



# Restructuring on a vertiginous plateau: The evolutionary trajectories of British Columbia's forest industries 1980–2010

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## ABSTRACT

The volatility of British Columbia's (BC's) forest industries over the last three decades has not only reflected the immediate impacts of demand fluctuations arising from the broader vicissitudes of capitalist economies but the evolutionary implications of industrial and resource dynamics. The 1980s recession in particular marked a turning point in the evolutionary trajectory of BC's forest industries, associated with global paradigmatic changes driven by flexibility imperatives, the maturation of the forestry resource cycle to the plateau or fall-down stage, and conflicts caused by environmental, social and trade protectionist opposition to vested industry interests. This paper focuses on the broad contours of the restructuring of BC's forest industries since 1980. Conceptually, the paper elaborates a resource industry life-cycle model (RILCM) that integrates industry and resource cycle dynamics and the implications of economic crisis. Empirically, the analysis uses longitudinal output and employment data, summaries of the policy re-regulation of the BC forest economy since 1980, and comparative static plant-level data, 1980–2008. The analysis reveals the 1980s recession as a turning point in the transformation of BC's forest industries, characterized by high levels of volatility and long-term decline in the main commodities. Industrial restructuring has also witnessed a fragmentation of production, the emergence of small firm dominated value-added activities, and broad changes to the coreperiphery structure of the forest industries within BC. It is argued that evolutionary approaches to economic geography need to incorporate resource peripheries and crisis and acknowledge the role of crisis and non-economic factors in shaping regional transformation.

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## 1. Introduction

British Columbia's (BC's) forest economy has been remarkably volatile for over three decades, at least as long as the prior long Fordist boom, ca. 1946–1970. Dependent on commodity exports to the world's major markets, especially the US, the booming and busting of BC's main commodity industries provide an insightful barometer of the broader vicissitudes of capitalist economies. Indeed, the volatility of BC's forest economy is not simply demand driven but stimulated by evolutionary changes that are transforming its industrial, organizational and spatial structure. Amongst these, the most significant changes are associated with the severe recession of the late 1970s and early 1980s – for Casetti (1981) a 'catastrophe' – which is now recognised as a 'turning point' (Clark, 1986) throughout western economies, often summarized as a transformation from Fordist production systems to more flexible production, organization and labour relations associated with post-Fordism, the information and communication techno-economic paradigm (ICT), flexible accumulation, flexible specialization, or simply as globalization (Castells, 1996; Freeman and Perez, 1988; Harvey, 1989; Lipietz, 1986; Piore and Sabel, 1984).

For the BC forest economy this turning point posed challenges to restructuring from three distinct, albeit inter-related perspectives. First, the flexibility-driven technological and market forces underlying economy-wide restructuring also engulfed BC's forest industries, beginning in 1980/1981 (Barnes and Hayter, 1997). Second, in BC the forest resource cycle reached the mature or 'plateau' stage during the recession, as harvest levels levelled off after decades of expansion and were expected then to decline (Clapp, 1998). Third, the recession catalyzed intense and enduring trade, environmental and cultural conflicts ('wars in the woods') over established forest practices that have stimulated a "re-regulation" of the forest economy (Hayter, 2000; see also Bridge and Jonas, 2002). Moreover, the restructuring efforts of the BC forest industry have been challenged by alternating sharp booms and deep busts for over three decades. The resource cycle plateau on which the industry now sits has been neither flat nor gently undulating but vertiginous and highly unstable, swinging wildly between promises of renewed growth and fears of precipitous decline.

This paper's specific objective is to interpret the broad contours of the restructuring of BC's forest industries between 1980 and 2010, since their entry into the highly volatile plateau stage of the resource cycle. For the industry the entire period may be char-

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acterized as a “crisis of structural adjustment” (Freeman and Louça, 2001; Freeman and Perez, 1988), or simply of ongoing restructuring. In Perez’s (2009) terminology, an interplay of ‘techno-economic’ and ‘socio-institutional’ factors is re-regulating the forest economy and shaping its restructuring. Our claim is that socio-institutional considerations, rooted in re-evaluations of the forest resource, are not simply responding to technological and economic imperatives of competition, as is commonly assumed, but are themselves important drivers of industrial restructuring and regional competitiveness. The paper’s more general objective is to contribute towards the recent upsurge of interest in the evolutionary trajectories of industries, firms and clusters over long periods of time within economic geography (Boschma and Martin, 2010; Mackinnon et al., 2009; Rafiqui, 2009). Several key concepts that have characterized this increasing interest – namely the industry life cycle model (ILCM), path dependency, lock-ins, cumulative causation, and adaptation – are important to this study. However, the literature has focused on agglomerations or clusters, especially with respect to secondary manufacturing and service activities and to long run changes in technical, market, competitive and institutional conditions, typically without much reference to resource industries and peripheries or volatility or economic crisis (Li and Bathelt, 2011; Neffke et al., 2011; Potter and Watts, 2010). Our paper seeks to redress this neglected theme.

