

Energy Abundance, Trade and Specialization

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Do energy endowments affect industry location and trade flows? For energy-intensive manufacturing sectors such as metals and chemicals, access to low-cost energy is of crucial importance. Though oil, gas and coal are traded globally, national prices have not converged, since transport costs create a wedge between prices. Hence in the absence of policy intervention, we expect energy to be available more cheaply in energy-abundant countries. Moreover several OPEC members subsidize fossil fuel consumption below the world market price, and industries in the coal-abundant U.S. face much lower coal and electricity prices than their European counterparts. Yet, taxes and subsidies could also counter the effect of local energy availability and whether on average energy endowments lead to lower prices is an empirical question.

In this paper, we test whether energy-intensive industries are overrepresented in and export more from energy-abundant countries. Using a panel data set of 14 OECD countries, we find support for both hypotheses. Energy-abundant countries have 7 to 10 percent higher employment and 13 to 17 percent higher net exports per value added in energy-intensive sectors vis-à-vis otherwise comparable countries. Conversely, energy-scarce countries have 7 to 10 percent higher employment and 13 to 17 percent higher net exports in energy-non-intensive sectors than otherwise comparable countries.

Energy prices are a likely transmission channel for the effect of energy endowments on industry location and trade. We find that energy-abundant countries have lower energy prices, and through this mechanism employment and net exports in energy-intensive industries are stimulated. Our empirical analysis does not look into energy policy directly because it is hard to establish the direction of causality: energy subsidies may attract energy-intensive industries, but large manufacturing sectors can also influence policy through lobbying. Yet, our results offer indirect support for the carbon leakage hypothesis. More energy endowments lower energy prices, and this attracts energy intensive industries. Climate policies, on the other hand, will increase energy prices and energy-intensive industries will move to countries with laxer policies.

The substantial effect of energy endowments on industry location and trade flows may be attributable to the large differences in energy reserves across OECD countries, compared to the difference in capital and skilled labour endowments, as well as the large differences in energy intensities across manufacturing sectors relative to the difference in capital and skilled labour intensities. Capital-intensive industries have access to large capital stocks in all countries in our sample, and might therefore let other considerations such as proximity to suppliers and customers take precedence in the location decision. For energy-intensive sectors however, there is a clear advantage to locating in Norway, Canada or Australia.