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**DISTORTION - TRIGGERED LOBBYING AND WELFARE : A CONTRIBUTION TO
THE THEORY OF DIRECTLY-UNPRODUCTIVE PROFIT-SEEKING ACTIVITIES**

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Distortion-Triggered Lobbying and Welfare:
A Contribution to the Theory of Directly-Unproductive
Profit-Seeking Activities

by

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A Thesis submitted to the Faculty of Graduate
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ments for the degree of Doctor of Philosophy.

Department of Economics
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The undersigned recommend to the Faculty
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ABSTRACT

It is well known that policy-induced controls on market exchange can create non-exclusive income (i.e., right to receive such income is not exclusively preassigned).

Therefore, a lobbying process (using real resources) is often generated, seeking to obtain a favourable share of this non-exclusive income. Such lobbying activities are a subset of what Bhagwati has termed as directly-unproductive profit-seeking (DUP) activities.

It is demonstrated initially that the welfare effect of lobbying, triggered by a policy-created distortion, depends critically on whether the direct impact of the policy constraint is on price or on quantity. This point, it is shown, leads to significant change in the orthodox welfare analysis of the Harris-Todaro model. Finally, it is demonstrated that several standard comparative-static welfare analyses of alternative policy-distorted states are significantly affected once the policy intervention is assumed to be continuously accompanied by lobbying for the associated non-exclusive income.

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TABLE OF CONTENTS

	<u>Page</u>
I. Introduction	1
II. Welfare Analysis of Lobbying in the Presence of Distortions	9
III. Rent Seeking, Welfare and the Harris-Todaro Model	19
IV. Some Comparative-Static Theories of Trade and Welfare in the Presence of a Tariff (Quota) with Revenue (Rent) Seeking	39
V. The Theory of Optimal Policy Intervention to achieve Non-Economic Objectives in the Presence of Revenue Seeking	75
VI. Summary and Conclusions	82
References	87

CHAPTER I

INTRODUCTION

Within the context of the two-sector model of general equilibrium, the orthodox normative and positive theory of policy-created distortions has generally ignored the effects of at least three by-product economic activities that accompany the imposition of the policy. These are, as noted by Bhagwati and Srinivasan (1980), in the context of a commercial-policy distortion:

A. Policy-seeking: Policy intervention, instead of being exogenously specified, may be the outcome of a lobbying process whereby the potential beneficiaries from the policy spend resources to get the policy enacted.

B. Policy-generated income-seeking: Policy imposed controls on market exchange may create non-exclusive income. Thus, a tax policy generates revenues or a quota policy generates premia or rents. If the right to receive this income is not exclusively pre-assigned, again, resource using lobbying process may be generated attempting to obtain a favourable share of the policy created non-exclusive income.

C. Policy-evasion: Finally, resources may be used to evade a policy constraint whenever it is profitable to do so. Examples of such activities are, smuggling to evade a tariff or a quota constraint, tax-evasion, etc.

In recent years, however, the aforementioned phenomena have received attention, particularly in the context of a commercial policy. Thus, the economic analysis of tariff evasion or smuggling has been pioneered by Bhagwati and Hansen (1973) with later contributions by Bhagwati and Srinivasan (1973), Sheikh. (1974), Kemp (1975), Falvey (1978), Ray (1978) and Pitt (1980). The analysis of the lobbying process to enact a tariff (i.e., tariff-seeking) has been initiated by Brock and Magee (1978) with further development by Findlay and Wellisz (1980), Feenstra and Bhagwati (1980) and Bhagwati (1980).

The second phenomenon, i.e., lobbying for non-exclusive income, generated by a policy intervention have, however, been a relatively neglected area. The pioneering work in this area was undertaken by Krueger (1974). She analysed the effect of the activity whereby, in the presence of an import quota, resources are used in order to obtain a favourable allocation of premium-yielding import entitlements. Her analysis has later been examined and extended, in the context of the orthodox two sector general-equilibrium model, by Bhagwati and Srinivasan (1980). In their model, Bhagwati and Srinivasan (1980), introduce for the first time, the analysis of what they term as "revenue seeking". This describes the (resource using) lobbying activity undertaken in order to obtain a preferential share of tariff revenues.¹

