Spectrum of regulatory responses

Foundation paper for the Regulation 2025 strategy project

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Purpose of the foundation paper

Cognitus was commissioned to prepare a high-level review of the spectrum of regulatory approaches commonly used in developed economies. The observed spectrum is explained in terms of technological innovations in both regulated industries and regulation itself. The rationales for different regulatory approaches are summarised, as are their pros and cons. Finally, some likely future directions in transport regulation are discussed, with particular reference to the regulatory challenges and opportunities presented by tracking technologies, unmanned vehicles (e.g. driverless cars), and alternative passenger transport services (e.g. Uber).

Context

The Ministry of Transport applies a range of regulatory tools to influence the behaviour of regulated parties. Each tool has costs and benefits, and often involves trade-offs (e.g. ease and objectivity of enforcement versus preserving incentives for innovation). These trade-offs, and even the rationale for regulation, can change as new technologies emerge. For example, driver licensing becomes less important (and manufacturer licensing more) as cars become more autonomous.

Key themes

- Regulation refers to deliberate actions taken by government or government agencies to influence the behaviours of producers and/or consumers. As such, it can be considered a form of governance, which refers to modes of action coordination more generally.
- Regulatory authority is often multi-tiered, deriving from international agreements and local laws at one extreme, through to self or co-regulation under delegated authority at the other. International agreements are especially important in cross-border transportation – e.g. aviation and maritime.
- Reasons why regulation might be required include normative rationales such as the control of market power, third-party costs ("externalities") and people acting in apparently irrational ways ("cognitive biases"). Reasons why regulation might arise in practice – positive rationales – also include interest groups using regulation to gain advantages.
- Regulatory changes are often a response to shocks (e.g. oil spills, or terrorist attacks). They also arise in response to changing social norms (e.g. heightened demand for worker or passenger safety, or more/less favourable attitudes towards market-based activity). Regulatory technology is constantly evolving in response to new challenges, and as a consequence of new learning and experience. It also evolves to reflect changing

Diagram 1: Key drivers of regulatory change.

Supply Side ("Push") Drivers

- **Regulatory innovation** – e.g. incentive regulation of utilities, toll road auctions
- Experience, experimentation, learning

Demand Side ("Pull") Drivers

- **Shocks** – e.g. global financial crisis, September 2011
- **Changing norms** – e.g. increasing demand for safety or environmental sustainability
- **Changing technology** – e.g. horse-drawn carts replaced by canal boats, replaced by trains, replaced by trucks and cars, replaced by aeroplanes and driverless vehicles
- Protecting consumers after privatisation of state-owned monopolies
- Competition between consumer, producer, political or environmental interests

(e.g. “disruptive”) technologies – e.g. autonomous vehicles now; the advent of automobiles last century and rail the century before.

- Traditional “command and control” regulation involved control of prices, quantities and/or quality, as well as industry entry and exit. This proved informationally demanding, costly and distorting, so alternative approaches have evolved. Incentive regulation is one alternative, providing firms with incentives to use their private information to reduce costs.

- Public-Private Partnerships (PPPs) are another, using tenders to induce firms to compete “for the market”, and preserving incentives for efficient project design, build and operation. General rules to protect competition complement and sometimes substitute for industry regulation, as do alternative forms of ownership (e.g. customer-ownership of firms to reduce harms from market power abuse).

- Other traditional regulatory tools include taxes and subsidies to provide firms with price signals that change their behaviour. Like command and control regulation these can be informationally demanding, so alternatives such as “cap and trade” schemes have evolved, especially in environmental regulation. Liability rules are another tool, such as statutory liability for environmental damages or worker safety. These seek to deter undesirable outcomes, and can be effective where voluntary compliance cannot be relied upon (but might undermine such cooperation otherwise).

- Self or co-regulation is often used where regulated parties are best able to judge performance, and professional ethics/standards and/or the threat of stricter regulation can be relied upon to discipline performance.

- Another important class of traditional regulation is standards. Process standards specify technologies to use, so are easy to enforce but can impede innovation. Performance standards specify desired outcomes, so are harder to enforce but provide incentives to innovate (i.e. find lower-cost ways of complying).

- Finally, more modern regulatory techniques include influencing preferences (e.g. social marketing to change drink-driver attitudes), as well as using insights from psychology (e.g. “nudge”) to compensate for apparent cognitive biases. Examples include simplifying information to compensate for information overload, and “cooling off” periods to compensate for impulsive choices.

Emerging findings

With major new transportation technologies emerging, and the current explosion in information technologies more generally, changes in regulatory approach are likely to be needed, and new tools will be available. Ubiquitous monitoring/tracking technologies such as smartphones offer the potential for regulators to use more informationally-demanding approaches, such as real-time road usage charges. These could change the rationale for public ownership of roads.

Alternatively, smartphones empower consumers in ways that can reduce or eliminate the need for regulation (e.g. ratings websites in lieu of imposing quality standards). Platforms such as Uber challenge traditional passenger transport services and regulation, offering improved pricing and quality. Future regulation might therefore focus more on protecting the quality of private data (e.g. avoiding ratings manipulations) than service quality itself.

Unmanned vehicles raise new issues such as liability for crashes, but also offer the potential to significantly reduce crash risk. Remotely piloted aircraft systems raise safety, security and privacy issues, while opening up new possibilities in a range of areas (e.g. freight delivery).

The challenge for regulators is to balance the need to adapt quickly to such technology changes against the risk of creating undue regulatory uncertainty or rigidity (which affect long-term investment, and innovation). More rapid technology change potentially shifts this balance towards the former.

Conclusions

The increasing pace of technology change requires transport regulators to strike a new balance between responsiveness and flexibility on the one hand, and consistency/commitment on the other. This increased pace of change also reduces the expected lives of many investments, which reduces the need for consistency/commitment. With more information in users' hands, greater reliance on non-regulatory approaches can be expected. Also, technologies that enable better performance measurement enable greater use of performance-oriented rather than prescriptive approaches, which facilitates further innovation.

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