Productivity and Technological Change in Mineral and Metal Sectors.

LIMA, M.H.R., Centro de Tecnologia Mineral, Rio de Janeiro, Brazil.

Technological change and its implications for economic development has been one of the main concerns of developing countries. Understanding the development process is critical for the choice of economic policies designed to reach the level of social welfare of mature economies. The central question posed to researchers in this area is how to explain the differences encountered between (and within) countries, groups and sectors.

The purpose of this study is to investigate the input-output structure of the Brazilian industry from 1988 to 1995. Special attention is given to mineral and metal's sectors. The article focus on resource's productivity its importance as a source of growth differences within sectors. A production function was estimated with number of patents as one of the independent variables. It was used as a "proxy" for technological innovation.

The data sources are the Pesquisa Industrial Anual (PIA) IBGE, for input use and production, and the Yale Technology Concordance (YTC), for patents. Patents have proved to be a useful indicator of research activity and technological change. However, patent data are not available at the industry level – the unit at which data on productivity growth are collected. The YTC is a method developed to predict the number of patents by industry, using the available information on the distribution of patenting across technology fields.

The article measures the value of the marginal product of each input included patent using panel data. It also measures the level of technical progress of the different sectors of Brazilian industry.