The method employed in this paper do not necessarily reflect the opinions of the contributors.

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F.R. Yuen

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Harold C. T. Lam

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REFERENCES


Abstract

Agricultural trade has become a major source of income for many countries, especially in developing regions. The benefits of trade in agricultural goods are numerous, including increased access to food, enhanced economic growth, and improved living standards. However, trade liberalization and increased competition can also lead to negative consequences, such as job losses in certain sectors and environmental degradation.

This paper uses the augmented multifactorial model (AMMM) to assess the impact of trade on the agricultural sector of two hypothetical countries, focusing on the benefits and costs of trade.

For countries within the AMMM framework, the model enables a detailed analysis of how trade impacts agricultural productivity and the overall economy. The model considers the interplay between domestic and international markets, allowing for a comprehensive understanding of the effects of trade liberalization.

1. Agricultural Economy

The agricultural economy is characterized by a high degree of interdependence with other sectors of the economy. The benefits of trade in agricultural goods include increased access to food, enhanced economic growth, and improved living standards. However, trade liberalization and increased competition can also lead to negative consequences, such as job losses in certain sectors and environmental degradation.

2. Methodology

The augmented multifactorial model (AMMM) is used to assess the impact of trade on the agricultural sector of two hypothetical countries, focusing on the benefits and costs of trade. The model considers the interplay between domestic and international markets, allowing for a comprehensive understanding of the effects of trade liberalization.

3. Results

The results of the AMMM analysis show that trade liberalization leads to increased agricultural productivity and overall economic growth. However, the model also highlights the need for targeted interventions to mitigate the negative effects on certain sectors and regions.

4. Conclusion

Trade liberalization and increased competition offer significant benefits to the agricultural sector, including increased access to food and enhanced economic growth. However, careful planning and targeted interventions are necessary to mitigate negative impacts and ensure sustainable development.
most imported commodities.

The results in column 2 demonstrate the adverse effect on export industries from the additional foreign exchange generated by the mining boom. It should be recalled, however, that the simulation captures only the indirect (foreign exchange) effects; the existing mining industries therefore suffer in the same manner as other export industries. Furthermore the direct effects of the mining expansion are not reflected in GDP. Agricultural industry outputs are considerably less volatile than mining industry outputs because of the presence of fixed factors (industry specific land). While the mining boom also leads to adjustment pressures on the manufacturing sector through stronger import competition, the increased domestic absorption helps cushion these effects. The clear beneficiaries are the non-traded industries of the services sector.

Column 3 indicates that a 25 per cent across the board tariff cut is beneficial to the economy as a whole and to the export oriented sectors in particular. As was the case with the mining boom experiment, the existence of fixed land curtails the output response of agricultural compared with mining industries. The essentially import competing manufacturing sector contracts as a result of the tariff cut. The services sector expands, because of its consumption linkages and the increase in domestic absorption, while the processed foods sector expands because of its linkages to exports and domestic consumption.
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<tr>
<td>Housing (existing structures)</td>
<td>2.7%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<tr>
<td>Agriculture</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<td>Food</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Other manufactured</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Manufacturing, except food and tobacco</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Wholesale trade</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Retail trade</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Construction</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Public utilities</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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<tr>
<td>Other services</td>
<td>2.7%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>1.7%</td>
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**NOTES:**
- Changes in world prices are measured in terms of 1974 prices.
- Figures are rounded to the nearest 0.1%.
- Tables include all sectors of the economy except financial and miscellaneous services.
A brief summary of results is contained in Table 1. Because of space limitations we concentrate only on some key macroeconomic aggregates and agricultural commodity outputs. Industry outputs have been aggregated to sectors. The figures in the table refer to percentage changes in the variables in a typical year, 5 years hence, from the levels that they would have reached in the absence of the shocks. Thus the figure for aggregate exports in column 1 indicates that in the fifth year exports would be 2.0 per cent higher under the world price scenario than they would have been had world prices not changed.

Column 1 shows that the projected world price scenario implies a terms of trade gain to the Australian economy. Exports exceed imports and real GDP, real wages and real domestic absorption all increase. However, the tendency for world price increases for export commodities to exceed those for import competing commodities in itself leads to adjustment pressures. Output contractions occur for export commodities such as minerals, whose prices are projected to decline relative to most agricultural commodity prices. Most agricultural commodities and industries (and hence rural employment) gain. Exceptions include wheat\(^1\), the real price of which is projected to remain constant, and the other farming export group, whose major commodity is sugar (the relative price of which is projected to decline). The processed foods and services sectors, which have substantial linkages to domestic consumption, benefit from the increased aggregate absorption. The growth in domestic absorption is also an important factor in offsetting the output contractions of import competing industries resulting from the decline in the relative price of

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\(^1\) Although not shown in the Table, increases in the prices of wool, sheep and cattle relative to wheat and the high transformation elasticities between these products result in considerable substitution in production against wheat in the model's multiproduct agricultural industries.
I. INTRODUCTION

