

International Trade Policy and the Pacific Rim

**Proceedings of the IEA Conference
held in Sydney, Australia**

Edited by

John Piggott

School of Economics

University of New South Wales

Sydney, Australia

and

Alan Woodland

Department of Econometrics

University of Sydney

Sydney, Australia



in association with

INTERNATIONAL ECONOMIC ASSOCIATION

Internati
flourish
World V
crisis in
especial
1996 an
roundtal
Policy a
Australi
internati
from bo
Bringing
econom
trade po
analyse
between

This vo
compris
theoreti
research
and a su
confere

In the fi
discusse
world to
reforms
in the A
Round'
next thr
policies
econom
New Ze
raises t
internat
of Nort

In Part
Robert
'new re
or conf

Contin



First published in Great Britain 1999 by
MACMILLAN PRESS LTD
Houndmills, Basingstoke, Hampshire RG21 6XS and London
Companies and representatives throughout the world

A catalogue record for this book is available from the British Library.

This book is published in the *International Economic Association* series
General Editor: Michael Kaser
Series Standing Order ISBN 0-333-71242-0 (*outside North America only*)

ISBN 0-333-69810-X



First published in the United States of America 1999 by
ST. MARTIN'S PRESS, INC.,
Scholarly and Reference Division,
175 Fifth Avenue, New York, N.Y. 10010

ISBN 0-312-21801-X

Library of Congress Cataloging-in-Publication Data
International trade policy and the Pacific Rim : proceedings of the
IEA conference held in Sydney / edited by John Piggott and Alan
Woodland.

p. cm.
Includes bibliographical references and index.
ISBN 0-312-21801-X (cloth)

1. Commercial policy—Congresses. 2. International trade—
—Congresses. 3. Pacific Area—Commercial policy—Congresses.
4. Free trade—Pacific Area—Congresses. 5. Asia Pacific Economic
Cooperation (Organization)—Congresses. I. Piggott, John (John R.)
II. Woodland, A. D. III. International Economic Association.
HF1410.5.I587 1998
382'.091823—dc21

98-25637
CIP

© International Economic Association 1999

All rights reserved. No reproduction, copy or transmission of this publication may be made
without written permission.

No paragraph of this publication may be reproduced, copied or transmitted save with
written permission or in accordance with the provisions of the Copyright, Designs and
Patents Act 1988, or under the terms of any licence permitting limited copying issued by
the Copyright Licensing Agency, 90 Tottenham Court Road, London W1P 9HE.

Any person who does any unauthorised act in relation to this publication may be liable to
criminal prosecution and civil claims for damages.

The authors have asserted their rights to be identified as the authors of this work in
accordance with the Copyright, Designs and Patents Act 1988.

This book is printed on paper suitable for recycling and made from fully managed and
sustained forest sources.

10 9 8 7 6 5 4 3 2 1
08 07 06 05 04 03 02 01 00 99

Printed and bound in Great Britain by Antony Rowe Ltd, Chippenham, Wiltshire

Contents

<i>The International Economic Association</i>	viii
<i>Acknowledgements</i>	x
<i>List of Contributors</i>	xii
<i>List of Abbreviations and Acronyms</i>	xv
Introduction	xvii
<i>John Piggott and Alan Woodland</i>	
 PART I REGIONAL EXPERIENCE	
1 Current Issues in Trade Policy and the Pacific Rim	3
<i>David Greenaway</i>	
Comment	26
<i>Kym Anderson</i>	
2 China's Dual Trading Regimes: Implications for Growth and Reform	30
<i>Barry Naughton</i>	
Comment	56
<i>Wen Hai</i>	
3 Unilateral and Regional Trade Policies of the CER Countries	59
<i>Peter J. Lloyd</i>	
Comment	84
<i>Richard G. Harris</i>	
4 External Trade and Economic Growth: The Malaysian Experience	87
<i>Eu Chye Tan and Mohammed Ariff</i>	
5 Is East Asia Less Open than North America and the EEC? No	105
<i>Sumana Dhar and Arvind Panagariya</i>	
Comment	124
<i>Junichi Goto</i>	

PART II TRADE POLICY AND THE 'ISMS'

6 Multilateral Roads to Regionalism	131
<i>Wilfred J. Ethier</i>	
Comment	153
<i>L. Alan Winters</i>	
7 Regionalism and Multilateral Tariff Co-operation	157
<i>Kyle Bagwell and Robert W. Staiger</i>	
Comment	186
<i>Martin Richardson</i>	
8 Do Two Wrongs Make a Right? Export Incentives and Bias in Trade Policy	191
<i>Richard G. Harris and Nicolas Schmitt</i>	
Comment	213
<i>Rod Falvey</i>	
9 Trade Reform with a Government Budget Constraint	217
<i>James E. Anderson</i>	
Comment	239
<i>Arja Turunen-Red</i>	
10 The Political Economy of Administering Trade Laws	245
<i>Wolfgang Mayer</i>	
Comment	263
<i>Elhanan Helpman</i>	
PART III APEC	
11 The History and Structure of APEC	269
12 APEC Leadership in Liberalization: an Untested Experiment	274
<i>Mari Pangestu</i>	
13 APEC as Seen Through the Eyes of a Japanese Economist	289
<i>Ryutaro Komiya</i>	
14 APEC and the United States of America	302
<i>Arvind Panagariya</i>	

PART IV TRADE AND ENDOGENOUS GROWTH

15 Trade and Trade Policy in Endogenous Growth Models	321
<i>M. Scott Taylor</i>	
Comment	344
<i>Neil Vousden</i>	
16 Emulative Development through Trade Expansion: East Asian Evidence	348
<i>Pham Hoang Van and Henry Y. Wan, Jr</i>	
Comment	367
<i>Peter G. Warr</i>	
17 Foreign Direct Investment, International Trade and Transfer of Technology: A Case Study in South-East Asia	370
<i>Motoshige Itoh</i>	
Comment	392
<i>Wilfred J. Ethier</i>	
PART V CONFERENCE SUMMARIES	
18 Summing-up I	397
<i>Elhanan Helpman</i>	
19 Summing-up II	400
<i>L. Alan Winters</i>	
<i>Index of Names</i>	407
<i>Subject Index</i>	411

- Lloyd, P. (1982) '3 × 3 Theory of Customs Unions', *Journal of International Economics*, vol. 12, no. 1/2, pp. 41–63.
- Richardson, M. (1994) 'Customs Unions and Domestic Taxes', *Canadian Journal of Economics*, vol. 27, pp. 537–50.
- Richardson, M. (1995) 'Tariff Revenue Competition in a Free Trade Area', *European Economic Review*, vol. 39, pp. 1429–37.

8 Do Two Wrongs Make a Right? Export Incentives and Bias in Trade Policy¹

Richard G. Harris

SIMON FRASER UNIVERSITY AND CANADIAN INSTITUTE
FOR ADVANCED RESEARCH

and

Nicolas Schmitt

SIMON FRASER UNIVERSITY

1 INTRODUCTION

In the large literature on export promotion and South-East Asian trade policy, there is a tradition, going back at least to Corden (1971), of emphasizing the offsetting consequences of export promotion in the presence of protection of domestic industry. It is often claimed that the anti-export bias of protection is removed, or 'neutralized', by export incentives. Thus, the combined presence of fairly high levels of protection with equally large doses of export incentives results in an allocation of resources similar to that produced by a policy of unilateral free trade. On theoretical grounds, this proposition derives support from the familiar competitive production (supply-side) model of a small, open economy. In that model the relative output of exportables and importables is determined by the internal product price ratio. Given tariffs on imports, export subsidies can be used to restore the internal producer price ratio to the external world price ratio.² One could summarize by saying that this is an example in economic policy where 'two wrongs make a right'; that is, while each policy individually would reduce welfare, jointly they produce an outcome that is optimal.

