

Environmental taxes and offshoring - evidence from Danish firm data

This thesis sets out to investigate whether or not offshoring tend to increase in response to tightening of environmental regulation. At first the body of literature on the topic of environmental regulation and trade is reviewed, leading to the conclusion that there appears to be some empirical evidence in favour of environmental regulation inducing firms to increase their activities abroad. One of the major problems of the literature has been to find data sufficiently detailed to capture a significant level of heterogeneity. This thesis contributes to the most recent empirical studies using firm- or plant-level data. This thesis is employing a firm-level dataset on Danish manufacturing firms supplemented with data on emissions provided by the PRTR-database of the Danish Environmental Agency. By exploiting the firm-level data it is possible to address how the individual firm responds to environmental regulation through the channel of offshoring. This thesis adds to some of the most recent papers such as Hanna (2010) and Cheriwchan et. al. (2016), by looking into the possibility of firms either offshoring parts of their production in response to an increase in an environmental tax within a firm-level panel.

The employed panel covers privately owned manufacturing firms during the period 2007 to 2013. The effect of environmental regulation is estimated within the setting of the increase of the Danish tax on emissions of nitrogen oxides in 2012. This is done by applying a difference-in-difference strategy, which despite its weakness in the current setting, provides some first assessments of how Danish firms did react to the increase in the tax on a particular pollutant. Based on the empirical strategy, the estimated effects on the tax increase showed that firms subject to the tax did tend to decrease their offshoring relative to unaffected firms and relative to the affected firms before the tax reform. In light of average falling emissions of NO_X for the emitting sample it therefore do not seem as if Danish firms used offshoring as a loophole to appear cleaner as suggested by the pollution offshoring hypothesis.

In addition, a regression has been made for the sample of emitting firms. This suggests that there might be a positive relationship between absolute emissions and offshoring. For this preliminary analysis there although are some concerns with respect to endogeneity as seen in the literature on offshoring such as Hummels et. al. (2014). Further scrutiny should therefore be put into examining whether or not the finding of the tax on nitrogen oxides holds for other pollutants and similarly additional efforts should be put into evaluation of the concerns related to the empirical strategies.