

Economics and Environmental Policy Research Network

Research Symposium

March 1st – 2nd, 2018

Research Questions and Priorities

One of the objectives of the EEPN Symposium held in March 2018 was to identify research questions and priorities to inform the research activities of Smart Prosperity Institute's network over the coming years. These research questions are summarized below. They are grouped into the topics of the main plenary and keynote sessions presented at the symposium. More complete session summary notes capturing the context of the various discussions are [available here](#).

1. Current Landscape/Clean Innovation Policy Developments in Canada

- What are the different pathways through which finance can support the dissemination and adoption of clean technologies? How can we 'crowd in' private capital or utilize the interactions between digital financial technologies and clean technologies?
- Demand-side strategies for promoting clean innovation: which policies – carbon/pollution pricing, flexible regulations, subsidies and clean procurement – should receive the greatest emphasis for stimulating demand for clean innovations? Given the fact that Canada is a relatively small market, what sorts of measures might be needed to access other markets (which may or may not have stringent environmental policy in place)?
- Research on the role of regulatory modernization and harmonization in promoting clean innovation.
- How to promote a clean innovation skills agenda?
- What is the relationship between environmental regulation and economic growth and competitiveness?
- How do we compare the stringency of environmental regulations and competitiveness impacts across sectors?
- Are governments with stronger commitments to environmental protection more likely to implement certain kinds of policies?
- What is the importance of institutions and governance structures in securing effective environmental and economic outcomes, as well as broader public support?
- What is the role of elites (e.g. public intellectuals, industry, and ENGOs) in the policy process? What forms does their engagement in the policy process take – e.g. public commentary, or lobbying – and how do they influence policy outcomes?
- How path-dependent are environmental policy packages? How did existing policy framework and institutions shape outcomes?
- What are the best predictors of policy durability for carbon pricing and environmental policies?
- What are the data needs for assessing clean innovation outcomes?

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2. Environmental Regulation, Carbon Pricing & Economic Competitiveness

- What do we mean by “competitiveness”? i.e. what are possible reasons why researchers get different results when they look at different measures of competitiveness?
- Why do we see the impacts on competitiveness that we do? In other words, when we find a positive impact on one variable and a negative impact on the other, how do we interpret these results, especially when the results are counterintuitive or inconsistent?
- Further research into the “job shift” hypothesis.
- Research into possible alternative measures for investigating the competitiveness impact: e.g. the productivity impact.

3. Carbon Pricing, Climate Policy Mixes and Clean Innovation Outcomes

- What drives cost reductions in renewables? Research has already examined the impact of patents on the price of renewables, but how do we take the next step and identify, across different countries, what actually drives the reduced costs we are seeing? What policy impacts really drive down the costs?
- What are efficient subsidies for renewables? What is the optimum size / scale of these?
- How does the degree of leakage from policy mixes compare to the degree of leakage from individual policies like pricing?
- What is the role of expectations in terms of policy outcomes and achievement of goals?
- What is the right “mix” of policies (pricing + renewable standards, etc.)? How do we prioritize the “mix”? What goes into a policy mix? How do we both find and incentivize achieving this right balance?
- Removing perverse subsidies? Some of these are very subtle and well-hidden. How do we identify them and eliminate them?
- Role of research / innovation / commercialization subsidies? What is the ideal mix of these and others?
- How do we identify, measure and address knowledge market failures and capital market failures?
- How can thinking about consumer preferences / behavior (i.e. decision science) help us achieve more effective clean innovation outcomes? What else can decision science offer to clean innovation research?
- How can thinking about design theory help us achieve more effective clean innovation outcomes?
- When it comes to mission-oriented innovation, each country has its own mission. E.g. steel: China wants to make it; US wants to keep it. How to compensate losers in such a situation? What are the best ways to compensate the losers in a variety of situations? What novel datasets can we use to look at the implications of “losing” being experienced in different countries and how those have pass-on impacts?
- What is the role of learning by doing?
- How do we improve policy outcome predictions? If not, how do we incorporate recognition of this poor predictability within the policy implementation process?
- What trends or conclusions emerge from a series of case studies of learnings from other countries/sectors, etc.?
- Should we sever climate policy from innovation policy?
- Exploring cases where technologies compete with other technologies: questions on the dynamics of innovation and the structure of different industries are still very much to be explored.

