

**SSHRC Imagining Canada's Future Initiative
Knowledge Synthesis: Energy and Natural Resources**

Environmental performance and the future of Canada's forest industry: What we know, don't know and ought to know

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Key messages

This project aimed at examining the relationship between environmental performance and industry competitiveness, particularly in the context of forest sector. Upon reviewing and analyzing a total of 202 peer-reviewed articles, we offer four key messages, each outlined below in turn:

1. Environmental performance may lead to improved profitability.

There is a mixed evidence that superior environmental performance is associated with better financial performance. Endogeneity concerns in the extant literature are paramount; and the cause-effect relationships remain, more or less, indefensible. That said, in the wake of numerous convincing theoretical arguments, it is plausible that in some cases, an environmental focus might lead to improved profitability.

2. Pathways to improved profitability are ambiguous.

Whether environmental performance could lead to better financial performance is dependent upon a number of external contingencies, particularly rivals' behavior and consumers' preferences. Environmental performance indeed helps a firm develop positive reputation which may or may not reflect on its bottom-line. Similarly, environmental performance may help a firm develop certain internal capabilities but again those may remain untranslated into profitability.

3. Individual firms' profitability hardly translates into industry level competitiveness.

Impact of an individual firm's environmental performance on profitability aside; but, extrapolating these findings to a country's entire industry is a troublesome stretch. Further, while individual firms can reap marketplace advantages based on environmental performance but it is unclear as to how those advantages can be sustained over the long term, especially when firms with superior environmental performance must compete with low cost producers in a globalized marketplace wherein majority of customers have the option to buy cheaper goods (often resulting from lower environmental compliance).

4. There are glaring research gaps.

Future research should address the following two gaps in knowledge:

- (a) **Conceptual gap:** How firm level effects of environmental performance on financial performance can be extrapolated to an industry's level?
- (b) **Contextual gap:** In what ways global asymmetry in forest industry's environmental performance across countries can be prevented from being a competitive threat to Canada's forest sector?

Executive summary

Natural resource-based economies like Canada are now being confronted with a fundamental question that has long baffled both management and economics scholars. How can a higher environmental performance help an industry to become more competitive globally? Finding an answer to this question is paramount with Canada poised to sustainably harness its natural resources and compete in globalized markets with countries that have not only lower costs of production, but much lower environmental standards. The core objective of this knowledge synthesis project was to address this question in the context of the Canadian forest industry.

This issue is significant because the forest industry has historically been one of Canada's most important economic engines. It directly and indirectly provides high quality employment for over one-half million Canadians, contributes approximately twenty billion dollars to the gross domestic product, and constitutes a significant proportion of Canada's total exports (NRC 2013). However, over the last decade the Canadian forest industry has been on a downward trajectory. A large number of paper mills, sawmills, and furniture manufacturing companies have closed down, resulting in an approximately thirty percent job loss in the sector nationwide. While some of this decline was induced by short-term changes, such as a slump in the US housing market, it is now widely recognized that the Canadian forest sector is losing its long held footing in global markets, particularly in case of value-added products. In parallel, the Canadian forest industry has endured increased environmental scrutiny in recent years (Cashore 2002, Winn et al. 2008), and – as many argue – has evolved from having a rather reactionary stance on environmental issues (Zietsma et al. 2002) to championing the cause of sustainable forestry (Driscoll 2006; Kozak 2014). Today, many scholars and practitioners assert that Canada's forest industry represents one of the most progressive examples of environmental stewardship (NRC 2013), and its environmental excellence is touted as one of the key strengths that it could leverage in order to gain an edge in global markets.

This belief that superior environmental performance leads to marketplace competitiveness is rooted in widely accepted management theory (Barney 1991), yet there remain knowledge gaps that severely limit the ability to precisely understand how environmental performance would ultimately result in a competitive advantage especially when there is very little evidence to support that consumers reward firms based on their environmental performance. This lack of clarity puts the Canadian forest industry in a double bind. On the one hand, they must adhere to higher environmental performance, and on the other, higher environmental performance might mean higher costs of doing business and a resultant lower competitiveness in global markets.

With this as a backdrop, we argued that it is an imperative to develop a clearer understanding of whether and how superior environmental performance would lead to higher competitiveness for the Canadian forest industry. This systematic literature review was conducted to shed light on this issue.

In the absence of this knowledge, neither can a vibrant forest sector that provides economic benefits to millions of Canadians be developed, nor can forest sector companies be fully engaged in setting even higher standards of environmental performance.

We proceeded as follows. We first created a preliminary list of keywords/phrases and journals to conduct literature review. We then identified 80 experts from various fields (primarily management and forestry) and asked if they could review the lists of keywords/phrases and journals to make additional suggestions. 50 experts responded with feedback and/or suggestions. Initially, all of the suggestions were included in the search, which was conducted using Boolean terms in Web of Science. The preliminary search results exceeded 25,000 articles – far too many to review in the given amount of time. Upon review, we determined that some of the search parameters were vague and not directly related to our research question. Consequently, we eliminated search parameters we felt were extraneous to our research objectives. We searched the revised list of keywords/phrases and journals, which resulted in 1920 articles. We reviewed abstracts of 1920 articles. 1362 articles were eliminated, leaving 558 for a more thorough review. Through the review of the remaining 558 articles, an additional 356 articles were eliminated. Thus, 202 articles comprised the final review. An inter-rater reliability check was performed to ensure reliability of this review project. Our review and analyses led to four major conclusions.

Environmental performance may lead to improved profitability: There is a mixed evidence that superior environmental performance is associated with better financial performance. Endogeneity concerns in the extant literature are paramount; and the cause-effect relationships remain, more or less, indefensible. That said, in the wake of numerous convincing theoretical arguments, it is plausible that in some cases, an environmental focus might lead to improved profitability.

Pathways to improved profitability are ambiguous: Whether environmental performance could lead to better financial performance is dependent upon a number of external contingencies, particularly rivals' behavior and consumers' preferences. Environmental performance indeed helps a firm develop positive reputation which may or may not reflect on its bottom-line. Similarly, environmental performance may help a firm develop certain internal capabilities but again those may remain untranslated into profitability.

Individual firms' profitability hardly translates into industry level competitiveness: Impact of an individual firm's environmental performance on profitability aside; but, extrapolating these findings to a country's entire industry is a troublesome stretch. Further, while individual firms can reap marketplace advantages based on environmental performance but it is unclear as to how those advantages can be sustained over the long term, especially when firms with superior environmental performance must compete with low cost producers in a globalized marketplace wherein majority of customers have the option to buy cheaper goods (often resulting from lower environmental compliance).

Future research should address the following questions:

- (a) How firm level effects of environmental performance can be extrapolated to industry level?
- (b) In which ways global asymmetry in forest industry's environmental performance across countries can be prevented from being a competitive threat to Canada's forest sector?