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The destabilisation of existing regimes: Confronting a multi-dimensional framework with a case study of the British coal industry (1913–1967)

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ABSTRACT

Because innovation studies are oriented towards novelty, scholars in this field have paid less attention to the destabilisation of *existing* regimes. This paper discusses four views on industry destabilisation and presents an encompassing conceptual framework, which addresses interactions between the build-up of external pressures, industry response strategies, and the gradual weakening of commitment to existing regime elements. We confront the framework with an in-depth longitudinal case study of the British coal industry (1913–1967). Specific conclusions are developed about different degrees of regime inertia, the ebb and flow of external pressures, the relative importance of economic and socio-political pressures, and interactions between them.

1. Introduction

This article addresses a neglected topic in the literature on technical change and innovation: the destabilisation of existing industry regimes. While the innovation studies literature has paid much attention to the emergence of novelty and the lock-in mechanisms that create stability and path dependence, less attention has been paid to the reverse topics of unlocking and the loss of stability. We will investigate the topic of destabilisation for well-established industries and propose a multi-dimensional framework.

To delineate the topic, we start with understandings of lock-in and path dependence. To explain why incremental innovation proceeds along predictable (technical) trajectories, evolutionary economists (Nelson and Winter, 1982) proposed the notion of technological regimes to indicate that firms-in-industries are locked in by cognitive routines and technical knowledge. Neo-institutional theory also acknowledges the relative stability of industries, which it explains with concepts such as shared beliefs and industry mindsets (Phillips, 1994), regulatory institutions (Scott, 1995), and shared identities and missions. Both theories imply that firms-in-industries are constrained by existing templates (which we later call 'industry regimes'). These templates shape how firms-in-industries perceive threats and opportunities in environments, how they think about solutions, and what they see as appropriate action. While we know much about lock-in and stability, this paper addresses the question: how do how do existing templates (regimes) lose their grip on firms-in-industries?

This question has relevance for the broader debate on strategic reorientation of incumbent industries, which entails a shift from one industry regime to another. In terms of Lewin (1947), who conceptualised strategic change as a three phase-process of unfreezing-change-refreezing, our focus is on the process of 'unfreezing', which we conceptualise as 'unlocking' or 'destabilisation' of an existing industry regime. The question also has relevance for the debate on socio-technical transitions (Geels, 2002; Geels and Schot, 2007), where most contributions focus on the emergence and diffusion of radical innovations. Shove and Walker (2007: 767) suggested that:

> "A more comprehensively systemic approach (...) would also offer an equally detailed analysis of processes that parallels those of innovation, these being trajectories of erosion, decay, and fossilisation. (...). Transitions of any description routinely involve and require the loss or abandonment of previously important sociotechnical systems".

In response to this call, Turnheim and Geels (2012) developed an initial conceptual framework on regime destabilisation, which they illustrated with two brief case studies of the UK coal industry (1913–1967, 1967–1997). The present paper builds on but goes beyond Turnheim and Geels (2012) in several ways. Firstly, we provide a deeper literature review to better embed the conceptual

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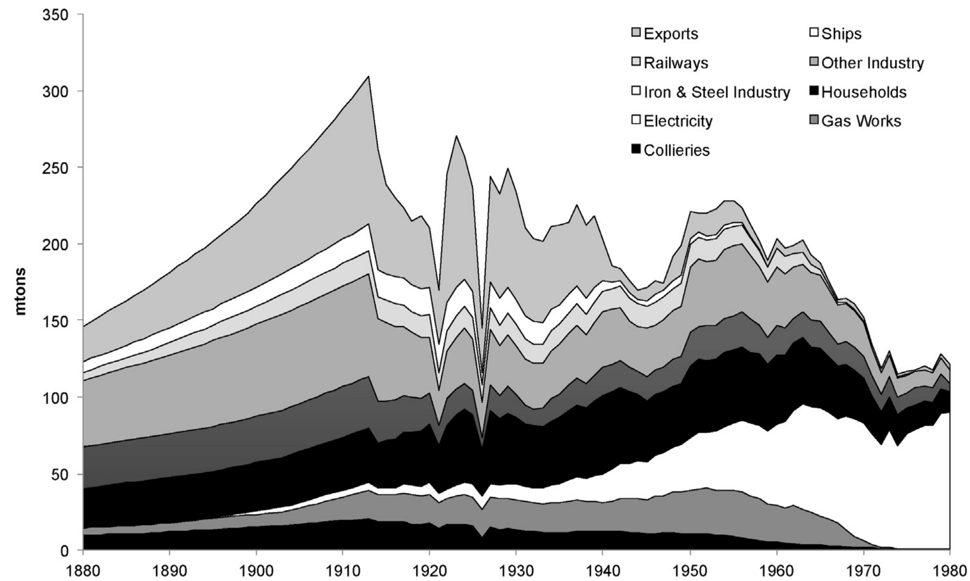