Resource industries and peripheries play vital roles in the global economy, their fortunes interdependent with cores even if the balance of decision-making power favours the latter. If urbanization and localization economies are intimately connected to economic growth, the dispersion of resource industries to remote corners of the globe is a reminder of the powerful centrifugal as well as centripetal effects of agglomerations. Core-periphery relations also occur at different scales, including within peripheries themselves. Fundamentally, the distinctiveness of resource-led regional growth rests on the direct exploitation of nature that depletes both the industrial and non-industrial values of resources. According to the resource cycle thesis, industry typically first depletes the most accessible, highest quality supplies. Over time, exploitation costs increase while the quantity and quality of resources at some point ‘plateau’ and then decline, even in the case of renewable resources (Clapp, 1998). Simultaneously, resource depletion creates problems of environmental, cultural and aesthetic degradation, raising social and political concerns for their sustainability. Further, the revenues and profits of resource extraction are typically volatile. Located in remote, specialized places, often controlled by multinational corporations, many resource industries are dependent on exports that fluctuate according to demands of distant markets and priorities of distant decision-makers. Competition within and among resource producers and regions can be considerable, and subject to the geopolitical interests of the core countries they supply. Indeed the evolutionary trajectories of resource industries and regions are shaped by a complex interaction of economic and non-economic factors and resource peripheries have become both volatile and contested spaces, as the recent proliferation of ‘resource wars’ around the globe testifies (Affolderbach, 2011; Le Billon, 2008). This paper provides one illustration of the distinctive nature of resource-based industrial and regional transformation.

Conceptually, the analysis is framed by the Resource Industry Life Cycle Model (RILCM) that combines the ILCM with the resource cycle thesis, and which is further elaborated with respect to business cycle dynamics that feature normal recessions (even during upswings) and turning point recessions and crises of structural adjustment associated with long-term decline. Empirically, the analysis highlights broad trends and the nature of the evolutionary geography of BC’s forest industries as a whole. Longitudinal profiles (time series) based on government sources and original databases provide the principal source of information while our

interpretation draws upon and contributes to a rich inter-disciplinary institutional or political economy literature on BC’s forest economy, particularly complementing earlier studies of industrial restructuring in the 1980s (e.g. Barnes and Hayter, 1997; Grass and Hayter, 1989).

## 2. Resource industry life cycles and the structural crisis of post-Fordism

The ILCM has been a significant theme in evolutionary approaches within economics and economic geography. Within economics, Peltoniemi (2011) reviewed over 200 studies that had assessed the ILCM model in numerous activities, especially in manufacturing, services and cultural industries, since its introduction in the mid-1970s and application to the US auto industry (Abernathy and Utterback, 1978; Utterback and Abernathy, 1975). Peltoniemi identified three central themes explored by these studies, namely changes in industry structure, the nature of innovation, knowledge creation and learning processes, and survival (entry and exit) rates, and noted that industry shakeouts are key events in the ILCM. Interestingly in this literature, shakeouts or “mass extinctions” (Peltoniemi, 2011, 6) involving persistent declines in the number of firms are particularly emphasized as a feature of *early* stages of industry development, when sales growth driven by a proliferation of small firms cannot be sustained at a sufficiently high level, especially as internal economies of scale become important, and as product variety declines. Within economic geography, how industrial evolution is shaped by place (and across space) is a central theme especially with regard to the changing competitiveness of industrial agglomerations or clusters over long periods of time (Li and Bathelt, 2011; Potter and Watts, 2010). These studies have recognized that even in the same industry the path dependent behaviour of firms, forms of industrial organization, innovative activity, the nature of shakeouts, and adaptation to crisis evolve in different ways in different places (Belussi and Sedita, 2009; Immarino and McCann, 2006; Martin and Sunley, 2011). Moreover, maturity can be an extraordinarily long ‘stage’, and take on many different forms in particular places, ranging from outright deindustrialization to various forms of survival and rejuvenation that can involve consolidation with job loss with or without output change, market and trade diversification, niche development, and greater emphasis on efficiency and product innovation. Indeed, such alternatives helped stimulate Abernathy and Utterback’s (1978) original interest in the ILCM. Understanding geographic variation in evolutionary trajectories can be further enriched by consideration of resource cycle dynamics, including their booming and busting, in resource peripheries.

In its basic formulations, Clapp’s (1998) resource cycle thesis overlaps with the ILCM; both models summarize industrial evolution in terms of life cycle processes, expressed as birth (pioneering), growth, maturity and decline in the former case and discovery, growth, plateau effects, decline and collapse in the latter. As a generic template they can be readily combined as the Resource Industry Life Cycle Model (RILCM) with the summary trajectory modified by the reality of business cycle dynamics (Fig. 1). As with the ILCM template, the pioneering, rapid growth stages of many resource peripheries feature competitive entrepreneurial regimes that give way to vertically and horizontally integrated corporations as firm and factory-level economies of scale become more significant. In tandem, innovation is increasingly process-oriented. Also, in the RILCM decline and abandonment phases can be extremely long, punctuated by rejuvenation and survival strategies, as technical change can redefine the size of the resource, increase processing efficiencies, and contribute to value-added product differentiation and quality enhancement. However,

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