The empirical relevance of this is quite obvious in a large number of countries. A good example is the summary of studies on Korean trade policy done by Nam (1990). He reports (p. 179, table 9.6) a survey of effective subsidy rates on export versus domestic sales for a wide range of industries during the 1970s. On average, the effective subsidy for export in manufacturing was about 16 per cent, but the effective rate for domestic sales was about 3.5 per cent, suggesting on balance a larger incentive to export than to sell in the domestic market. There is a general assessment in the literature on trade

bias in East Asian economies that, in the more recent period, exports have been relatively favoured.³

Not surprisingly, a number of authors have wondered about the impact of such types of trade regime in East Asian economies where the export incentives appear to be at least as prominent as the import substitution aspect of the regime. Flatters and Harris (1995) noted that there are good reasons to suspect that many of these trade policies are in fact a form of what they label *export protectionism* – that is, they could result in a bias towards excessive exports at the expense of the rest of the economy. This chapter focuses on two models in which export incentives interact with tariff protection in non- offsetting ways.

The first model starts from the premise that one consequence of protection is to reduce competition. In small, open economies protection may lead to a high degree of seller concentration. It is possible under such circumstances that the traditional supply-side effects of protection are dominated by demand-side effects. In this model, it is shown that protection is export-promoting in the sense that increases in the degree of protection result in an increase in the size of the export sector, and this is welfare-reducing. Furthermore, it is shown that export incentives have no effect on the allocation of resources in the presence of protection; that is, they are completely neutral in terms of their impact on aggregate resource allocation. The source of these results derives from an important characteristic of general equilibrium in this economy. With a limit-pricing domestic monopoly, there is a strong 'no-import', or *market closure* effect of protection, which leads to the unusual importance of demand conditions for resource allocation.

The second model is a positive theory of the administrative structure of export incentive programmes that captures some important aspects of the process by which export incentives are determined in many of the East Asian economies.⁴ The approach taken is similar to that in the political economy literature, as the determination of export incentives by the authorities administering the programmes is discretionary, subject to incomplete information, and contingent upon observed prices. The criterion upon which decisions to subsidize exports are arrived at is similar to that suggested in the normative literature on trade reform.⁵ It is assumed that export authorities use linear and imperfect approximations to national welfare to evaluate export investment opportunities.⁶ It is also assumed that the import protection regime is relatively permanent, and viewed by the export authorities as being independent of their actions – a feature of the trade policy regimes that Bliss (1987), among others, has emphasized. The main question addressed is how import protection interacts with the outcome of the discretionary export incentive regime. It is shown that, in some circumstances increases in import protection are export-promoting; the behaviour of the export authorities results in increased export incentives beyond those a complete welfare analysis would prescribe.

In each of these cases the model is highly stylized and we make no claim for the generality of these results. However, the influences identified clearly exist in countries characterized by the joint existence of both import substitution and export promotion schemes. They suggest that traditional views of protection, where export incentives neutralize the effects of protection, may be inappropriate in some circumstances.

The chapter proceeds as follows. In the second section, a model of monopoly-induced market closure is developed, and the role of import protection and export incentives is analyzed. Section 3 develops a positive model of administrative and discretionary export incentives, and the last section provides a summary and some concluding observations on the implications of these results.

2 IMPORT COMPETING MONOPOLY AND TRADE INTERVENTIONS WITH MARKET CLOSURE

In a large number of studies of protection in small, open economies, it has been shown that there is a tendency for protected industries to become heavily concentrated – that is, protection produces monopoly. We shall argue for the strong possibility that, with monopoly in the domestic market, no imports will occur in equilibrium – a result referred to as *market closure*. This is true even though tariffs are at less than conventionally calculated prohibitive levels. An equilibrium implication of this result is that increased import protection will be export-promoting. To make these points, a simple three-good Ricardian production model is used, in which the importable is an intermediate input – a case of obvious relevance to East Asia.

Market Structure in the Import Competing Sector

The market structure in the import competing sector is assumed to be a limit-pricing monopoly.⁷ The monopolist sets a price just a shade below the world price plus tariff. The major feature of this assumption is that, as long as the monopolist's costs are below this price, she has the incentive to serve the entire domestic market since it is profitable to do so and has no incentive to export. This conclusion would still hold if the marginal revenue curve were to intersect the marginal cost curve at an output level where the price was below the limit price. This may conceivably occur if demand for the good in question is sufficiently elastic. But for a wide class of demand structures this will not be the case. With Cobb-Douglas preferences (unitary price elasticity of demand), for example, it always pays the monopolist to supply the entire domestic market and to limit price. We shall assume this to be the case throughout this section.⁸ Partial equilibrium in this sector is illustrated in

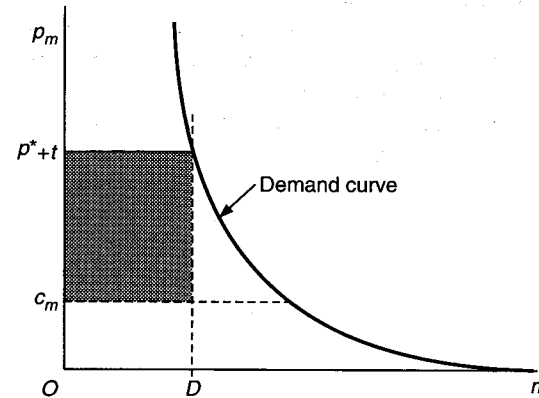


Figure 8.1 Partial equilibrium with a limit-pricing monopolist

Figure 8.1. Note that, in the partial equilibrium model and for a given demand curve, as tariff protection increases the monopolist's output, OD , decreases.⁹ The shaded area indicates monopoly profit, which must be included in income and accounted for in the general equilibrium determination of demand conditions.

General Equilibrium

The rest of the model is a fairly conventional trade model for a small, open economy. There is a competitive export sector with a fixed coefficient production function that uses an import-competing, domestically-produced intermediate input, with price p_m , which is also a final consumption good. This good is available in perfectly elastic supply at the world price plus tariff $p_m^*(1+t)$. Exports are an intermediate good not consumed at home and sold at price p_x , fixed in world markets. There is a third good, not produced domestically but imported at price q . This can be thought of as a luxury consumer good and/or an imported capital good. Net government revenue is redistributed to consumers in a lump-sum fashion. All consumers have identical homothetic tastes. Technology is expressed by fixed coefficients with labour as the only input in the importable sector, while labour and the domestically produced good are inputs to the export sector. Labour input coefficients are denoted by a_i , the intermediate input coefficient by b_x , and the wage rate by w . Unit costs are thus given as $c_m = a_m w$ and $c_x = a_x w + b_x p_m$ in x . Labour is mobile between industries and in fixed inelastic supply to the economy in amount L . Output in each sector is denoted by Y_i .