Fig. 1. British coal sales by sector (Data: Fouquet, 2008, DECC Historical data).

framework in the literature. Secondly, we extend the conceptual framework by further articulating interactions between three core processes (accumulation of external pressures, response strategies to performance problems, weakening commitment to regime elements). Thirdly, we articulate epistemological principles for in-depth studies of industry destabilisation (temporal unfolding and process tracing, co-evolution and spillovers, narrative explanation). And, fourthly, as a methodological contribution we develop heuristic spillover figures for tracing interactions between external pressures.

Our conceptualisation of regime destabilisation builds on a triple embeddedness framework (Geels, 2013), which provides a multi-dimensional conceptualisation of incumbent industries. This framework is especially useful for large, politically powerful, and scale-intensive industries (e.g. oil, coal, automobiles, electric utilities, gas, agri-food). For these industries, regime destabilisation is likely to entail not only economic and technical processes, but also political and cultural processes. The conceptual model on regime destabilisation therefore distinguishes three core dimensions: (1) flow of financial *resources* from an external economic environment (markets, supply), (2) *legitimacy* and support from wider public and policymakers in an external socio-political environment), (3) endogenous *commitment* of firms-in-industries to the existing regime (trust, confidence). Our basic explanation is that destabilisation entails pressures from external environments (e.g. declining markets, eroding legitimacy), which create problems for firms-in-industries (e.g. financial losses, worsening reputation, decreasing support), which undermine their commitment to the existing industry regime. Early destabilisation implies actors formulating doubts and asking questions about the suitability of existing practices, technologies, beliefs, business models. Full destabilisation means that they lose faith in the existing industry regime and (want to) move to a new regime.

This initial discussion means that regime destabilisation is *not* the same as economic decline (shrinking markets, bankruptcies). Instead, we see economic decline as a contributor to destabilisation. But this contribution does not always have immediate effects. In fact, our case study will show that the British coal industry experienced economic decline for 40 years (1914–1946), but remained committed to core elements of the industry regime. The case study thus shows the strength of (some) lock-in mechanisms associated with deeply entrenched regimes.

We confront the conceptual framework with a longitudinal case study of the British coal industry (1913–1967), which is an exemplar of a large, socially embedded, and politically relevant industry. In 1913, coal was the single largest employer of industrial labour, providing jobs to 10% of the occupied male population (Dintenfass, 1992). Coal exports accounted for 10% of the total value of British exports. Coal was also used in many domains, e.g. households, factories, railways, steamships, iron and steel industries, gas works, electric power stations, and collieries.

Since World War I, the industry experienced a decades-long decline in overall markets (Fig. 1), which was halted by the post-war reconstruction boom. After the local peak in 1957, markets further declined, especially after the 1965 White Paper on Fuel Policy, which institutionalised the shift towards a four-fuel economy (coal, nuclear power, natural gas, oil).

Regime destabilisation is more complicated than declining markets. In the inter-war period, coal industry actors remained committed to the existing regime: (a) the perceived mission and identity was a supply-side oriented extraction industry (limitedly attentive to the demand side); (b) the core mindset was that Britain was built on coal and would remain so in the future; (c) technical operations were labour-intensive and craft-based. One regime element (technical operations and capabilities) was changed in the post-war mechanisation and modernisation programmes (implying destabilisation of previous routines and capabilities). Full destabilisation occurred in the late 1950s and early 1960s when declining markets, accumulating losses, and decreasing political support undermined the confidence of industry actors. Industry actors then abandoned existing mindsets, identity, business models, and technology, and shifted to a new industry regime.

The case study will further explore these dynamics and test the plausibility of the extended conceptual model. We bound the case study in 1967, because industry actors had by then lost confidence in the old industry regime and moved towards a new one.[1]

Section 2 briefly discusses insights from existing literatures and presents an integrative conceptual framework on regime destabilisation. Section 3 discusses epistemological assumptions,

[1] Our analysis focuses on the aggregate industry. We acknowledge the regional diversity of the British coal industry, but can unfortunately not do justice to local variations because of space limitations.