

Reliability of using Periodic IO Data to Identify High Return Investments in Efficiency and Environmental Sustainability: An Examination of US Manufactured Tech Products

Topic: Using IO to Advance Investments in Efficiency, Resilience, and Sustainability

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This paper identifies industries within the supply chain for 50 high-tech assembly-centric commodities that have pervasive costs and environmental impacts. Previous examinations have shown that expenditures for research and development in high economic cost areas (e.g., the cost of metal for producing a vehicle) tend to have a higher return on investment than expenditures on low cost areas. Public entities and trade associations could achieve a high return on investment by targeting research and development expenditures in such areas. The results of this analysis show that a minimum of 90.1 % of industries in the supply chain, above the 80th percentile for environmental impact, appear in 2007 and 2012 for each of the 50 commodities. For value added it is 86.4 %. Moreover, high-impact high-cost items are pervasive over time. Eleven industries in the supply chain are above the 80th percentile in both value added and environmental impact for all 50 commodities. These items affect numerous industries and people. Four industries in the supply chain are pervasive over time and across commodities: "Electric power generation", "Oil and gas extraction", "truck transportation", and "Iron and steel mills". These 4 represent industries in the supply chain that are high environmental impact (above the 95th percentile), high cost (above the 95th percentile in value added), and span across numerous commodities while stretching over at least a 5-year period. Research that reduces the consumption of these items or improves the efficiency of producing them will, likely, result in a high return on investment.