The OFS: economic analysis.

- Fine-tuned adaptation to diversified autarkic production.
  - Pastoralism and crop rotation.
- Many tasks, with different levels of economies of scale and different costs of monitoring.
  - Manage tasks collectively when economies of scale high and monitoring costs low.
  - Assign private property rights when economies of scale low and monitoring costs high.

The success of the OFS.

<table>
<thead>
<tr>
<th>Year</th>
<th>W. Europe</th>
<th>All Europe*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>12-15 million</td>
<td>15-20 million</td>
</tr>
<tr>
<td>1300</td>
<td>45-59 million</td>
<td>60-70 million</td>
</tr>
</tbody>
</table>

- Population densities highest where the manorial/OFS was most extensive.
  - Northern France, Northern Italy.
- Population growth in Eastern Europe the result of migration.

*All Europe includes Norway, Sweden, most of Eastern Europe, and Christian Spain.
Results of population growth.

From 11\textsuperscript{th} to 13\textsuperscript{th} century, a frontier movement.

- Clearing the waste.
- Colonizing Eastern Europe.
- The Crusades as a frontier movement.
Thirteenth century: looming crisis.

- Frontier movement ceases, population growth continues.
- General increase in land rents.
  - Increase in relative prices of cereals.
  - Some shift from pasture to cultivation.
- Diminishing returns and declining real wage.
Thirteenth century: response.

Refeudalization: return to direct cultivation of the demesne.

- Feudal obligations transformed into money rents in many places by 11th century.
- Money rents seen as fixed: origin of the word “farm.”
  - A farmer (*fermier*) held a right to rents that were fixed or firm (*ferme*).
- Why return to feudal obligations?

Pieter Bruegel the Elder, *The Harvesters* (1565)
Metropolitan Museum of Art, New York
Why refequalization?

- Lords dig in their heels.
  - Fixed rents allows peasants to capture the gains from increasing land rents.
  - Return to demesne avoids renegotiation costs.
- Proto-enclosure.
  - A move toward specialized production?

Either way: the failure of institutional transformation.
The calamitous fourteenth century.

Population of Western Europe, 1200-1550 (millions).

<table>
<thead>
<tr>
<th>Year</th>
<th>1200</th>
<th>1250</th>
<th>1300</th>
<th>1350</th>
<th>1400</th>
<th>1450</th>
<th>1500</th>
<th>1550</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61</td>
<td>69</td>
<td>73</td>
<td>51</td>
<td>45</td>
<td>60</td>
<td>69</td>
<td>78</td>
</tr>
</tbody>
</table>

Albrecht Dürer, The Four Horsemen of the Apocalypse (1498).
The calamitous fourteenth century.


<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1086</td>
<td>1.1</td>
</tr>
<tr>
<td>1348</td>
<td>3.76</td>
</tr>
<tr>
<td>1350</td>
<td>3.13</td>
</tr>
<tr>
<td>1360</td>
<td>2.75</td>
</tr>
<tr>
<td>1369</td>
<td>2.45</td>
</tr>
<tr>
<td>1374</td>
<td>2.25</td>
</tr>
<tr>
<td>1377</td>
<td>2.23</td>
</tr>
<tr>
<td>1380</td>
<td>2.1</td>
</tr>
<tr>
<td>1400</td>
<td>2.1</td>
</tr>
<tr>
<td>1430</td>
<td>2.1</td>
</tr>
<tr>
<td>1603</td>
<td>3.78</td>
</tr>
</tbody>
</table>

Albrecht Dürer, The Four Horsemen of the Apocalypse (1498).
Malthusian crisis.

- Famine.
- War.
- The Black Death.
  - Bubonic plague, 1348-51
  - Recurred many times through 15th century.
  - Population didn’t stop falling until mid 15th century, and did not recover until 16th century.

Economic effects of population decline.

- Price fluctuations, with general deflation after 1375.
- Prices of agricultural goods fall relative to manufactured goods.
- Real wages increase.
- Rents decline, as does cultivation of marginal lands.

Supply and demand for agricultural products in Europe before (D) and after (D’) the plague.
Institutional effects of population decline.

- Transformation of servile obligations into property rights.
  - Competition for peasant labor leads to attractive rental contracts.
  - Rents fixed — renegotiated on death of peasant.
  - Eventually, life leases become hereditary by custom.
  - Inflation reduces value of “quit rent” to nominal sum.
  - Hereditary leases become rights in fee simple.
  - Soil tilled by free tenants and wage workers.

- Trading rights for revenue.
Institutional transformation.

- Like the 13th century, the 16th century was a period of rising population and increasing land rents.
- But this time Europe responded with an institutional innovation that led to continual increases in productivity.

Pieter Bruegel the Elder, *The Harvesters* (1565)
Metropolitan Museum of Art, New York
The enclosure movement.

- Physical enclosure.
- Legal enclosure.
  - Voluntary enclosure.
  - Parliamentary enclosure.
The timing of English enclosure.

<table>
<thead>
<tr>
<th>Period</th>
<th>Percentage enclosed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1550</td>
<td>45</td>
</tr>
<tr>
<td>1500-1599</td>
<td>2</td>
</tr>
<tr>
<td>1600-1699</td>
<td>24</td>
</tr>
<tr>
<td>1700-1799</td>
<td>13</td>
</tr>
<tr>
<td>1800-1914</td>
<td>11.4</td>
</tr>
<tr>
<td>&gt;1914</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Symmetric tragedies.

- **Common pool:**
  - Everyone has use rights.
  - No one has exclusion rights.
  - Common pool a function of scheme of property rights, not (just) technology.

- **Tragedy of the commons:**
  - Overuse of resources.
  - In the limit, full dissipation of rents.

- **Correctives:**
  - Create and enforce exclusion rights.
  - Collective management schemes (like the OFS).
Symmetric tragedies.

- **Anticommons:**
  - Many entities have exclusion rights (veto power).

- **Tragedy of the anticommons:**
  - Underuse of resources.
  - In the limit, full dissipation of rents.

- **Examples:**
  - Bureaucracy, especially in post-Soviet/developing countries.
  - Patents in complex systems products.
  - The Open Field System.
Transaction costs of enclosure.

- Voluntary enclosure.
  - Required unanimity, side-payments.
  - Complex property law geared to protect hereditary estates from profligate descendants.
  - Enclosures with highest net benefits take place first.

- Parliamentary enclosure.
  - Case-by-case exemption from common law.
  - Majority not unanimity.
  - A form of eminent domain.
  - Not important until mid-18th century.
    - “Hardest” enclosures Parliamentary.
The benefits of enclosure.

- Benefits of specialization and trade.
- Greater appropriability of innovation.
- Reduced costs of collective decision-making.

Enclosure for pasture in Britain reflected Britain’s growing comparative advantage in wool.
The benefits of enclosure.

- McCloskey: Enclosed land rented for twice common-field land.
  - £2.1 million per year gain in productivity, about 1.5% of national income or about 3.5% of agricultural income.
  - Rate of return of 17% per year.
  - An average village 13% more productive.
- But was this all productivity increase, or was it a transfer from peasants to landlords?

Source: McCloskey (1975)
Institutional transformation.

- Like the 13th century, the 16th century was a period of rising population and increasing land rents.
- But this time Europe responded with an institutional innovation that led to continual increases in productivity.

Why? A more developed market economy.