In the absence of tariff revenue, domestic disposable income E , is the sum of labour income and monopoly profits, Π :

$$E = wL + \Pi \quad (8.1)$$

The share coefficient on the home-produced, import-competing good is denoted by $\beta(p_m, q)$. Final domestic consumption demand for the import-competing good is denoted by D , and intermediate input demand from the export sector by I . With limit-pricing monopoly and market closure, output of the import-competing sector, Y_m , equals total demand $D + I$. Factor demands are given by:

$$L_m = a_m(D + I), L_x = a_x Y_x, I = b_x Y_x \quad (8.2)$$

Profits in the monopoly sector, substituting for D and I , are given by:

$$\Pi = (p_m - c_m)(D + I) = (p_m - c_m)[\beta(wL + \Pi) + b_x Y_x] \quad (8.3)$$

The price-mark-up equation in the m sector is:¹⁰

$$\frac{p_m - c_m}{p_m} = \sigma \quad (8.4)$$

The mark-up factor σ is determined passively under limit-pricing monopoly as the limit price, and costs in that sector adjust. Since $p_x = c_x$ and labour is the only non-traded factor, input factor prices are determined in this model solely by the export sector. Note also that an important consequence of the market closure effect in the Ricardian model is that the economy is not specialized, producing positive quantities of both goods m and x .

Monopoly profit conditional on the mark-up and non-profit-related expenditures on the monopoly good is given by:¹¹

$$\Pi = \frac{\sigma}{1 - \sigma\beta} (\beta wL + p_m b_x Y_x) \quad (8.5)$$

The leading coefficient in (8.5) can be thought of as the *profit multiplier*; this is a number greater than one which translates a dollar of expenditure by either labour or the export sector on the monopolist's good into dollars of profit to that sector. A multiplier effect exists by virtue of the fact that some of that profit is re-spent in the monopoly sector itself and thus generates additional profit.

Labour market clearing is given by:

$$L = a_m \beta \frac{W}{p_m} + a_m \beta \frac{\Pi}{p_m} + a_m I + a_x Y_x$$

Here we have expressed the two sources of domestic demand coming from profits and from wage income, $W = wL$. Equilibrium can be thought of as occurring in the following way. Wages are set by the 'export cost equals price' equation, and then export output adjusts to clear the labour market with equilibrium profits adjusting accordingly. Substituting in the expression for profit and collecting terms give an expression for the equilibrium relationship between wages, import prices and export output:

$$L \left\{ 1 - \left(\frac{\beta a_m}{1 - \sigma \beta} \right) \frac{w}{p_m} \right\} = a_m b_x \left\{ \frac{1}{1 - \sigma \beta} + \frac{a_x}{a_m b_x} \right\} Y_x$$

Substituting for w/p_m from the mark-up equation and solving for the inverse export ratio, L/Y_x yields:

$$\frac{L}{Y_x} (1 - \beta) = a_m b_x + a_x (1 - \sigma \beta) \quad (8.6)$$

It is somewhat remarkable that *exports are uniquely determined by, and increasing in, the monopoly price-cost mark-up σ* . An increase in the mark-up raises exports. There are two factors at work. First, there is a strong real domestic demand effect due to the change in the product wage w/p_m . This can be seen most easily by assuming that the share in expenditure of profits on domestic goods is zero. In this case, the fall in the product wage w/p_m induced by a higher mark-up has a direct and immediate effect on domestic demand, leading to an expansion in the export sector. This would occur even were the domestic good m not used as intermediate input in the export sector, $b_x = 0$, in which case wages would not change as σ increase, but real demand from labour income would decline.

The second and offsetting effect is the change in profits that occurs as a result of the increase in the mark-up factor. Profits increase and demand derived from profits goes up.¹² The profitability effect of increased markups is, however, not sufficiently strong to offset the direct negative demand effect due to the change in the product wage. The net effect of the higher monopoly mark-up is negative on the import competing sector and positive on the export sector. At one level, the result is very intuitive; increased monopolization of the import-competing sector drives resources into the export sector.

Changes in Tariffs

A rise in t increases the limit price p_m , but since there are no imports there is no tariff revenue effect. Given the role of domestic intermediate inputs in the export sector, the cost-raising effect of higher input prices implies that tariffs lower wages. The comparative static result on mark-ups is:

$$\frac{d\sigma}{dp_m} = \frac{1}{p_m} \left[1 - \sigma - a_m \frac{dw}{dp_m} \right] > 0$$

As the mark-up is increasing with higher tariff rates, this implies that *protection has an export-promoting effect* from (8.6). Increases in the tariff lead to larger volumes of exports. Furthermore, since wages must fall as the price of the intermediate input increases, the real wage, measured either by w/p_m or w/p_x , falls.

Real profits in terms of the domestic good are given by:

$$\frac{\Pi}{p_m} = \frac{\sigma}{1 - \sigma \beta} \frac{\beta w L}{p_m} + b_x Y_x = \frac{\sigma \beta (1 - \sigma)}{1 - \sigma \beta} \frac{L}{a_m} + b_x Y_x \quad (8.7)$$

There are two things to note about (8.7). One, a higher mark-up raises exports, Y_x , and the effect of this on real profits is positive. Two, the leading coefficient of (8.7) on the L -term is a function of σ . It is straightforward to show that a sufficient condition for this coefficient to increase with σ is that $\sigma < 1/2$, which is a plausible empirical restriction on the range of observed mark-ups.

Export Incentives

Is it possible that an export incentive policy will offset at least to some degree the effects of protection? Surprisingly, the answer is 'no'; export incentives in this model have no impact on the equilibrium. We first establish this basic result and then provide some intuitive explanation of why this occurs. Two types of incentive policies are considered: production subsidies to the export sector and import-duty drawbacks.

Consider an increase in a production subsidy rate s , applied to the cost of production in the export sector. Total export subsidies, S , which must be deducted from GDP to get aggregate household expenditure E , are given by $S = \tau p_x Y_x$ with $\tau = s/(1 - s)$. Substituting these into the definition for E and solving for profits gives:

$$\Pi = \frac{\sigma}{1 - \sigma \beta} (\beta w L - \beta \tau p_x Y_x + p_m b_x Y_x) \quad (8.8)$$

Using the new definition for E and Π in the labour-market clearing condition, we solve for the inverse export ratio L/Y_x ,

$$\frac{L}{Y_x} (1 - \beta) = a_m b_x + (1 - \beta) a_x + \beta a_m \Gamma \quad (8.9)$$

with Γ defined as:

$$\Gamma \equiv \frac{w}{p_m} a_x - \frac{s}{1 - s p_m} \frac{p_x}{p_m} = \frac{p_x}{p_m} - b_x \quad (8.10)$$

which is independent of the subsidy rate s . The implication is that production subsidies to the export sector have *no effect* on output in the export sector provided that the relative price p_x/p_m remains constant. This is so even though the wage rate is increasing in the level of subsidy and therefore has an effect on labour income. One might think that the increase in the wage induced by the subsidy might offset the wage-reducing effect of protection on income. However, the effects of a change in s on profit income and government revenue *exactly* offset this.

A common form of export incentive is a duty-drawback scheme, in which producers using imported inputs are rebated the tariff portion of the input cost. This implies that the price paid for the import-competing input is equalised to the world price, but other domestic users must pay the tariff-inclusive price. The rationale for such a policy is that it offsets the cost-raising effect of a tariff on intermediate inputs to the export sector; a duty-drawback programme can restore a negative effective rate of protection on exports to zero. We model duty drawbacks by assuming that the import-competing monopoly sector gets the tariff inclusive price, but the government rebates the duty-equivalent costs to exporters using the intermediate input. In this case, total subsidies are given by

$$S = t p^* b_x Y_x \quad (8.11)$$

It would be reasonable to suspect that some of the negative income effects of export incentives may not occur with this policy, as the wage rate is not affected by the level of the tariff, but this turns out not to be the case. The expression for equilibrium exports is *identical* to (8.9). We therefore draw the following conclusion:

Proposition 1: The irrelevance of export subsidies

Export subsidies (either production-based or duty-drawback) have no effect on aggregate export volumes or on the allocation of resources in the presence of limit-pricing monopoly with market closure in the import-competing sector.