The analysis of Bhagwati and Srinivasan (1980) constitutes the point of departure for this dissertation. The introduction

of resource using lobbying for the non-exclusive income, generated by a policy intervention, has significant implications for the standard normative and positive theories of policy-induced distortion in the context of the orthodox 2 x 2 Heckscher-Ohlin-Samuelson (HOS) model of international trade. In the traditional analysis, the imposition of a policy, in a perfectly competitive model, results in the usual distortion represented by a departure from the conditions of Pareto-optimality. Factors of production are, however, fully employed in productive activities. This follows from the assumption that there are no real resource costs associated with the imposition and the operation of the policy itself. An implication of this assumption is that the non-exclusive income, in the form of revenues or rents, generated by a policy intervention, is costlessly redistributed to the consumers. Introduction of a resource-using lobbying process to disperse the policy-created non-exclusive income implies that factors must be withdrawn from productive activities. The resultant change in productive equilibrium, as is to be expected, must significantly change conventional results.²

The first issue raised by lobbying for any non-exclusive income, triggered by an exogenously-specified policy intervention, concerns the impact of such lobbying on welfare. It was traditionally believed that the welfare effect of lobbying undertaken solely for redistributive rather than for

4.

productive purposes, must be negative (e.g., see Tullock, 1967 and Krueger, 1974). This follows from the conventional assumption that social welfare function is either distribution free (i.e., it depends only on the aggregate availability of goods and services) or that costless means are available to obtain any distribution considered socially optimal.

Bhagwati and Srinivasan (1980) are able to show that contrary to the traditional belief, lobbying, in the form of revenue seeking (in the presence of a tariff), can be welfare improving. The intuitive explanation is that since lobbying in this case represents introduction of a new distortion into an originally distorted state, its normative implication, from the general theory of second-best is ambiguous. Hence, Bhagwati has coined the generic term Directly-unproductive profit-seeking (DUP) to describe (lobbying) activities whose direct impact is to redistribute income rather than to contribute to it. The justification for using this term is that although these activities appear to be socially wasteful in their direct impact (i.e., that their direct 'output' does not enter the social utility function), they may involve a second-best situation and hence wind up as being indirectly productive (in terms of a conventional social welfare function).³

Chapter II of this dissertation explores the normative implications of lobbying generated by an exogenous policy-created distortion. The major result developed in this chapter

is that the welfare improving paradox, due to lobbying, can arise only under certain types of initially distorted situations (resulting from a policy intervention): the critical question being whether the lobbying-triggering distortion involves directly constraining a price or a quantity variable. Specifically, it is demonstrated that although revenue seeking (i.e., lobbying for non-exclusive revenues generated by a tax policy) can be welfare improving, it is impossible for rent seeking (i.e., lobbying for non-exclusive rents or premia created by a quota policy) to be similarly beneficial (except under special conditions).⁴

The normative analysis of distortion-triggered lobbying, developed in Chapter II, is applied to the orthodox Harris-Todaro model in Chapter III. It is demonstrated that the conventional result which implies that a wage subsidy to agriculture, by reducing urban unemployment, must be welfare improving, cannot be sustained.

Chapter IV turns to the second interesting issue thrown up by the introduction of policy-created lobbying. This concerns the comparative static welfare analysis of alternative policy-distorted states when lobbying is continuously present. The analysis is restricted to the specific case of a commercial policy (i.e., a tariff or a trade-quota) which is always accompanied by lobbying (in the form of revenue seeking and rent seeking) for the associated revenues and rents (i.e., premia on quota restricted imports). Using the

basic model of Bhagwati and Srinivasan (1980), it is shown that the conventional comparative-static welfare analysis of a) economic growth; b) foreign capital inflow; c) illegal and preferential trade; d) trade intervention by a large country are significantly affected once revenue seeking and rent seeking are assumed to be continuously present.

Chapter V deals with the related issue of optimal policy intervention in order to achieve a non-economic objective. It is demonstrated that in the continuous presence of revenue seeking, the conventional result that intervention at the source is optimal need not hold.

Finally, Chapter VI presents a summary of the results and concluding remarks. A few suggestions for further research in the area is also presented.⁵

7.

