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Industrial Output Fluctuations in Developing Countries: General Equilibrium Consequences of Agricultural Productivity Shocks*

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Abstract

This paper shows that a negative shock to agricultural productivity may increase food prices, and labor and capital can move away from manufacturing into agriculture to meet the subsistence requirement for food. This effect depends on income levels and openness to trade. Using annual manufacturing data and rainfall shocks as the instrument for crop yields (proxy for agricultural productivity), I find that an exogenous decline in yield decreases manufacturing output as well as employment and capital investment in manufacturing. Overall, crop yield variation can explain up to 44% of industrial output fluctuations in developing countries (rainfall shocks cause 31% of the fluctuations). Lastly, this paper shows that such perverse phenomena, in which resources move toward the sector with declining productivity, can lead to a significant reduction in aggregate productivity.

JEL codes: F1, E32, O11; *Key words*: Economic Fluctuations, International Trade, Development, International Comparisons, Agriculture

1 Introduction

An important regularity in macroeconomic data is the frequent and large changes in developing country growth rates, compared to the relatively stable growth rates in developed countries (Lucas, 1988). Accordingly, many authors have focused on the negative relationship between aggregate output volatility, defined as the standard deviation of yearly output growth rates, and per capita income levels. The negative association between the

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