Increases in the level of protection from imports lead to increased exports, and the only mechanism for undoing this effect is to reduce protection. Tariffs do, however, affect income distribution, depending upon how they affect factor prices and monopoly profits.

The welfare implications of these results are fairly straightforward. Represent preferences by a linear homogeneous expenditure function $e(p, q)u$ where u is the aggregate level of utility. The labour-market clearing equation becomes:

$$L = a_m \frac{\partial e(p_m, q)}{\partial p_m} u + (a_m b_m + a_x) Y_x \quad (8.12)$$

This is the relevant resource constraint on the welfare level u resulting from the market-closure effect. It is readily apparent from this equation that increases in p_m or Y_x reduce the welfare index, u . Thus changes in trade intervention which result in either increases in protection or increases in exports (or both) are necessarily welfare-reducing.

The very strong result that, under both general export subsidies and duty drawbacks, resource allocation is unaffected, for a given tariff rate, by the level of export subsidy leaves one wondering why this occurs and how general the result is. In this section an intuitive explanation is given that relies on a modified general equilibrium interpretation of the open-economy model. In this three-good model we can induce artificial preferences on the non-consumed export sector with Cobb–Douglas preferences for given prices (p_m, q) by the use of the trade-balance condition. This requires that spending on the third good equal export revenue, or $(1 - \beta)E = p_x Y_x$. We therefore induce Cobb–Douglas preferences over (m, x) space by using this identity. The aggregate representative consumer can be thought of as maximizing this utility function subject to the usual budget constraint. The economy's production possibility frontier (PPF) is given by AA' in Figure 8.2, with the slope determined by a_x/a_m . Given the monopoly distortion, the relative price line

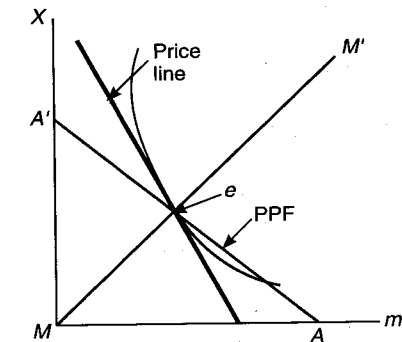


Figure 8.2 Equilibrium with market closure

facing the consumer is steeper than the slope of the PPF. Equilibrium is determined by the condition that the market in good m clears domestically. That is, income adjusts until the consumers' demand choices just lie on the PPF at point e .¹³

The effect of protection is to rotate clockwise the relative price-line facing the consumer (it is, in fact, trickier if true preferences are not Cobb-Douglas, since β also changes). This induces a shift of demand away from good m and toward good x . Equilibrium requires a reduction in the level of income for the market in good m to 'clear' domestically, and thus an expansion in the export sector. This is essentially why *import protection is export promotion*.¹⁴

Consider now export subsidies. Changes in export subsidies do not change internal relative prices p_m/p_x . Thus, the consumer's relative demands for the two goods do not change and therefore the market clearing condition is the same. Hence, export promotion has no effect in this economy. In the background, factor prices and government revenues are changing, but the level of aggregate consumer income, and thus demands in the economy, are invariant to these policy changes.¹⁵

3 DISCRETIONARY EXPORT INCENTIVE REGIMES

As noted in the introduction, many export incentives are set in an institutional and administrative framework with two characteristics. First, export incentives are determined via an administrative procedure, in which the *export authorities* have discretion as to the amount of the subsidy, but in which the information available to them is far from complete. Second, the level and instruments of protection are exogenous to, and outside the domain of the authority of the export programme administrators. This is implicitly an assumption about the institutional structure of trade policy, and it fits reasonably well with some accounts of trade policy formation in East Asia. In addition, it is assumed that the export authorities are motivated in their decisions by considerations of national welfare, albeit approximated by imperfect indicators, rather than by political objectives or more narrow self-interest objectives. For brevity, this type of trade policy regime will be referred to as an *administrative export regime*.

The Economy: Attracting Investment to the Export Sector

Consider a small open economy with two sectors of production: an exportable and an importable which is an intermediate input to the export sector. There is a single primary factor of production, labour, which can be employed in either sector. The export good is not consumed domestically and thus domestic

welfare corresponds to domestic income evaluated at exogenous world prices. The importable sector is competitive and subject to tariff protection.

The export sector consists entirely of large-scale plants controlled by multinational enterprises (MNEs). For simplicity, our unit of analysis is the 'representative' export plant. Countries compete for a share of global export capacity. Capacity once invested in a particular country results in proportional demands for labour and intermediate inputs. The international competition for export capacity is affected by international cost differences. Export incentives are set in light of the expected response of the allocation of capacity to changes in domestic costs, with export authorities focusing on a single investment decision at a time. The export authorities are motivated by trade-offs (made precise below) between national income objectives and the net revenue cost of any export programme. The country is not 'small' in the classic sense: the authorities know that changes in the cost structure of the export sector affect its share of global export capacity, and the factor incomes that capacity will generate. In this chapter we do not deal with the strategic aspects of interaction between countries competing for investment by a multinational enterprise.¹⁶

Let x denote the export capacity allocated to the country in question, and c the unit cost of export. A multinational makes its investment allocation decisions according to a profit-maximizing criterion which results in a capacity allocation rule denoted by:¹⁷

$$x = \phi(c)\phi'(c) < 0 \quad (8.13)$$

The importables sector, denoted with subscript a , produces with a diminishing-returns technology, $F(L_a)$. The product is sold in world markets at price p^* but imports are subject to a unit tariff, t ; thus the domestic price is $p = p^* + t$. The demand for labour in this sector is determined by the condition 'wage equals value of marginal product', or $w = pMP(L_a)$, where MP is the marginal product of labour schedule in a . The economy has a fixed endowment of labour N , supplied inelastically. The export sector uses one unit of labour per unit of export capacity and b units of good a . The labour market is competitive with a market-clearing wage, w . Thus, unit cost in the export sector is $c = w + bp$ in the absence of export incentives. Export incentives are treated as a subsidy s per unit of intermediate input purchased. With subsidy, the unit cost in the export sector becomes $c = w + bp - bs = w + bp^* + bt - bs$.

Factor market-clearing requires that the wage adjusts such that $L_a + x = N$. General equilibrium can be defined for a given subsidy tariff pair (s, t) as a wage and capacity (w, x) such that:

$$\begin{aligned} w &= (p^* + t)MP(N - x) \\ x &= \phi(w + bp^* + bt - bs) \end{aligned} \quad (8.14)$$

Objectives of the Export Authorities

Export authorities are presumed to understand the allocation rule (8.13) for capacity and that, to increase or decrease investment in export capacity, they must change the cost structure facing the MNE. At the same time they are assumed to evaluate the benefits from changes in export subsidies by using an *approximate* indicator of national welfare.

The true welfare function in this model is simply national income evaluated at some outside consumption price,

$$W^* = wx + p^*F(N - x) + (t - s)bx^{18} \quad (8.15)$$

Differentiating W^* , treating p^* and t as constants, gives the expression:

$$dW^* = xdw + (w - w^*)dx + (tb - sb)dx - bxds \quad (8.16)$$

This expression is the basis for justifying a particular objective function for the export authorities in an administrative export regime. In particular, assume that they know that the income generated in export plants is w per unit of employment and that the opportunity cost of a unit of labour is $w^* = p^*MP$. Given the presence of the tariff on the import-competing sector, they use the standard world price methodology in calculating shadow prices for inputs. The export authorities take w and w^* as being exogenous and constant at their observed values, thus ignoring the wage-change term (dw) in their approximation to (8.16). The objective function of the export authorities is thus assumed to be given by the following linear function of x , an approximate cost-benefit index,

$$W(x, s) = (w - w^*)x - sbx + tbx \quad (8.17)$$

The export subsidy is determined by the authorities as a solution to the problem:

$$\max_s W(x, s) \quad \text{subject to} \quad x = \phi(c) \quad (8.18)$$

Note that the authorities are assumed to calculate the non-linear response of changes in investment by the MNE to changes in domestic cost conditions. This assumption can be justified by assuming they have past experience of the export sector's response to cost changes. They are not, however, good general equilibrium theorists, or at least do not have that type of information; this implies that their (discretionary) export incentives change as new information comes in, as reflected in the linear coefficients in the 'approximated' net benefit function, W .

