On the Relationship between Price Regulation and Innovation

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Pharmaceutical Innovation and Pricing Regulation

• In the context of healthcare cost-containment efforts, pharmaceutical products are increasingly subject to strict pricing and reimbursement conditions in many European countries and likely the U.S.

• Relatively little attention has been paid to the (potentially adverse) consequences that pricing and reimbursement regulation may have on pharmaceutical innovation:
  − affects on the number and characteristics of drugs that will be launched in the market in the future?
  − Tension between the global nature of pharmaceutical innovation and the national nature of pricing regulation?

• In a recent study we evaluated the effect of pricing regulation on innovation in the pharmaceutical industry by performing policy experiments in the context of a simulation model

Effect of price regulation on the value of a drug portfolio of a typical pharmaceutical firm

(...after solving the model and calibrating)

- As a result of Internal Reference Pricing, the value of the selected portfolio moves from USD 24,808m under Market-Based Pricing to USD 21,912m - **a drop of 11.7%**

- As a result of External Price Benchmarking, the value of the selected portfolio moves from USD 24,808m under Market-Based Pricing to USD 23,389m - **a drop of 5.7%**

- As a result of Pricing Regulation, the value of the selected portfolio moves from USD 24,808m under Market-Based Pricing to USD 19,904m - **a drop of 19.8%**
Effect of pricing regulation on the number of drugs developed and launched

<table>
<thead>
<tr>
<th>Policy Scenario</th>
<th>Market-Based Pricing</th>
<th>Internal Reference Pricing (IRP)</th>
<th>External Price Benchmarking (EPB)</th>
<th>Pricing Regulation (both IRP and EPB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of potential projects</td>
<td>Highly innovative</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of projects developed</td>
<td>Highly innovative</td>
<td>32</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>54</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>Expected number of projects launched</td>
<td>Highly innovative</td>
<td>13.98</td>
<td>12.92</td>
<td>12.68</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>21.94</td>
<td>20.15</td>
<td>20.64</td>
</tr>
</tbody>
</table>

The expected number of highly innovative drugs launched under IRP and EPB declines by respectively 8% and 9%.

Under the combination of IRP and EPB, this decline is equal to 19%.
Policy conclusion

- Pricing and reimbursement regulation affects pharmaceutical innovation, by
  - Reducing the value of pharmaceutical projects and the resources available to carry them out
- The benefits of more affordable or cost-effective drugs must be traded against the costs of less pharmaceutical innovation
  - Fewer projects are developed in general
  - Different therapeutical areas will be developed
Thank you!

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