td>
</tr>
<tr>
<td>Guadiana</td>
<td>90.89</td>
<td>79</td>
<td>4.04</td>
<td>0.29</td>
<td>0.04</td>
<td>0.05</td>
<td>0.02</td>
<td>11.53</td>
</tr>
<tr>
<td>Guadalquivir</td>
<td>90.76</td>
<td>90.45</td>
<td>0.08</td>
<td>0.19</td>
<td>0.08</td>
<td>0.10</td>
<td>0.02</td>
<td>65.95</td>
</tr>
<tr>
<td>Segura</td>
<td>100</td>
<td>90.12</td>
<td>5.25</td>
<td>0.09</td>
<td>0.10</td>
<td>0.11</td>
<td>0.01</td>
<td>3.13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>825.38</td>
</tr>
</tbody>
</table>

- 906 M€/YEAR IF regional basins are included
- Subsidies of water storage and transportation facilities were computed disregarding inflation
Results

A) Subsidies to diversion, storage and transport: 49 M€/year
Subsidies to regulation works: 21 M€/year
Tagus-Segura Transfer: 11 M€/year
Correcting for inflation: 17 M€/year

B) Subsidies to conveyance networks (PNR): 388 M€/year over 8 years.

C) Subsidies to distribution networks (RD 287/2006): 234 M€/year over 8 years

\[ \text{A) +B) +C): 671 M€/year} \]

D) Cross-subsidies: 240 M€/year

\[ \text{A) +B) +C) +D): 911 M€/year} \]
More recent estimates of the MARM (2009)

– Preliminary evaluation of annual subsidies for storage and transportation (all users) : €680 mill.
– Annual subsidies for the conveyance of irrigation water €790 mill. (subsidy rate of 48%).
– Preliminary evaluation of subsidies to irrigation €1,120 mill. (subsidy rate of 55%).
Conclusions

• Irrigation subsidies: 906-1120 mill € (55%), 1998-2008

• Two thirds of the subsidies correspond with works included in the programmes of irrigation districts’ modernisation

• Administrations have made a remarkable effort in improving their information systems and making more transparent all economic data
Conclusions

<table>
<thead>
<tr>
<th>Year</th>
<th>Valor de producción regadío Mill € corrientes</th>
<th>% de Subv sobre Valor Prod</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>11100</td>
<td>9.91%</td>
</tr>
<tr>
<td>1997</td>
<td>11800</td>
<td>9.32%</td>
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<tr>
<td>1998</td>
<td>12100</td>
<td>9.09%</td>
</tr>
<tr>
<td>1999</td>
<td>12300</td>
<td>8.94%</td>
</tr>
<tr>
<td>2000</td>
<td>12500</td>
<td>8.80%</td>
</tr>
<tr>
<td>2001</td>
<td>11800</td>
<td>9.32%</td>
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<tr>
<td>2002</td>
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<td>8.03%</td>
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<tr>
<td>2003</td>
<td>16400</td>
<td>6.71%</td>
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<tr>
<td>2004</td>
<td>14800</td>
<td>7.43%</td>
</tr>
<tr>
<td>2005</td>
<td>15000</td>
<td>7.33%</td>
</tr>
</tbody>
</table>

Fuente: Anuario MARM, diversos años
Conclusions

Producer Support Estimates as % of gross farm receipts, 2007-09 average