The objective function of the export authorities corresponds closely to that used in conventional cost-benefit analysis of export incentive programmes. Warr (1990) summarizes a number of studies on export incentive programmes for Indonesia, Korea, Malaysia and the Philippines, which provide estimates of the ratio of shadow prices to market prices. Warr describes a net benefit function¹⁹ equivalent to (8.17). A major incentive that exists for subsidization is the difference between the market price and the shadow price of domestically-produced inputs. These differences are considerable, as he discusses. For example, in the case of labour, he reports a ratio of shadow price to market wage of 0.75 for Indonesia, 0.91 for Korea, 0.83 for Malaysia, and 0.64 for the Philippines.

Equilibrium with an Administered Export Regime

The first-order condition to the problem (8.18) is:

$$\{(w - w^*) - (s - t)b\}(-b\phi_c) - bx = 0 \quad (8.19)$$

Evaluating the left-hand side of (8.19) at the *cost-neutralising* level of export incentives (that is, $s = t$), it is clear that its sign depends on the level of exports, x . Suppose that for $s = t$, costs are such that the economy is barely attracting any export capacity, or $x \approx 0$. In that case, the left-hand side of (8.19) is positive and the authorities will be inclined to subsidize beyond the cost-neutralizing level. To repeat, a key point in this process of the determination of the export subsidy is that it depends on the level of the incentives to the export authorities which are, in turn, positively related to the difference between the market wage and shadow wage, $w - w^*$.

The subsidy offered to the MNE by the export authorities is characterized as the solution to (8.18). This problem can be rewritten usefully in the following way, using the fact that $w - b(s - t) = c - bp^*$, and defining $c^* \equiv w^* + bp^*$, where c^* is the cost of inputs per unit of export output evaluated at the shadow prices of those inputs. The equivalent problem to (8.18) is to choose a cost level c such as to solve:

$$\max_c (c - c^*)\phi(c) \quad (8.20)$$

The choice of export incentives in an administered export regime can be viewed as being equivalent to the problem of setting a *cost structure* in the export sector, such as to maximize the 'rents' accruing to domestic factors, taking the opportunity cost per unit of export capacity as constant and equal to c^* . Let $c_0 = w_0 + bp^*$ be the cost that would just occur were the cost raising effect of the tariff exactly offset at current market wages, or $s = t$. If $\phi(c_0) = 0$ then the desired cost level will be above c^* but below c_0 . The choice of

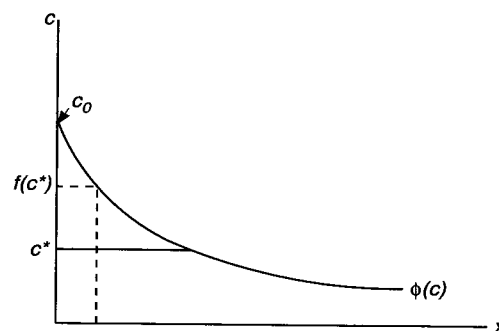


Figure 8.3 Export authorities' determination of the cost level in the export sector

subsidy, and hence cost, is depicted in Figure 8.3. It will necessarily imply a positive export subsidy such that $s > t$. The desired cost level will satisfy a conventional mark-up rule:

$$\frac{c - c^*}{c} = \frac{1}{\lambda} \quad (8.21)$$

where λ is the (absolute) elasticity of the capacity allocation rule with respect to cost.²⁰ The higher this elasticity, the lower the mark-up. Denote the costs level in the solution to (8.18) by the solution function $c = f(c^*)$. The decision rule in $f(\cdot)$ depends *only* on the properties of the ϕ function and on the shadow cost c^* . It is possible, depending upon the position of the ϕ curve, that the export authorities levy export taxes on MNE investment. If the level of investment in the export sector by foreign firms is sufficiently large at $c = c_0 (s = t)$, the solution to (8.18) could be an export tax with $c > c_0$. From now on, we restrict our attention to the case in which s is greater than t , so that a net export investment subsidy is offered in equilibrium.

Changes in protection have an impact on the economy via the conventional channels, but in this model they also induce an endogenous (discretionary) response by the export authorities. Hence, a higher tariff, at a given allocation, would lead, on impact, to increased subsidies to the export sector, since this would leave c^* unchanged, and export subsidies should be raised to leave c constant. However, the ultimate effect is not known, since wages must adjust to clear factor markets. As wages adjust, the chosen subsidy will change. Note that, as $w - w^* = tMP(N - x)$, the $w - w^*$ coefficient in W will increase as the size of the a sector gets smaller for a given tariff. Thus, there is a natural feedback mechanism as the incentives to subsidize exports increase as the export sector gets larger. The full equilibrium of an administrated export regime is described by equations:

$$\begin{aligned} w^* &= p^*MP(N - x) \\ x &= \phi[f(c^*)] \\ c^* &= w^* + bp^* \end{aligned} \quad (8.22)$$

Let (w_e, c_e, x_e) denote a solution to this system. By inspection of (8.22) this system gives an equilibrium which is *independent of the tariff rate*. The endogenous response of the export authorities is such as to eliminate the effect on the economy of changes in tariff protection. The major reason is that the shadow wage does not depend on the tariff rate even though the market wage does. Increasing the tariff raises the market wage and thus increases the required export subsidy, but the mark-up of c over c^* remains the same, and thus the original shadow wage effectively clears the labour market.

An Optimality Result

How does this equilibrium compare with one in which trade policy instruments are chosen optimally and with full information? Let $V(x) \equiv p^*F(N - x) - p^*bx$. It is useful to rewrite the true welfare function in the form:

$$W^* = cx + V(x) \quad (8.23)$$

With both tariffs and subsidies as instruments, for given x , any target cost level $\hat{c}$ can be realized by appropriately choosing tariffs and subsidies. An *optimal trade policy* is therefore equivalent to choosing a domestic cost level c such as to solve:

$$\max_c cx + V(x) \quad s.t. \quad x = \phi(c) \quad (8.24)$$

The first-order conditions for this problem are:

$$\begin{aligned} (c - c^*)\phi_c &= -x \\ c^* &\equiv -V'(x) \end{aligned} \quad (8.25)$$

As $-V'(x) = p^*MP(N - x) + p^*b$, the solution to (8.24) is equivalent to the equilibrium of the system in (8.22). Hence, the outcome of the administrative trade regime is *equivalent* to an optimal trade policy and, furthermore, it is independent of the level of the tariff. Any change in tariffs is offset appropriately by a change in the export subsidy.

A social planner does not take c^* as given, as do the export authorities. But the actions of the export authorities, together with market-equilibrium conditions, produce an outcome that is equivalent to a trade policy optimum.

