Participating into Producer Organisations in the Southern European F&V sector.

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Motivation

In the fruit and vegetables (F&V) sector, long known support to POs:

1. POs recognized by the EU since the 70s.
2. After the 1996 reform, they benefited from subsidies for initial (50%) and operational (2%/year) expenses (EU Reg. 2200/96), to assure: quality standards enforcement, supply control, environmental friendly technologies adoption, and producers’ co-financing of other policies. In brief, the aim was
   “...to strengthen the position of producers in the face of a greater concentration of demand and to integrate environmental concerns in the production and marketing of F&V...” (EU Commission, 2014).
3. Reform in the 2007, when the UE re-empowered POs with the same roles in the F&V sector (EU Reg. 1182/07).
4. Last, in 2013 the UE (EU Reg. 1308/13) has extended the use of POs as a transversal policy tool for the common market organization of other agricultural sectors as well.
As of 2010, in the EU-27 F&V the **participation rate**, that is the value of F&V marketed by POs, was about **43%** (31% in 2004).

However, great **differences in participation rates across countries, regions, and products**:

- **countries**: more than 90% in the Netherlands and Ireland, but about 50% in France, Italy and Spain, and lower in Poland, Finland, and Portugal (around or below 20%);
- **regions**: in Italy, for instance, from < 20% (e.g., Sicily, Sardinia) to > 50% (e.g., Trentino, Emilia-Romagna);
- **products**: in France, for instance, from < 30% to 75% for the fresh F&V sector.

These differences have led some commentators to argue that

> “the POs in the F&V sector do NOT seem to have reached the objectives assigned them by the Common Market Organization” (Camanzi et al., 2010).
Motivation, 2

NATURAL QUESTIONS:

- Why should farmers participate into POs?
- Can we explain the differences in participation in POs?
- In particular, we should look at the following.
  - Why should farmers participate into POs?
  - What are their benefits and costs?
  - Why is participation high in some countries or regions, e.g., in the Netherlands, but much lower in others, such as in Southern Europe?
  - What are the reasons that may explain these differences?

- The aim of our project is to investigate POs formation and functioning, looking at possible determinants of their success (or lack thereof).

- As a measure of performance/success, we consider the participation rate, that is how much F&V production in a particular region is reaching the downstream market through POs.
Plan of the project & talk

- We investigate - theoretically and empirically - the participation decisions of farmers into POs, acknowledging that farmers weigh benefits and costs of joining a PO. Revealed preference argument.
- In effect, by joining a PO a farmer commits to deliver her products to the PO for its processing and/or marketing.
- But why should someone give her product, i.e., money, to someone else?
  - Because she may get some benefits, which depend on the possibility to share with other the fixed joint processing and marketing costs to gain access to market opportunities otherwise unavailable.
  - However, this may imply losing other market opportunities, which represent the (opportunity) costs of her participation.
- In short, the net benefits of joining a PO depend on:
  A. EXTERNAL factors, i.e., the market environment for farmers and POs;
  B. INTERNAL factors, i.e., some structural characteristics of the POs.
The big picture

PO

$F_1$

$F_2$

$F_3$

$F_N$

Wholesale market

Export

Processing

Retailing
The data

- For the empirical investigation, we collected data for the period 2007-2014 on individual POs of the three major EU F&V countries, that is
  - France,
  - Italy,
  - Spain.

- The other data were obtained from standard sources, such as Eurostat, OECD, etc.

- Here we report some PRELIMINARY results of joint work with:
  - Zohra Bouamra-Mechemache - Toulouse School of Economics, Toulouse;
  - Tomas Garcia-Azcarate - Instituto de Economia, Geografia y Demografia (IEGD-CSIC), Madrid;
  - Michel Simioni - Institut National de la Recherche Agronomique (INRA) UMR MOISA, Montpellier.

- Those that follow are PRELIMINARY results, plus other caveats.
[A.] EXTERNAL factors

What are the exogenous factors that may influence farmers participation into POs?

- Camanzi et al. (2009) suggest the following:
  - the role of a large retail sector;
  - the competitive pressure from proximity markets;
  - the pressure from imports;
  - the existence of alternative source of public funds, such as structural and rural development funds;
  - the relative inefficiency of local and government offices.

- Comanor & Rey (2000) show that the concentration in the retailing sector may in fact induce the restructuring into the upstream industry.

