Hansen et al. (2003) studies the Danish windmill industry, which has shown remarkable growth during the last 20 years. Their paper in this journal concludes that subsidies to the windmill industry have induced this remarkable development. To reach this conclusion Hansen et al. (2003) first provide an insightful description of the development of the Danish windmill industry. The authors then estimate the rate of learning-by-doing in the industry using high-quality panel data, which is exploited by means of fixed effect estimation. Upon finding evidence of strong learning-by-doing effects in the industry, the authors proceed to analyze the net social benefit of subsidizing the industry. The calculated costs of the policy are excess costs of producing windmill electricity. The calculated gains equal the stock market value of Danish wind turbine producers, which the authors ascribe entirely to government subsidies. The estimated net present value of the subsidies is well over DKK 20 billion.

The estimation of learning-by-doing in Hansen et al. (2003) is among the best available in related literature and it is an important contribution. However, the estimation of the net social benefit of subsidies is flawed because Hansen et al. (2003) do not take into account other factors that affect the stock market value of Danish wind turbine manufacturers, and they do not provide empirical evidence to justify this approach. The paper contains no empirical analysis of the relationship between subsidies and the stock market value of the Danish windmill industry. There is a reference to Morthorst (1999), which finds that Danish subsidies has had an effect on Danish windmill capacity development. However, even in its infant period, the industry had substantial exports—in the period 1982–1989 the average export share was 79 per cent (Karnøe 1991). This makes it likely that international factors such as environmentally inspired subsidies to green energy

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production abroad and oil price expectations have an impact on the stock market value of the industry. The analyses of Hansen et al. (2003) would be much improved if they controlled for other factors that affect the stock market value. To improve their analyses one could use the methodology of Irwin (1998), which models tariffs' importance for the emergence of a tinplate industry in the United States by means of probit estimation, taking into account relevant controls, such as prices of competing products etc.

It is difficult to assess the bias introduced by not controlling for other factors than subsidies which influence the stock market value. However, the bias may be substantial. Danish Economic Council (2002) contains an analysis of subsidies to windmills in the subperiod 1992–2000. The results of this analysis indicates that the subsidies lead to a total net cost to the Danish society between DKK 3 and 16 billion, depending on the value of CO2 emission reductions.\footnote{There are several differences between the analysis of Hansen et al. (2003) and Danish Economic Council (2002). So one cannot explain the entire difference in results by Hansen et al. (2003) by the omission of other factors than subsidies which may have affected the performance of the windmill industry.} This analysis first estimates the extent of learning-by-doing and the domestic demand for windmills using time-series data and controls for several factors which affect windmill demand, including prices of windmill electricity, oil prices, and subsidies to windpower production. The value of the subsidies equals cost savings due to learning-by-doing, which is calculated using simulated demand for windmills without subsidies, inserted into the estimated learning curve. The simulated decline in the price of windpower due to subsidies feeds back into the simulated demand for windmills etc. to generate simulated long-term effects of the subsidies. This empirical approach also allows for a distinction between the value of subsidies to research in windpower and the value of subsidies to the production of windpower.

Cost benefit analyses of infant industry policy must have a strong methodological foundation. Failure to provide such a foundation may result in misleading policy advise with long-term adverse consequences.

References
