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The rebound effect through industrial ecology's eyes : the case of transport eco-innovation

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Propositions

Thesis: The rebound effect through industrial ecology's eyes: The case of transport eco-innovation

by David Font Vivanco

1. Technology-oriented approaches such as product-level life cycle assessment are valuable yet insufficient for informing environmental policy since they overlook key economic and behavioral responses to technical change. (This thesis)
2. The concept of eco-innovation becomes more meaningful if overpromising objectives on environmental improvement give way to more realistic expectations on resource efficiency. (This thesis)
3. Concepts and methods from industrial ecology have been instrumental in shaping the 'environmental rebound effect' concept, which combines and develops multiple disciplinary perspectives in the context of complex sustainability challenges. (This thesis)
4. Empirical applications of the 'environmental rebound effect' concept for the case of transport innovation evidence a higher diversity of results than previously described, including an increased likelihood of reduced environmental pressures (negative rebound effect) and backfire effects (positive rebound effect of more than 100%). (This thesis)
5. While multiple policy options are available to deal with the rebound effect, their effectiveness largely relies on adequate policy design and policy mix in order to avoid, inter alia, additional rebound effects, welfare losses and environmental trade-offs. (Chapter 8)
6. Industrial ecologists have "overemphasized cars as products and underemphasized the transport system of which the car is such a major part", thus systematically disregarding the effects from the interaction between car technologies and contextual elements (e.g. users) as well as emerging properties of the system such as new uses. (Graedel et al. 2002; Hughes 1987)
7. In the context of environmental conservation strategies, increasing emphasis should be placed on the desired ends (e.g. reduce absolute carbon emissions through caps) rather than on potentially problematic means (e.g. increased energy efficiency via technical change). (Alcott 2010, van den Bergh 2010)
8. Efficiency has become an "objective truth rule" and "the norm by which technological progress is judged" in many contexts such as engineering, economics and policy, thus leaving little if any room to question the counterproductive consequences of its unquestioned pursuit. (Bromley 1990, Moezzi, 2000; Schaefer and Wickert 2015)
9. The fundamental challenge to reconcile the implications of the rebound effect with the current economic growth paradigm may require of transformative changes in the prevailing rational approach to public policy as well as in socio-economic structures. (Levett, 2009; Sorrell, 2010)
10. In Science, incredulity is often evidence of value.
11. With a considerable intellectual stretch, Plato's reflections on the cardinal virtue of social justice in the pursuit of happiness – "We have proved that justice in itself is the best thing for the soul itself, and that the soul ought to do justice"– help to understand William Stanley Jevon's thoughts on the people's unquenchable thirst for the inferior virtue of wealth – "We are like settlers spreading in a rich new country of which the boundaries are yet unknown and unfelt"–.
12. As detective Lester Freamon once observed while comforting his fellow Jimmy McNulty, 'It's the journey, not the destination', a thought that applies to memorable odysseys through lands and seas just as much as becoming a PhD.