One can think of this result as rationalizing the decentralization of policy decisions. The general equilibrium aspects of the domestic economy are summarized in the cost signal c^* . The export authorities take c^* as given, and are given the task of exploiting the external monopoly power in the export capacity market by setting a mark-up of domestic costs in the export sector over c^* . It is straightforward to generalize this model to one with many export sectors, each sector with an independent export authority. If all sectors draw their labour from the same economy-wide pool, all relevant general equilibrium information is summarized in the cost statistic c^* , and each export authority sets its own mark-up. What is noteworthy is that the conventional *small project* type of cost-benefit objective as embodied in (8.17) provides the correct set of incentives for the export authorities even though they have market power in the external market for foreign direct investment.

Estimating Wage Effects: Sophisticated Export Authorities

That outcomes under an administered export regime are independent of the level of the tariff could be viewed as a possible rationalization for the use of export subsidies in 'small open economies' that compete for investment by multinationals. We now demonstrate, however, that this result is sensitive to the manner in which the export authorities estimate the net benefits of the subsidy. An example is given of a procedure by which the export authorities estimate the response of the economy to their actions, which results in a discrepancy between the optimal trade policy and the equilibrium of an administered export-incentive regime. Furthermore, the magnitude of the discrepancy is sensitive to the level of protection.

It has been assumed that the authorities maximize the cost-benefit criterion (8.17), treating wages, both market and shadow, as being exogenous to their actions. But increased subsidies to export industries drive up the demand for labour in those industries, raising the market wage, and hence labour income. For this reason, in the evaluation of export subsidies, the authorities, in an attempt to be sophisticated in their analysis, may choose to estimate the response of market and shadow wage rates to changes in the level of the subsidy, and to incorporate this effect in their evaluation of net benefits. The authorities may have reasons of self-interest for doing so; either their compensation or bureaucratic budgets may depend on the outcome of export projects evaluated. If (8.17) is the stated objective the authorities are instructed to target by their superiors, they may be rewarded in the light of outcomes as measured by this numerical indicator.

Suppose, therefore that the authorities treat both w and w^* as functions of x because of the labour market effect of export expansion. The decision rule of an administered trade regime on the level of subsidy is then derived from the first-order condition:

$$\{(w - w^*) - (s - t)b\}(-b\phi_c) - bx + \frac{\partial(w - w^*)}{\partial s}x = 0 \quad (8.26)$$

Since $w - w^* = tMP(N - x)$ is now treated as a function of x in the setting of s , the existence of the tariff provides an additional reason to subsidize exports at the margin, which is not present in (8.19). If (8.26) is evaluated as a trade policy optimum, it is clear that the last term is positive – by increasing export capacity, the gap between the market wage and the shadow wage increases, giving rise to an additional perceived benefit at the margin from subsidy. The first-order condition (8.26) can be rewritten as:

$$\frac{c - c^*}{c} + \frac{\theta tMP(N - x)}{\delta c} = \frac{1}{\lambda} \quad (8.27)$$

where δ is the absolute value of the elasticity of demand for labour in the importables sector, and θ is the ratio of labour in the export sector to labour in the a sector; $\theta = L_x/L_a$. It is clear from this rule that it tends to lead to larger export subsidies and a domestic cost level closer to c^* than would be the case under an optimal trade policy. What is also important is that the subsidy rule (8.27) is now a function of the tariff rate. An increase in the tariff, raising for any given x the term $tMP(N - x)$, increases the perceived marginal return to the authorities of an additional dollar of subsidy. The export authorities are now attempting to manipulate the market and shadow prices of labour. In the presence of a tariff on intermediate inputs to the export sector, raising wages also implies increasing the gap between the market and the shadow wage.

There is now a clear general equilibrium link between changes in tariff protection, export subsidies and an additional feedback effect not present in (8.22). The effect of changes in the tariff rate on costs in the export sector net of subsidy is dependent upon how the elasticities of labour demand and capacity allocation change with changes in x . However, assuming these to be constant, one can get some additional comparative static results. The complete system can be written as a two-equation system in c and x . The first equation is the capacity allocation function $x = \phi(c)$, and the second the subsidy rule (8.27) with $c^* = p^*MP(N - x) + p^*b$. These become, after substitution.

$$\begin{aligned} x &= \phi(c) \\ c \left(1 - \frac{1}{\lambda}\right) &= p^*b + \left(p^* - \frac{t\theta}{\delta}\right)MP(N - x) \end{aligned} \quad (8.28)$$

If the elasticities δ and λ are treated as constants, sufficient conditions for the export sector to expand in response to a tariff *increase* is that the elasticity λ be greater than one, and that tariff rates not be too large. Inspection of the

subsidy-cost mark-up rule reveals that an increase in t for any given x will lead to a *decrease* in the tariff-net-of-subsidy cost level c . In this case, changes in tariffs cause changes in the export subsidy which more than compensate for the input-cost-raising effect of the tariff. Since ϕ is downward-sloping, this gives rise to an *increase* in the size of the export sector.²¹ This example illustrates how the level of import protection can structure incentives for export authorities which are not cost neutral. High tariffs create large gaps between shadow and market wages, which influence the magnitude of the bureaucratic incentive to subsidize. From a welfare perspective, this structure of objectives and actions on the part of the export authorities leads to sub-optimal welfare results. The export sector is over-subsidized relative to a trade policy optimum and this effect is exacerbated the higher the tariff rate.

The reason for the divergence between the trade policy outcome and the welfare optimum is the inappropriate nature of the objective function (8.17) if the export authorities attempt to introduce general equilibrium wage effects into their analysis. The correct or true objective function W^* is not (8.17), when the latter is viewed as a non-linear function of x , correcting for the dependence of the wage rate on the allocation of resources between the export and non-export sectors. If the true objective function were used and full global general equilibrium information were available to the authorities, this would simply be equivalent to doing a full-information welfare-optimal calculation. While logically correct, most programme evaluation by trade policy bureaucrats ultimately boils down to the exercise of fairly simple rules on shadow prices under less than full information on the underlying preferences and technology. The use of an approximate cost-benefit criterion such as (8.17) may lead to abuse of the intended procedure. Export authorities are led to subsidize in an attempt to boost the gap between market and shadow wages. This gap, in turn, is one reason for the existence of the subsidy programme, and thus the existence of the export authorities. Protection leads to a set of *administrative incentives* in the conduct of trade policy, which may bias the policy outcome towards excessive exports. Moreover, this incentive is stronger the higher the level of protection in the economy.

4 CONCLUSION

An implication of the small open economy competitive production model is that it is possible to achieve a free-trade equivalent outcome by offsetting the distortions induced by import substitution with the correct set of export incentives. This is one of those relatively rare examples in economics where 'two wrongs make a right'. These policies, while individually sub-optimal, are jointly optimal. In this chapter two important exceptions to the spirit of this argument are provided, by departing in each case from the classical assump-

tions of the small open economy model. This analysis may be particularly relevant for East Asian and other small open economies in which both export promotion and import substitution are prominent features of the trade policy regimes.

The first exception is based on the observation that protection in small open economies produces increased concentration, including possible monopolization of, the domestic market. The general equilibrium impact of a monopoly market structure under tariff protection is shown, in quite general circumstances, to result in market closure. The domestic producer chooses to supply all of the domestic market. There are two important general equilibrium implications of this. First, import substitution produces export promotion. The demand side of the market dominates, and increased rates of tariff protection can result in a reduction of resources allocated to the protected sector. In a model with a two-sector supply side this results in an increase in the size of the export sector. Second, export incentives will not succeed in reversing the effects of this policy. The basic reason is that relative producer costs do not determine resource allocation in this type of model. Export incentives change factor prices and monopoly sector profitability, but do not affect relative demand prices; it is the latter which determine the allocation of resources in the economy with market closure. In general, ignoring the demand side when domestic markets become closed because of protectionist policies can lead to erroneous assessments of the net impact of export incentives.

