



The evolution of the Canadian mining industry: The role of regulatory punctuation

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ABSTRACT

In this study, we analyze the evolution of Canada's mining industry from 1929 to 2006, focussing on the determinants of the number of firms in the industry and why this number changed over that period. Most empirical studies of industry evolution have focused on manufacturing industries that share similar structural characteristics. Perhaps because of this, extant models of industry evolution tend to ignore industry-specific and national-specific factors that can cause atypical trajectories, that is, heterogeneous industry evolution. Initial inspection of the Canadian mining industry shows that it is atypical in that it exhibits "negative skew" over time in the number of firms rather than the typical "positive skew." We review two dominant theoretical approaches to industry evolution: the density-dependence theory and variants of industrial organization economics. We also consider possible sources of industry evolution heterogeneity, focussing particularly on "regulatory punctuation". Using Canadian mining data, we find that the traditional models do not fully explain the changes in population size in Canada's mining industry. As a result, we introduce a number of hybrid models. The results from these hybrid models suggest that Canadian-specific regulatory punctuations, particularly the introduction of significant new taxes, environmental legislation, and incentives have shaped the trajectory of mining firm participation.

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Introduction: Is Mining Different?

Industry dynamics is a fundamental issue in a number of fields, including business strategy, industrial economics and organizational science. Although with the rise of the resource-based view of the firm there has been increasing interest in the strategic behavior of firms, the empirical evidence suggests that "industry matters", and that, in many industries, it matters a great deal (McGahan and Porter, 1997).

One of the most important questions concerning industries is how they evolve over extended periods of time. However, industry evolution theory is somewhat generic (Malerba et al., 1999, p. 4). One reason for this is that: "we lack an adequate empirical understanding of the evolutionary process at the single-industry level [emphasis added] from the early to the late stages of its life cycle (Carree and Thurik, 2000, pp. 254–5)." Most empirical

studies have focused on manufacturing industries that share many similar structural characteristics. We are aware of no studies, for example, that examine the evolution of mining in a given country.

In this study we examine the evolution of the Canadian mining industry from 1929 through to 2006. The Canadian mining sector is one of the largest and most important in the world. As of 2006, there were more mining companies listed on the Toronto Stock Exchange (TSX) and the TSX Venture Stock exchange than on the Australian, UK, US (NYSE and Amex) and South African exchanges combined (Clark 2007, slide 8). Clark (2007, slide 10) estimates that as of the approximately \$31.7 billion equity raised on stock exchanges in 2006 by exploration and mining companies, 38.2% was raised in Canada; by comparison, 35.7% of this total was raised in the UK and 8.7% of the total in Australia. Finally, over 20% of worldwide mining exploration spending takes place in Canada (Clark, 2007, slide 5). Two of the most important global mining centres are located in Canada: Vancouver is a center for exploration, capital acquisition, and mining expertise, especially as these relate to South American and Asian mining. Toronto is a center for mining finance and venture capital and the HQs of the

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