- Hueth & Marcoul (2006) find that bargaining associations are more common where
  - there are formal contractual arrangements,
  - in markets for processed output, and
  - there is high geographical concentration of supply.
Table: Variables and possible impact on participation rates

<table>
<thead>
<tr>
<th>Variable</th>
<th>PO Crop NUTS2 Country Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>- value of F&amp;V marketed</td>
<td>X</td>
</tr>
</tbody>
</table>

**Independent variables**

**F&V sector:**
- number of farms with F&V | X | X | ?
- value of F&V production | X | X | ?
- size of avg. farm with F&V | X | X | ?

**Retailing sector:**
- concentration | X | X | +

**Processing sector:**
- concentration | X | X | +
- distance from POs | X | X | +

**Sources of funds for investments:**
- flow of structural funds | X | X | -

**Competitive pressure:**
- level of import tariffs | X | -

**Economic development:**
- GDP per capita | X | X | +
- GDP per capita growth | X | X | +

*Expected impact on participation
Preliminary results

- **Almost all** variables are significant (pooled OLS).
- Using machine-learning techniques, we find that the average size of the wholesale firms, the number of members of POs, and the regional specialization into F&V are more important.
- Moreover, France looks different from Italy and Spain.
[B.] INTERNAL factors

- In the project, we ask also whether performances by POs are explained by their structural characteristics and choices.

1. We thus define **POs’ business models** by using different characteristics and choices of POs as inputs in a cluster analysis.

2. We use cluster analysis also to investigate differences in the **market environment** at the regional (NUTS2) level, using the information about the socio-economic conditions under which each PO operates.

3. We then look at **POs’ performances** across (1), and (2).
1. Finding Business Models

Table: Variables and clusters for POs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cluster 1 (Mean)</th>
<th>Cluster 2 (Mean)</th>
<th>Cluster 3 (Mean)</th>
<th>Cluster 4 (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of members of PO</td>
<td>25</td>
<td>470</td>
<td>31</td>
<td>192</td>
</tr>
<tr>
<td>Value of Marketed Product (VMP, mio)</td>
<td>13</td>
<td>21</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Specialization (% of first 2 crops)</td>
<td>80</td>
<td>84</td>
<td>87</td>
<td>80</td>
</tr>
<tr>
<td>% Product sold for fresh use</td>
<td>96</td>
<td>81</td>
<td>17</td>
<td>87</td>
</tr>
<tr>
<td>Obs. n.</td>
<td>3,576</td>
<td>299</td>
<td>386</td>
<td>597</td>
</tr>
<tr>
<td>Total acreage*</td>
<td>635</td>
<td>1,701</td>
<td>1,750</td>
<td>1,082</td>
</tr>
<tr>
<td>Avg. acreage per member*</td>
<td>25.4</td>
<td>3.6</td>
<td>56.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Avg. VMP per member (000)*</td>
<td>520</td>
<td>44.7</td>
<td>322.6</td>
<td>78.1</td>
</tr>
<tr>
<td>Business model name</td>
<td>Small Big PO, Processing Medium big farms small farms PO PO</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* NOT used for cluster analysis
POs by Business Models - France
POs by Business Models - Spain

Pie proportional to total number of POs
- % Small POs
- % Big POs
- % Processing POs
- % Medium POs
### 2. Finding homogenous regions

