Integrated Food Crop Pest Management Program in Indonesia: A Computable General Equilibrium Analysis

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Abstrak

The excessive use of pesticides in Indonesia during the 1970s and 1980s caused serious environmental problems such as acute and chronic human pesticide poisoning, animal poisoning and contaminated agricultural products, destruction of both beneficial natural parasites and pest predators, and pesticide resistance in pests. To overcome these environmental problems, since 1989 the Indonesian government has actively adopted a strategy of integrated pest management (IPM). During the first few years of the 1PM program's implementation, the program has been able to help farmers reduce the use of pesticides by approximately 56 percent, and increase yields by approximately 10 percent. However, economic literature that analyzes the impact of the IPM program on household incomes and national economic performance is very limited. The general objective of this research is to analyze the impact of the IPM program on Indonesian economic growth and household incomes for different socioeconomic groups.

Introduction

The chronic food shortage during the first two decades of Indonesian independence (1945-1965) stimulated the Indonesian government to establish a comprehensive food intensification program as a national priority. Achieving and maintaining self-sufficiency in food, increasing farmers' income, and providing strong support for the rapidly expanding industrial and service sectors were the main goals of this food intensification program (Oka, 1995). The food intensification program included large-scale adoption of high-yielding modern seed varieties, development of irrigation systems, expansion of food crop producing areas, increased use of chemical fertilizers and pesticides, expansion of agricultural extension services, establishment of farmer cooperatives and input subsidies, and stabilization of national food crop prices (Oka, 1991).

During the 1970s and 1980s, this food intensification program caused food crap production to grow at an annual rate of approximately 3.74 percent (CBS, 1973-1991). A major miracle occurred in rice production. Pushing the average annual growth rate of rice production to approximately 4.67 percent, the rice intensification program transformed Indonesia from the world's largest importer of rice, importing approximately two million tons per year by the end of the 1970s, to self-sufficiency in 1983 (Oka, 1991 and 1995).