

A Review of the Impact of Regulation on the Chemical Industry

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EXECUTIVE SUMMARY

This report explores the claim that health, safety and environmental (HS&E) regulation in the European Union has reduced the capacity of the European chemicals industry to innovate. It is argued that the higher costs and the slower pace of processes for notifying new chemical products in the EU has put the European chemicals industry at a disadvantage relative to competitors in the US and Japan. This debate is significant against the background of current proposals to reform European chemicals regulation.

The main conclusions of a review of academic and related literatures are:

1. There is no consensus about whether regulation inhibits or stimulates innovation in industry; it is likely that in most cases regulation both inhibits and stimulates innovation, playing a *modulating* role. For instance, in many countries the most successful firms and industries are also those that face the highest levels of regulation – pharmaceuticals in the UK compared to France, chemicals in Germany, pulp and paper in Sweden and aerospace and finance in the US. Despite a long tradition of research on the question of how regulation influences innovation in different industries and in different countries, it is far from clear where the balance between these two effects falls.
2. Empirical studies have failed to solve the problem of whether regulation tends to inhibit or stimulate innovation. In particular, there is disagreement amongst scholars about how innovation and regulation – as variables – should be measured, coupled with an absence of the appropriate and comparable databases which can be used to measure such variables.
3. Despite these theoretical and methodological difficulties, the available evidence supports two conclusions:
 - The introduction of new regulation causes a temporary shock to innovative activity in firms that has a negative effect on the overall *rate* of innovation. How serious this shock is and how long it persists varies from case to case.

- There has been a convergence in the rates of notification of new chemicals between the US and Europe over the past decade. There may be several reasons for this, but this finding undermines the claim that the European chemicals industry is less innovative than its US counterpart. On several measures, European dominance in the chemicals industry has increased in the past decade. Such vitality is founded on high levels of innovation.
4. Major methodological problems have been identified in many of studies reviewed here. At present they are of limited value to policy makers. Some studies draw policy conclusions by *only looking at the private costs* of regulation and not at the social and environmental benefits. One of the main goals of environmental and social regulation is to screen out new technologies with potentially adverse effects. The extent to which one regulatory system does this more effectively than another is rarely considered.
 5. Even if it were possible to do accurate assessments of the overall costs and benefits of different regulatory regimes, their relative rankings would remain largely subjective and involve political judgements that cannot be definitively answered by policy research. Given the different public attitudes towards the regulation of technological risk in the US and Europe, care must be taken when extrapolating from one context to another.
 6. It is important to highlight the uncertain, time-lagged costs associated with unexpected problems created by lax regulatory regimes. These costs may not be manifest until far into the future and are impossible to incorporate in cost-benefit analysis today. Slightly greater care in the present may avoid major social and environmental costs in the future.
 7. The impact of HS&E regulation needs to be considered within a wider context than short-term changes in the rate of innovation alone. The innovation process for new chemicals is influenced by many factors and it is difficult to isolate the influence of health, safety and environment regulations alone. Many other private and public policies influence the rate of innovation such as science, R&D, intellectual property rights and pricing policies. As these differ between Europe, the US and Japan, one cannot relate differences in innovation directly to differences in HS&E regulation. The historically lower rates of innovation in the EU are likely to be caused mainly by factors other than HS&E regulation.