**Table:** Variables and clusters for regions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. size, specialized F&amp;V farms (ha)</td>
<td>22</td>
<td>17</td>
<td>74</td>
<td>14.5</td>
</tr>
<tr>
<td>Area specialization in F&amp;V (%, sales)</td>
<td>0.04</td>
<td>0.02</td>
<td>0.02</td>
<td>0.045</td>
</tr>
<tr>
<td>Area specialization in F&amp;V (%, ha)</td>
<td>0.21</td>
<td>0.12</td>
<td>0.18</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Downstream sectors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. size retailing firms (no. employees)</td>
<td>2.6</td>
<td>2.7</td>
<td>3.2</td>
<td>2.83</td>
</tr>
<tr>
<td>Avg. size wholesale firms (no. employees)</td>
<td>3.13</td>
<td>2.7</td>
<td>4.3</td>
<td>4.2</td>
</tr>
<tr>
<td>Avg. size food manuf. firms (no. employees)</td>
<td>8.65</td>
<td>2.7</td>
<td>8.4</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Socio-economic characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita</td>
<td>.025</td>
<td>.024</td>
<td>.028</td>
<td>0.021</td>
</tr>
<tr>
<td>GDP per capita growth</td>
<td>-0.08</td>
<td>-0.35</td>
<td>1.35</td>
<td>-1.06</td>
</tr>
<tr>
<td>Unemployment rate (%)</td>
<td>12.8</td>
<td>11.9</td>
<td>9.2</td>
<td>21.7</td>
</tr>
<tr>
<td>Young unemployment rate (%)</td>
<td>34.1</td>
<td>35</td>
<td>22.9</td>
<td>44.8</td>
</tr>
<tr>
<td>Demographic index (Old/Young)</td>
<td>132</td>
<td>181</td>
<td>101</td>
<td>96</td>
</tr>
<tr>
<td>Obs. no. (no. NUTS2)</td>
<td>115</td>
<td>64</td>
<td>68</td>
<td>61</td>
</tr>
<tr>
<td>Regional clusters’ name</td>
<td><strong>Medium</strong></td>
<td><strong>Old</strong></td>
<td><strong>Rich</strong></td>
<td><strong>Poor</strong></td>
</tr>
</tbody>
</table>
3. Participation rate

Value Marketed Product (Total PO / Total Region (F&V))
Type of actions by Business Model

Production / Marketing Actions for (NO ES data)

[Graph showing type of actions (OP) by business models from 2010 to 2014, comparing Small, Big, Processing, and Medium categories.]
Summary, 1

- Producer Organizations are (becoming) important players in the new EU CMO. After the F&V sector, now they are a transversal policy tool for other agricultural sectors as well.

- In the F&V sector, however, mixed success. How come?

- We propose a preliminary analysis to look at the performance of OPs, mostly in terms of participation decisions by farmers.

- These latter may weigh benefits and costs.
  - Benefits depend on the performances of the PO.
  - Opportunity costs depend on farmers’ outside market alternatives.

- The literature considers the role of internal and external factors, like
  - the technology and governance structure of POs,
  - the structure of the farming sector,
  - the concentration of the downstream sectors,
  - the socio-economic environment, etc.
We find that the concentration of the downstream sectors has a significant role in explaining participation rate into the POs. In other words, POs are presumably more important when dealing with a concentrated wholesale sector, where they provide more net benefits to farmers.

In addition, considering the structural characteristics of POs we find that big POs (with many small farms as members) on average attract more farmers than other business models such as small, processing, or medium POs.

- This result is quite robust across different measures of performance, i.e., not only VMP but also acreage or number of farmers going to POs.

Finding that different BMs lead consistently to differences in performances provides support to the literature that considers the importance of strategic choices for the success of collective action — need to consider also what POs do and how they do it, not only where they operate.
Conclusions & directions, 1

There are different kinds of questions that may be of some relevance.

I) BUSINESS-ORIENTED QUESTIONS

1. Measuring the economic performances of POs, and how they are related to their technology (e.g., returns to scale, economies of scope), their governance structure, etc.
2. Measuring the export performances of POs.
3. Investigating the role and functions of APOs.

II) POLICY-ORIENTED QUESTIONS

1. What is the economic impact of POs on participating farmers?
2. What is the environmental impact of operational programmes?
3. What is the socio-economic impact of POs in rural areas?

In brief, this analysis may help in better targeting economic policies and interventions for the F&V industry.
CONCLUSIONS & DIRECTIONS

POLICY IMPLICATIONS

- The answers to these questions may have important policy implications.
- In essence, the question is how to effectively use public funds, in a world of limited (and may be declining) resources.
- For instance, for providing subsidies targeted to (or conditional on)
  ▶ the most effective POs, provided the objective of the policy-maker is the optimal organization of the industry (to be proven, in fact);
  ▶ POs in socially-economically depressed areas;
  ▶ POs in more environmental-sensitive areas;
  ▶ only certain operational programmes, e.g., for innovation, for environment, for market, etc.
To conclude, let us emphasize that a better understanding of the participation of farmers into POs may help policy-making. In particular, we need to look at the causality issue, that is:

- does higher production lead to better industry organization, or
- is it better organization that leads to more production?

If the former, there may be possible conflicts between market organization and rural development objectives of agricultural policies.