

Carbon Content of U.S. Industries and Products

Chamberlain Economics, L.L.C.

Summary

This file contains estimates of the fossil-fuel carbon intensity of U.S. products and industries for calendar year 2002.

Data Description

The data consist of "carbon content factors" for various U.S. products and industries. The factors represent estimates of the share of total U.S. fossil-fuel consumed (in all stages of the production process) for the final goods and services produced in that year. All industry purchases and sales figures are based on the 2002 Benchmark Input-Output accounts maintained by the U.S. Bureau of Economic Analysis.

An industry carbon content factor of p implies that in the process of producing that industry's final annual output of goods and services, it consumed p percentage of total U.S. fossil fuel in that year. Carbon content factors are normalized, summing to 100 across both industries and products. Thus, these factors can be used to distribute total U.S. fossil-fuel carbon emissions to detailed products and industry groups.

Methodology

Using the Chamberlain Economics, L.L.C. Input-Output Model, the estimated carbon intensity of industries and products is based on a "normalized perturbation" of the standard Leontief input-output model. Estimates are obtained by layering a \$100/ton carbon tax on U.S. fossil fuels onto the model, and observing the resulting change in output prices for final goods and services under the assumption of full forward-shifting of tax incidence. The resulting industry-level price impacts are then proportionally distributed to detailed I-O products using crosswalk tables from the BEA's 2002 Benchmark I-O accounts.

For additional detail on the methodology of the underlying input-output model, please see Chamberlain, A. (2009). "Who Pays for Climate Policy? New Estimates of the Household Burden and Economic Impact of a U.S. Cap-and-Trade System." *Tax Foundation Working Paper No. 6*. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1361257

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