

The Effect of Environmental Regulation on the U.S. Livestock Industry

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Since enactment of the 1972 Clean Water Act (CWA), industries potentially creating point sources of water pollution are required to obtain National Pollutant Discharge Elimination System (NPDES) operating permits. With revision of the CWA in the mid-1980s, livestock operations of greater than 1,000 Animal Units, or those found in environmentally sensitive locations, also were subject to regulation. Currently, 43 States have enforcement authority of NPDES permits by the U.S. Environmental Protection Agency. In addition, State and local concerns surrounding environmental management of livestock operations created a mosaic of State-level environmental policy conditions. In 1998, at least a half-dozen States and the Federal Government considered legislation to more closely monitor emissions from livestock operations. Environmental policies applied to livestock generally discriminate against larger, incorporated, or vertically integrated operations. These policies tend to address ground- and surface-water concerns and, increasingly, air-quality issues.

Concurrently, the livestock industry has been in a state of change. Due to technological innovation and lower transportation costs, the livestock industry has become less tied to feed supplies. The choice of where to locate is determined largely by access to input and output markets, technology employed, and the environmental attributes of the land. Lower transportation costs free location decisions and result in the specialization and concentration of several livestock species industries. It has been hypothesized that the stringency of environmental regulation is either (a) driven by or (b) becomes the catalyst for change in the livestock industry. Alternatively, the willingness and ability to enforce regulations may affect location and stocking decisions. Currently, little empirical evidence testing these hypothesized relationships is found in the literature.

This paper examines the state level (50 States) effects of environmental policy across livestock species (for example, hogs, beef cattle, dairy, and chickens) over the almost three decades since the passage of the CWA. We differentiate between the letter of the law and indicators of the willingness to enforce it on a State-by-State basis. State level differences between environmental policies and growth rates are developed by livestock species over time. We expect changes in stocking rates and operation profiles to lag the imposition of new environmental policies for existing operations and anticipate them for new operations. We expect the combination of the stringency of environmental regulation, coupled with the willingness to enforce them (for example, highest average compliance costs), will most strongly guide the evolution of the livestock industry when location factors are most open. Potential information emanating from this study includes the efficacy of uniform Federal standards for reaching national water-quality objectives and evidence about the effectiveness of competition among States for livestock-based economic development using weak environmental policy as an attractor for the industry.

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