OF AN OPEN ECONOMY: THE PERSISTENT PRESSURES ON THE AGRICULTURAL SECTOR
agricultural and mineral products and processed and unprocessed energy products. A previous IMPACT study [2] showed that the Australian economy as a whole benefited from these changes, though adjustment pressures emerged in certain sectors. In particular, export and export related industries expanded at the expense of industries competing with imports which experienced the largest relative price declines. On the debit side, restrictions on the access of Australian products to overseas markets have severely curtailed a number of rural industries. The entry of the United Kingdom into the EEC and the increasingly protectionist stance adopted by the EEC to agricultural imports has contributed to adjustment pressures on fruit growing and dairying industries. More recently, the tight regulation of Japanese beef imports has posed adjustment problems for the beef industry.

Unprocessed mineral export earnings jumped from $64m in 1962/63 to $1753m in 1974/75. The effects on the balance of payments and subsequently the exchange rate, standard of living, and industrial structure have been the subject of several recent studies [2 and 7].

Real wage costs net of productivity gains increased at an annual rate of over 3 per cent for the period 1968 to 1975. In addition, despite a 25 per cent across the board tariff cut in 1973, substantial increases in protection, primarily by way of import quotas, have since been granted to key domestic industries. The competitive position of the export oriented agricultural sector is especially vulnerable to increases in domestic production costs.

Our paper investigates the medium term impact on the Australian agricultural sector of two of the previously mentioned adjustment pressures.

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1. The basic mechanism involves a lowering of the domestic price of traded goods relative to non-traded goods once the effect of the increase in foreign exchange earnings finds its way into the economy, either by way of revaluation of the $A or by increased price inflation in Australia relative to other countries.
section 4 and concluding remarks are set out in section 5.

Outline of the structural forces considered, results are presented in sections 1 to 3. Section 2 discusses the size and
outlining of our analytical framework while section 4 discusses an
interpreting the empirical results on productivity

Is then explored the effectiveness of reducing tariffs on import competition

a further exploration of Australia's mining activity,

Australia's trade, and

Australia's manufacturing and other commodities of importance to
changes in international demand for and supply of

A model of capital mobility between industries. I

changes in relative prices of return induced by the internal disequilibrium are

than applying a pricing of a single year, the undisturbed

industry rates of return and allowing capital stocks to adjust. The model

The alternative - using NSF specification - applied here involves estimating

industry rates of return and industry capital stocks, with fixed capital

of particular relevance to this study is the match between

an economic and the capital endowment.

 Tobacco industry to be poor, the output by 20 per cent than tobacco output is
Our projections are derived from a revised version, ORANI 78 [4], of Australia's multisectoral model of industrial and workforce composition [1]. ORANI 78 is a predominantly neoclassical model based on a 115 x 113 commodity by industry input-output matrix and a labour force disaggregated into nine occupations. Computing difficulties associated with size and non-linearities are avoided by using the linearization technique of [9].

The model's main behavioural postulates are that producers minimise the costs of producing their outputs (subject to appropriately specified production functions) and that consumers maximise their utility subject to an aggregate consumption constraint. Competitive pricing behaviour is imposed via zero pure profit constraints. The model contains a number of advances (over previous models of its type) which make it particularly well suited to analysing policy issues related to international trade. These advances include;

(i) the treatment of domestically produced and imported commodities as imperfect substitutes,

(ii) downwards sloping foreign demand curves for export commodities, and

(iii) an agricultural sector specification which recognizes both the joint production features of agricultural enterprises and regional differences in their production functions.\footnote{1}

The agricultural sector consists of a 10 x 8 commodity by industry submatrix. Agricultural industry production functions are of the multiinput-multioutput form;

\[ g(Y^r) = f(X^r) = Z^r, \]

where \( Y^r \) and \( X^r \) are vectors of outputs and inputs respectively in region \( r \), and \( Z^r \) is the scalar index defining region \( r \)'s production capacity.

Function \( f \) is of the Leontief form among intermediate inputs, and between them and primary factors, and of the CRESH form [8] among the primary factors (labour, land and capital). Function \( g \) takes the CRETH form [10]. The representative farmer is viewed as buying a bundle of non-specific inputs (labour, capital, fertilizer, etc.) to combine with his fixed factor, land. The level of non-specific inputs determines the location of the product transformation curve. The farmer then has a choice of the feasible output combinations (wheat, sheep, wool, cattle, etc.) with the production possibilities described by transformation frontiers exhibiting less than infinite elasticities.\footnote{1}

A feature of the model is that the division between endogenous and exogenous variables is user-determined. In a study of the effect of say the motor vehicle tariff on the output of wheat the motor vehicle tariff would be set exogenously and the output of wheat would be endogenous. If however we wanted to know what level of protection would be required by the

\footnote{1. The theoretical specification and estimates of the pairwise product transformation elasticities for the multiproduct regions are contained in [10].}