The second qualification stems from the discretionary and contingent nature of the administration of many export incentive schemes. Export 'policy' is modelled as a regime in which incentives provided for investment in export capacity by foreign multinationals are set endogenously by export authorities with less than full general equilibrium knowledge. They are, however, motivated by domestic welfare considerations, and provide export incentives according to an approximate cost-benefit test. The net outcome of this type of administered export incentive regime is quite interesting. In one particular case it results in a strong optimality result – a national trade policy optimum is achieved. However, in other plausible scenarios, the use of inappropriate cost-benefit indicators, with weights which depend on the degree of protection in the economy, produces export incentive policies which tend to over-compensate for tariff protection and to induce an excessive allocation of resources to exports.

Both sets of results suggest caution in assessing the bias of trade regimes, in which both protection and export promotion are quantitatively important. One implication is that the use of traditional policy evaluation indicators, such as effective rates of protection, when the instruments being evaluated are in fact endogenously determined, may be misleading. Another implication is that trade reform needs to be done carefully, taking into proper account all

general equilibrium effects, including changes in the way in which policy is administered.

Notes

1. The authors are grateful for the helpful comments of conference participants Rod Falvey, Don White and an anonymous referee. Remaining errors are the responsibility of the authors.
2. Falvey and Gemmell (1990a, 1990b) both survey and provide an excellent evaluation of the traditional normative literature on compensating export incentives.
3. See Flatters and Harris (1995) for a review of the evidence.
4. Wade (1990) reviews and discusses East Asian trade policy which is suggestive of this interpretation of interventionist export incentive schemes in these economies.
5. See Diewert, Turunen-Red and Woodland (1991), and Turunen-Red and Woodland (1991) for derivation of rules on Pareto improving local trade policy reform based on full information general equilibrium comparative statics.
6. An alternative positive theory of export promotion is found in the political economy literature on trade policy – see Hillman (1989) for a survey. It is possible that one could construct a model in which both protection and export incentives are determined endogenously in response to interest-group pressures.
7. Eastman and Stykolt (1960) were the first to develop this model of oligopolistic behaviour by import-competing producers in small, open economies.
8. With sufficiently elastic demand, the monopolist will price below the limit price. It is possible in this case that as the tariff increases it will eventually cease to bind, and thereafter have no effect. We shall not consider this case here. A similar situation occurs as competition increases in the industry; for example, with domestic Cournot oligopoly competition subject to a limit price. These issues are taken up further in Harris and Schmitt (1996a).
9. The popular alternative model of imperfect competition in import competing sectors assumes that foreign and domestic goods are imperfect substitutes. In these models an increase in tariffs leads to a *shift* in the demand curve for the import competing good, due to the substitution effect between foreign and domestic varieties. Home suppliers of the domestic good respond by increasing output. In the model considered here, the two goods are *perfect* substitutes and the solution reached is a corner solution – no consumption of the foreign good. Increases in the tariff result in matching foreign and domestic price increases, inducing movement along the demand curve, requiring a reduction in domestic output.
10. Solving equation (8.4) for wages, it can be seen that positive wages restricts σ to less than unity.
11. Note that it is necessary that $\sigma\beta < 1$ for profits to be positive in equilibrium. As we assume $\sigma < 1$ this is satisfied.
12. In a model with no spending on the domestic good by labour, it can be shown that a rise in p_m in fact raises spending on the domestic good and thus exports contract because of the induced effect of higher profits on spending on the domestic good. Results are thus sensitive to strong asymmetries in income elasticities of demand between labour and profit-income recipients.

13. The similarity between this model and the familiar Salter model of non-traded goods should be apparent to the reader.
14. This model also illustrates the difference between trade reform versus a move to complete free trade. Under free trade, specialization in the export good would occur. The market closure effect results in a discrete change in the equilibrium. The welfare losses relative to free trade are larger in this model than in the conventional small open economy model.
15. This argument does not hinge on the Ricardian production structure of this model. A multi-factor Heckscher–Ohlin model will give essentially the same irrelevance result on export incentives and the conclusion that protection is export-promoting. Conclusions as to the distributive effects are more complicated in a Heckscher–Ohlin version of the model, since they involve a mixture of Stolper–Samuelson effects and real profit creation effects. See Harris and Schmitt (1996a).
16. Strategic interaction among countries with these types of trade regime is taken up in Harris and Schmitt (1996b).
17. Markusen (1984) and Horstmann and Markusen (1987) provide detailed models of MNE plant location which are consistent with a rule such as (8.13).
18. Alternatively, $W^* = wx + G + pF(L_a) - wL_a$; that is, the wage bill, plus net government revenue, plus specific factor rents in sector a . Government revenue depends on tariffs, imports, exports and export subsidies. Let M denote imports of a . Then, $G = tM - sbx$ and $M = bx - F(L_a)$. Substituting yields an expression equivalent to (8.15).
19. See Warr (1990), p. 151, equ. 8.4.
20. This system has a reasonable economic solution if the capacity elasticity has an absolute value greater than one in equilibrium for obvious reasons analogous to the monopoly problem. From now on, we assume λ is greater than one.
21. The result hinges on the fact that the capacity allocation function ϕ is decreasing in c . In (c, x) space, the subsidy rule schedule can be upward- or downward-sloping, but a tariff increase shifts the chosen c down for any given x .

References

- Bliss, C. (1987) 'Taxation, Cost Benefit Analysis and Effective Protection', in D. Newberry and N. Stern (eds), *The Theory of Taxation for Developing Countries* (Oxford: Oxford University Press / World Bank), pp. 141–62.
- Corden, M. (1971) *The Theory of Protection* (Oxford: Oxford University Press).
- Diewert, W. E., A. H. Turunen-Red and A. D. Woodland (1991) 'Tariff Reform in a Small Open, Multi-Household Economy with Domestic Distortions and Nontraded Goods', *International Economic Review*, vol. 32, no. 4, pp. 937–58.
- Eastman, H. and S. Stykolt (1960) 'A Model for the Study of Protected Oligopolies', *Economic Journal*, vol. 70, pp. 336–47.
- Falvey, R. E. and N. Gemmell (1990a) 'Compensatory Financial and Fiscal Incentives to Export', in C. R. Milner (ed.), *Export Promotion Strategies: Theory and Evidence* (Brighton: Harvester Wheatsheaf), pp. 109–29.
- Falvey, R. E. and N. Gemmell (1990b) 'Trade Taxes and Welfare: The Case of Export Incentives in South-East Asian Countries', *Australian Economic Review*, 4th quarter, pp. 61–73.

- Flatters, F. and R. G. Harris (1995) 'Trade and Investment: Patterns and Policy Issues in the Asia-Pacific Rim', in W. Dobson and F. Flatters (eds), *Pacific Trade and Investment: Options for the 90's* (Kingston: John Deutsch Institute for the Study of Economic Policy).
- Harris, R. and N. Schmitt (1996a) 'Protection and Market Closure', mimeo, Department of Economics, Simon Fraser University, Canada.
- Harris, R. and N. Schmitt (1996b) 'Export-Investment Subsidies in the Presence of Import Protection', mimeo, Department of Economics, Simon Fraser University, Canada.
- Hillman, A. (1989) *The Political Economy of Protection* (Chur: Harwood).
- Horstmann, I. and J. Markusen (1987) 'Strategic Investment and the Development of Multinationals', *International Economic Review*, vol. 16, pp. 205-26.
- Markusen, J. (1984) 'Multinationals, Multiplant Economies and the Gains from Trade', *Journal of International Economics*, vol. 32, pp. 103-29.
- Melvin, J. M. and J. D. Warne (1973) 'Monopoly and the Theory of International Trade', *Journal of International Economics*, vol. 3, pp. 117-34.
- Nam, C. H. (1990) 'Export Promotion Strategy and Economic Development in Korea', in Milner (ed.), *Export Promotion Strategies: Theory and Evidence* (Brighton: Harvester Wheatsheaf), pp. 165-83.
- Turunen-Red, A. and A. D. Woodland (1991) 'Strict Pareto-Improving Multilateral Reforms of Tariffs', *Econometrica*, vol. 59, no. 4, pp. 1127-52.
- Wade, R. (1990) *Governing the Market* (Princeton, NJ: Princeton University Press).
- Warr, P. (1990) 'Export Processing Zones', in C. R. Milner (ed.), *Export Promotion Strategies: Theory and Evidence* (Brighton: Harvester Wheatsheaf), pp. 130-62.