FOOTNOTES TO CHAPTER 1

1. This common feature of the type of lobbying activities considered by Krueger (1974) and Bhagwati-Srinivasan (1980) (i.e., that they are induced by the presence of non-exclusive income created by an exogenously-specified policy-constraint on exchange in competitive markets) was earlier analysed in a different context by Cheung (1974). He demonstrated how rents, created by controls, tend to be dissipated if the right to receive them is not exclusively assigned. The question as to why institutional mechanism permits rent dissipation is an interesting one but, however, will not be pursued in this dissertation. Rather, drawing on the fact that rent-dissipating lobbying is empirically observable, we shall be concerned with the implication of this type of activity for the related body of orthodox analysis.
2. It was customary, following Krueger's (1974) catchy phrase, to describe these activities as 'rent seeking'. However, as Bhagwati (1980) correctly points out, the term rent seeking need not always be useful in distinguishing between productive and unproductive activities. Thus, in the orthodox two sector model, with fixed factor supplies, all factor earnings must be termed as rents, using the conventional definition. Thus even productive activity in this model may be termed as rent seeking!
3. It is useful, to avoid confusion, to refer to Chart I, in the Appendix to this Chapter, which shows the precise relationship that lobbying, considered by Bhagwati and Srinivasan (1980) specifically in relation to revenue seeking and here in a more general way, bears to other directly-unproductive (or zero output) profit-seeking activities.
4. See Bhagwati (1980) for a detailed, taxonomic discussion of the welfare-theoretic consequences of DUP activities. Moreover, it should also be noted that in this dissertation (with the exception of Chapter III), the Krueger phrase (1974) 'rent seeking' will be used in the sense of lobbying for rents on trade quotas as well as to describe all such lobbying phenomena as are triggered by quantitative policy interventions. Bhagwati and Srinivasan (1981) however describe the quota-premium case of rent seeking as 'premium seeking', which then becomes a specific case of rent seeking, describing the more generic class of lobbying, triggered by quantity distortions.

5. Three points may be noted here before continuing our analysis.

Firstly, in this dissertation we restrict our analysis to the type of lobbying generated by an exogenously specified policy. However, our analysis can easily be extended to the case where the policy itself is the outcome of lobbying. In this case we would simply start our analysis from an inferior production possibility curve which takes into account the resource cost of the policy-creating lobbying. Since, the subsequent analysis would be essentially unaffected in other respects, it is perfectly legitimate to make analytic separation between the two types of lobbying.

Secondly, it is a common belief that although lobbying, specifically for quota-created premia, is conceivable, such specific lobbying for corresponding tariff revenues is not. After all tariff revenues are a part of the general revenue fund of the government. What is not realised, however, is that quantity restriction may also give rise to general revenues such as when import entitlements are auctioned off.

Finally, it may be noted that one need not view the real resource diversion, after the imposition of the policy restriction, necessarily as rent/revenue seeking. As Bhagwati and Srinivasan (1980) point out, essentially identical analysis follows if instead resource diversion is treated as the administrative cost of enforcing the policy.

APPENDIX TO CHAPTER I

CHART I

Directly-Unproductive Profit-Seeking Activities

CHAPTER II

WELFARE ANALYSIS OF LOBBYING IN THE PRESENCE OF DISTORTIONS

An interesting implication of the analysis of Bhagwati and Srinivasan (1980) and also Bhagwati (1980) is that lobbying for the non-exclusive income generated by an exogenous policy intervention can paradoxically lead to welfare improvement. As noted by Bhagwati (1980), this paradox is analytically equivalent to that of immiserizing growth à la Bhagwati (1958, 1968) and Johnson (1967), wherein factor accumulation, in the presence of a distortion, can lead to welfare loss. In this case then, factor withdrawal for (zero-output) lobbying activities, in the presence of a policy-imposed distortion, can be welfare improving. This notion underlies the contention in Bhagwati and Srinivasan (1980), that revenue seeking in the presence of a constant tariff or rent seeking in the presence of a constant quota may be welfare improving. The latter result contradicted the earlier analysis by Krueger (1974) which implied that rent seeking must be welfare worsening. However, as the following analysis demonstrates, although revenue seeking can indeed increase welfare, it is impossible for rent seeking to be similarly beneficial (provided the quantitative restriction triggering it is the only distortion and is defined strictly in terms of volume).¹

II.1 Policy Intervention, Lobbying and Welfare

Policy-imposed controls, which may induce lobbying, can

be classified into two major categories: those controls that directly influence prices, such as taxes² and those that directly influence quantities, such as quotas. It is assumed that a tax policy generates revenue seeking for the (non-exclusive) revenues and a quota policy induces rent seeking for the associated (non-exclusive) rents or premia. A distortion is introduced by each type of policy intervention in the sector in which the policy is imposed. Assuming a small open economy³ two propositions can now be demonstrated.