- How do we resolve the tension between driving down renewables costs globally versus individual countries wanting to retain their competitiveness and profitability in a certain field?
- How to transition from short-run incentives aimed at facilitating the entry of new actors in a sector to longer-term incentives focused on post-market entry priorities?

4. Environment and Climate Change Canada's Policy & Research Priorities

- How do we apply pricing to other currently non-priced shared resources/externalities, such as water, road use etc?
- How do different climate policies interact? For instance, how do carbon pricing and fuel standards in California impact each other?
- How do we better incorporate valuation of ecological goods and services into our decision making processes? How do we build the nature agenda into decision making?
- How to structure effective regional assessment, multi-stakeholder models that capture cumulative effects? How to incorporate these into good decision making around specific projects?
- Circular economy and resource efficiency: What can we learn from systems and good practices in Europe that can help us improve recycling rates and resource efficiency here in Canada? How do we structure appropriate incentives to achieve lower resource usage?

5. Public Policy and Unleashing Private Investment for Clean Innovation

- How could the clean technology 'sector' be better measured to inform decision making by financing institutions? You can't manage what you can't measure. What are other jurisdictions around the world doing to address this?
- How can public investment in clean innovation finance best leverage private capital?
- How can environmental risk be better accounted for in financial risk assessment?
- How could alternative capital allocation requirements for cleantech help drive private investment? Knowing that this notion of altering capital allocation buffers is contentious, could clean technology be allocated lower capital risk by Canadian regulators to encourage greater participation in this space?
- What alternative financing instruments could be used to fulfill the unique needs of the cleantech sector? Where existing financial tools aren't meeting the demand of the sector, what alternatives could help fill this gap?
- What else can governments/the public sector do (outside of direct investment support) to help crowd-in private financing and bridge the investment gap?
- What can we learn from other countries regarding tools and solutions to develop financial mechanisms to support the demand of low carbon products and services in Canada?

6. Signaling Policy Predictability for Long-Term Investment in Clean Innovation

- When developing climate policies, there needs to be a link between near term actions and far-off effects. How do we balance short-term actions that fit into much longer term sequence of effects and outcomes?
- A policy requires both long-run predictability and the flexibility to be adapted as conditions change. How do we resolve and balance this stability and adaptability?
- How much policy stickiness is too much?

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- How to link heterogeneous carbon pricing systems across Canada and the world? How can we ensure there is some convergence of these systems if they are all locked in?
- How far in the future do we lock in legal requirements? What is the ideal price trajectory? How far in the future to set it for?
- Robust accountability measures are critical for the longevity of any policy measure. Are we setting up accountability measures to reinforce or to criticize policy?
- What is the role of federalism in climate policy?
- Can we come up with GDP-like measure for climate policy?
- What can we learn from cases of stickiness implementation like the BC Carbon tax? Why did or did it not reach the next level?
- Can we tease out examples from history to ask what the characteristics are of durable institutions/arrangements that survived versus those that didn't? Are historical examples worth examining closely given that there were so many possible pathways and factors that could have resulted in a certain outcome?
- What insights do we obtain from thinking outside of the path-dependencies of our current situation
- Can we develop a robust conceptual definition of policy change vs reversal? To what extent does this separation require the integration of insights from law, governance and economics? How could we operationalize and measure these two concepts? What insights are obtained if we are able to compare data on policy changes versus policy reversals? To what extent can we learn from well-designed policies that enable change (versus badly designed policies that lead to reversal or result in litigation cases for revoking of contracts between governments and private entities)? What is the relationship between policy reversals and credibility of a country, in terms of implications on future low-carbon investments by the private sector?

7. Public Institutions & Governance Models for a Low Carbon Economy

- How do existing governance systems in Canada need to change to drive the low-carbon transition?
- What are the best practices for designing institutions and governance structures to directionalize innovation for low-carbon outcomes?
- How to ensure independence of choices when directionalizing toward clean innovation?
- How can innovation prizes be best used to drive clean innovation? How effective are prizes at driving innovation? What are best practices for designing innovation prize competitions?
- How can existing models of best practices for institutional design and governance be adapted to the Canadian context? Recent announcements of new innovation institutions in Canada, modelled on international examples (i.e. ARPA-e, SBIR), will require adaptation to Canada's unique circumstances.
- Social impacts: How can we ensure that we achieve/maintain equity through widespread and disruptive changes and transitions?