

## Plant Location and the Advent of Slab Casting by U.S. Steel Minimills: An Observation-Based Analysis

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**Abstract:** The advent of slab casting for steel that is produced in electric furnaces resulted in a wave of new investments in the construction of steel minimills. From 1989 to 2001, 10 new plants were constructed in the United States on the basis of new technologies. Some were built in established steel industry agglomerations, while others were built in greenfield locations—regions that had little or no prior steelmaking activity. This research brings new evidence to bear on location decisions concerning modern steelmaking. The findings are based on direct observation and visits to the plants of all the new mills that were created by these investments. While the analysis reinforces the importance of transfer costs in decision making, it also argues that critical locational elements cannot be fully understood unless analyses take account of the characteristics of specific products, plants, and firms.

**Key words:** plant location, technology diffusion, steel industry, minimills, slab casting.

The advent of new technologies that permit the economically efficient production of steel slabs by plants that use electric arc furnaces (EAFs) to recycle ferrous scrap opened market opportunities in the United States and ushered in a new wave of domestic competition between ore-based, integrated steel producers and scrap-based minimills (Hall 1997, chap. 8; Preston 1991). EAF slab casting lowered the barrier to entry in terms of scale in important product markets for steel sheet and plate—markets that had been the exclusive domain of integrated steel producers (Ahlbrandt, Fruehan, and Giarratani 1996). As a result of the

investments that followed, 10 new steel mills were constructed in the United States within the 12-year span from 1989 to 2001, all of which are designed to produce steel slabs by remelting ferrous scrap in EAFs.

EAF slab casting radically changed the initial conditions for new investments in the steel industry. No longer are steel sheet and plate mills tied to the geography of ore and coal sources; no longer are the scale of production and size of the market of as much importance for entry in these important product markets.

This article describes and explains the economic geography of plant locations

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