- A. A welfare-improving paradox due to lobbying (rent seeking) cannot occur in the presence of an only distortion created by a constant quota, which constrains a quantity below the free market level.
- B. If inferiority in consumption is ruled out, a welfare-improving paradox, due to revenue seeking in the presence of a single distortion created by a constant tax, can arise only if the tax creates a distortion in production. This implies, for example, that revenue seeking, triggered solely by a consumption tax, will never be welfare improving.

These welfare implications of lobbying can be expressed in terms of the second-best shadow prices of the primary factors in the presence of a policy-induced distortion. As noted by Bhagwati and Srinivasan (1980), a necessary condition for a welfare-improving paradox to occur is a negative shadow price of a factor (used in lobbying).

II.2 Shadow Factor, Prices and the Welfare Implication of Lobbying

Letting C_1 and C_2 be the consumption levels of commodities 1 and 2 respectively, assume a standard social utility function $U(C_1, C_2)$. P_c , P_p and P^* are, respectively, the relative price of the second commodity in terms of the first for domestic consumers, domestic producers and international transactions. X_1 and X_2 are the domestic production of goods 1 and 2. U_i denotes marginal utility of commodity i ($i=1,2$). We have:

$$U_2/U_1 = P_c = DRS, \quad (II-1)$$

from the condition for utility maximization;

$$-dX_2/dX_1 = P_p = DRT, \quad (II-2)$$

from the condition for competitive profit maximization;

$$P^* = FRT, \quad (II-3)$$

from the small-country assumption and

$$C_1 + P^*C_2 = X_1 + P^*X_2, \quad (II-4)$$

from the condition for balanced trade.

As usual, DRS, DRT and FRT represent, respectively, the marginal rate of substitution in domestic consumption, the marginal rate of transformation in domestic production and the marginal rate of transformation in foreign trade.

Using equation (II-1), the change in welfare due to a small movement away from the initial equilibrium can be expressed as,

$$dU = U_1(dC_1 + P_c dC_2), \quad (II-5)$$

The second-best shadow prices of the primary factors labour (L) and capital (K) can be expressed directly in terms of the change in utility, due to a small change in the endowments ($\bar{L}$ and $\bar{K}$) of the two factors, in the presence of each type of distortion created by a policy intervention. Thus denoting the shadow price of labour and capital by w^* and r^* respectively, we have $w^* = dU/d\bar{L}$ and $r^* = dU/d\bar{K}$. Clearly, expressed thus, the necessary condition for lobbying (a zero output activity) to be welfare improving is that a shadow factor price is negative. Assuming that national monopoly power does not exist, shadow factor prices in the presence of different policy-created distortions can be derived from equations (II-1) through (II-5) as follows:

$$w^* = U_1 \{ \partial Y / \partial \bar{L} + (P_c - P^*) dC_2 / d\bar{L} + (P^* - P_p) dX_2 / d\bar{L} \}, \quad (II-6)$$

$$r^* = U_1 \{ \partial Y / \partial \bar{K} + (P_c - P^*) dC_2 / d\bar{K} + (P^* - P_p) dX_2 / d\bar{K} \}, \quad (II-7)$$

where $Y \equiv X_1 + P_p X_2$. Since the value of national production at constant producer prices must increase with factor expansion, the first terms in (II-6) and (II-7) are always positive. Hence; the sign of the shadow prices depends on the other terms. Three cases may be distinguished.

Case 1

If the only distortion is created by a consumption tax or a quota policy, we have, $P_c \neq P_p = P^*$. Clearly, from equations (II-6) and (II-7), the necessary condition for shadow prices to be negative is that the consumption of the second commodity must decrease (increase) if P_c is greater (less) than P^* .