Comment

Rod Falvey

UNIVERSITY OF NOTTINGHAM

In this chapter the authors take issue with the proposition that export-promotion policies can always be used to neutralize the negative impacts of protection on export industries. They suggest that there may be many circumstances under which an allocation of resources similar to that under free trade will not be attainable in this way. The two aspects they focus on in particular are imperfect competition in the import-competing sector, and the inevitable 'rules of thumb' used by export authorities in setting the levels of export incentives. The authors' approach is to develop stylized models that illustrate as starkly as possible the points they wish to make, while being careful 'to make no claim for the generality of the results'. But inevitably the generality of the results is an issue. While both parts of the chapter examine the links between protection and export promotion, the two models developed and the issues addressed are sufficiently different that it is useful to consider them separately.

Section 2 examines a small economy consuming two goods (a final import and an importable that is both an intermediate and a final good) and (potentially) producing two goods – the importable and an exportable whose production requires the importable as an intermediate. Production takes place under Ricardian assumptions. In free trade only the exportable is produced domestically. Importable production is then induced by a tariff. By virtue of the Ricardian assumption, once the tariff is high enough that importable production becomes profitable, imports of that good are eliminated, an outcome the authors refer to as 'market closure'. A key assumption of the model is that domestic production of the importable is then monopolized.

The authors use this structure to derive three main results: (i) that protection is export-promoting – that is, that increases in the tariff lead to increases in exports; (ii) that export subsidies have no effect on export volumes or the allocation of resources; and (iii) as a consequence, given the existence of protection, a neutral trade regime cannot exist in this model. These interesting and strong results are obtained using quite restrictive assumptions, making it important to identify which assumptions are driving the results and which can be generalized. From this perspective several comments are in order with respect to (i) above, in addition to those provided in the chapter. First, it is a 'local' rather than a 'global' result. Once the tariff is high enough

to establish the domestic industry, then it is true that further tariff increases lead to increases in exports. But exports always remain below their free trade levels. Second, it depends on an imperfectly competitive import-competing sector. In a competitive sector, increases in the tariff above that necessary to establish the domestic industry would be redundant, and have no effects. Finally, for protection to raise exports requires that domestic demand for the importable falls as its price rises, thereby releasing resources for exportable production. However, expanding exports demand more importables as intermediates. What is required then is a more than offsetting fall in final demand for the importable. The assumptions of Section 2 guarantee this, but note that we would not get this outcome under the assumptions of the third section. Similarly, result (ii) above, on the irrelevance of export incentives, would disappear if exportables happened to be consumed domestically.

Section 3 employs a similar model, except that domestic production of the importable is now competitive, and occurs under diminishing returns (so that there is domestic production under free trade). Most significantly, the home country is now 'large' in the exportable market. The major objective in this part seems to be to examine different 'rules of thumb' for determining the optimal export subsidy.

My first comment is that the focus on export *subsidies* in this part seems to be somewhat misplaced. While it is not motivated this way in the chapter, one can interpret $\phi(c)$ as foreign demand for home exports (x) expressed as a function of their price (c). In the free-trade equilibrium, the competitive export producers equate the marginal cost of exportables with their price. However, this is not the outcome that maximizes home welfare. Under the assumptions of the model, home welfare is highest when the value of home output at world prices is maximized; and this requires that the marginal revenue from exports be equated to their marginal cost. In order to exercise its monopoly power in the exportable market, the home country must *reduce* its exports below their free-trade level. A tariff on imports of the intermediate good will raise the cost of exportable production, and if set appropriately can move the competitive equilibrium to where the optimal outputs are produced. Were the tariff set above (below) this level, the optimum could be achieved through an export subsidy (tax), which moves the average revenue curve in the appropriate direction, as discussed in this chapter. Only if the tariff is set too high will an export subsidy be called for, and then only if the tariff itself cannot be adjusted.

Indeed, despite the rather innovative interpretation here, this is really a fairly standard two-sector general equilibrium production structure. Setting a subsidy on the intermediate use of importables equal to the tariff will neutralize the tariff's direct effect on exportable costs, but will still leave its indirect protective effect via the labour market. When interpreting the

discussion in the sub-section of section 3, 'Equilibrium with an Administered Export Regime', one should recall that this is the only exportable produced in this economy *and* that this exportable is not consumed domestically. If the importable is only used as an intermediate in exportable production, then a prohibitive tariff will be reached long before exports are eliminated, given that net exports from the production sector are required to finance imported consumer goods. In fact, this prohibitive tariff may be reached while exports are still above the optimum. Any further expansion of 'importable' production would then need to be sold on the world market, requiring an export subsidy – but on *this good* not the 'traditional' export. If the importable is consumed domestically, then the case where $x \approx 0$ involves a tariff that has driven this economy almost to autarky and is therefore far greater than the optimal tariff.

Viewing the model in this way also assists in interpreting the issue of formulating rules for export incentives. There would be no need for intervention if, under free trade, exports were monopolised *and* the profits were retained in the home country. But, as modelled, the exporting decision is made by foreigners (MNEs), which makes the home retention of the profits problematic. Hence the indirect monopolization through an export authority which sets the relevant export tax/subsidy. If this authority knows the marginal revenue function (as is assumed in the chapter), then it is a matter of determining the output at which marginal revenue is equated with marginal cost at world prices (MC^*), and setting an appropriate export tax to achieve this output. Perhaps the simplest approach requires the export authority to adjust the export tax (t) according to: $dt = k \cdot [MC^* - MR]$, where k is a (small) positive scalar. This approach will eventually achieve the optimum, although perhaps after some small oscillations. Attempts to move more rapidly to the optimum will involve estimation of the MC^* function, requiring more detailed and complex calculations involving estimated shadow prices of inputs. As the chapter notes in the sub-section of section 3 headed 'Estimating Wage Effects: Sophisticated Export Authorities', mis-estimation of this relationship and the application of inappropriate adjustment rules can lead to an outcome that is sub-optimal. This is clearly an important topic and one worthy of research beyond the stylized model of this chapter.

Finally, two general comments. First, the chapter assumes that duty drawbacks are paid as a subsidy on exports equal to the notional duty on their intermediate input even when the intermediate used is produced domestically. In practice, governments are often reluctant to go beyond reimbursement of duty actually paid. If the drawback scheme is restricted to intermediates actually imported, its introduction will have an impact on domestic output. Indeed, where importables are not consumed domestically, the tariff in Section 3 will be completely ineffective. Finally, one limitation of working with full employment models involving only two production sectors is

that trade policy can either promote 'all' importables, 'all' exportables, or be neutral. In reality, explicit protection will be limited to some importables, and export incentives will be limited to some exportables (typically new or 'non-traditional' exports), implying that 'neutrality' may have more limited objectives than returning us to something approximating free trade.