

Modelling the Distributional Impacts of Agricultural Policies in Developing Countries: The Development Policy Evaluation Model (DEVPEM)

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Abstract

This paper presents a new model, the Development Policy Evaluation Model (DEVPEM), which has been developed in order to analyse the welfare and distributional implications of alternative agricultural policies in developing countries. The aim of the model is to provide illustrative results that show how structural diversity among developing countries, and systemic differences between developed and developing countries, can affect the outcomes of alternative agricultural policy interventions.

DEVPEM incorporates several specificities of developing countries that are likely to affect the welfare impacts of agricultural policy interventions. One is the joint role of the farm household as both a producer and consumer of food crops. A second factor is transaction costs that may inhibit households' participation in markets. A third aspect is heterogeneity among households in terms of income sources, expenditure patterns and ownership of factors (particularly land), varying from small subsistence to large commercial operations.

DEVPEM is a general equilibrium model that takes account of linkages throughout the rural economy, including through labour markets. The model is designed as a developing country counterpart to the OECD's PEM model, a partial equilibrium model that has been used to examine the impacts of agricultural policies in OECD countries. DEVPEM retains key features of the PEM, namely an explicit link between output and factor markets, and an imperfect convertibility of land among agricultural crop and livestock activities.

Stylised models, building on FAO's Rural Income Generating Activities (RIGA) data, are constructed for six countries: two in Africa (Ghana and Malawi); two in Asia (Bangladesh and Vietnam) and two in Latin America (Guatemala and Nicaragua). Each country model has six household types. A series of policy shock are simulated, including market price support for food and cash crops, input subsidies, direct cash payments and the removal of transaction costs.

Preliminary results show that market price support for food crops is particularly ineffective at raising the incomes of agricultural households because it raises farm households' consumption costs as well as their revenues. Support for cash crops is relatively more effective, but in the majority of countries

(although not all) leads to benefits being concentrated among larger farmers. Input subsidies raise incomes without inducing consumption-side losses. A larger share of the benefits may be retained by the farm household than is the case in OECD countries. This is because farmers supply more of their own factors (purchasing relatively fewer inputs and seldom renting land), implying fewer induced leakages to other agents. Direct payments provide the efficient benchmark for transferring income, and can be targeted to particular constituencies. Eliminating transaction costs leads to widespread benefits, particularly to remote households.

The authors are currently undertaking a range of analysis, experimenting with alternative policy shocks (including different methods of implementation), as well as alternative parameter assumptions, and different model closures and financing rules.