

APPENDIX F

SOCIAL RETURNS TO AGRICULTURAL RESEARCH AND EXTENSION

by

KWAN S. KIM

I. Introduction

Scientific information generated by agricultural research is a public good once it is disseminated for application. No consumer can be excluded from benefiting from the application of research output, and there is no market pricing mechanism for the output. The absence of a pricing mechanism implies that private-sector firms tend to underinvest in agricultural research from society's point of view since the benefits of research cannot be entirely internalized by the firms. As a consequence, there is a need for public support of agricultural research. Since agricultural research would compete with alternative uses for public funds, it is important for decision makers to obtain information on the returns to agricultural investment.

This appendix reviews and provides a critique of the previous work on social returns to agricultural research and extension (R&E) in Korea. In an important study on Tongil rice, K. H. Park presented an analysis of socioeconomic returns on agricultural research and extension expenditures in Korea.^{1/} This work is significant because it deals with an ex post evaluation of agricultural research on Tongil rice. It provides the only estimate of social returns to Tongil rice development.

There was an earlier attempt in 1972 to evaluate returns on agricultural research expenditures in Korea using computer-simulation models by Michigan State University's Korean Agricultural Sector Study (KASS) team. Although actual expenditures on research for the improved varieties of rice (Tongil) were incurred starting as early as 1962, the expanded extension program to disseminate the research results began in 1972. The KASS Team's report provided an ex ante analysis of research project impact and, from the benefit of hindsight, was useful only as background information to a project feasibility analysis.

II. Park's Analysis

The main objective of this study was to estimate the ex post rate of return on the Korean Government's agricultural research and extension expenditures, utilizing the national, annual data series for the period 1962-1977 that were provided by the Office of Rural Development. The original data were expressed in current won and two types of data adjustments were made. First, the expenditure and revenue figures were adjusted for inflation. Second, as his calculations were to be derived from the vantage point of 1977, it was necessary to convert to present values as of 1977 all past and future streams of expenditures and

^{1/} K. H. Park, "Analysis of Socioeconomic Consequences of the Green Revolution," Government of Korea Office of Rural Development, 1977.