Since, in the absence of a distortion in production, the consumption possibility locus must shift out with factor expansion, the foregoing condition is ruled out in the case of a constant consumption tax (assuming non-inferiority in consumption) and the shadow prices must be positive. In the case of a quota, which constrains consumption of a commodity, shadow prices must be positive even with inferior goods, since constant consumption of one good must be combined with an increased consumption of the other on an expanded consumption possibility locus leading to welfare improvement. Hence, revenue seeking as well as rent seeking, induced solely by a consumption tax or a quota, must be immiserizing.⁴

Case 2

If the only distortion is created by a production tax or quota we have, $P'_c = P^* \neq P_p$. From equations (II-6) and (II-7), the necessary condition for negative shadow prices, is that X_2 must increase (decrease) when P^* is greater (less) than P_p . This is clearly possible (by the Rybczynski Theorem), in the presence of a constant production tax, depending on the relative factor intensities in production. However with a constant production quota, shadow prices must be positive, since, if production of one commodity is kept constant by a quota, that of the other must increase with factor expansion. The value of national income at international prices and hence welfare must, therefore, go up. Thus although revenue seeking with a production tax can be welfare improving, rent seeking with a

production quota must be immiserizing.

Case 3

Finally, consider a tariff or a quota on foreign trade. Under small country assumptions we have $P_c = P_p = P \neq P^*$. Expressions for shadow prices in equations (II-6) and (II-7) are reduced to.

$$w^* = \partial Y / \partial \bar{L} + (P - P^*) dE_2 / d\bar{L}, \quad (\text{II-8})$$

$$r^* = \partial Y / \partial \bar{K} + (P - P^*) dE_2 / d\bar{K}, \quad (\text{II-9})$$

where $E_2 \equiv C_2 - X_2$. The necessary condition for negative shadow prices in the case of a tariff, is that E_2 (imports) must decrease with factor expansion. This is clearly possible from Johnson's (1967) well-known demonstration of immiserizing growth for a small country with a fixed tariff. However, if trade is restricted by a constant quota, shadow prices must be positive, since with constant imports the second terms in (II-8) and (II-9) are reduced to zero. Hence, revenue seeking for tariff revenues can improve welfare but rent seeking for quota-created rents must be immiserizing for a small country.

The intuitive explanation of this result runs along the following lines. In the presence of a constant tariff, shadow factor prices can be negative (i.e., growth can be immiserizing), because imports can decline. This implies that domestic production replaces the cheaper foreign source of the importables, offsetting the primary gain from the increased productive capacity of the economy. But in the case of a quota, since imports are quantitatively fixed, this source of loss is ruled

out and hence factor expansion must be beneficial (i.e., shadow factor prices must be positive).

This case is illustrated in Figure II.1. AB is the transformation locus for the small country. With a fixed tariff, production and consumption are at P and C respectively. The slopes of lines PC and PD respectively represent the international and the domestic price ratios. As drawn, revenue seeking, by moving production point to P_R and consumption point to C_R , is welfare improving.

Assume now that imports are restricted by a constant quota represented by the vector PC. In order for rent seeking to improve welfare, a production point inside the transformation locus AB must be joined with a consumption point on a higher social indifference curve, by the constant international price line. But it is clear from the illustration that, given the concavity of the transformation locus and the convexity of the indifference curves, this must involve a higher level of imports than the fixed quota represented by the vector PC. Thus it is impossible for rent seeking to improve welfare, if the quota constraint remains binding.

The general explanation of the foregoing results can be presented in terms of the principle of immiserizing growth in the presence of a distortion. As equations (II-6) and (II-7) reveal, when the only distortion is in the form of a constant price divergence, the necessary condition for growth to have a negative effect on welfare is that the quantity variable that

FIGURE II.1

is distorted at source must move further away from the optimum. Thus, in the presence of an only distortion created by a constant tax on X_2 , reducing its production below the optimum, growth can be harmful only if production of X_2 is further reduced (i.e., the distortion is accentuated) as a result.

However, when the only distortion is in the form of a constant quantity constraint, immiserizing growth is ruled out since the fixed quota prevents the constrained quantity variable to fall any further below the optimum. Thus in the presence of a quota, since growth is always beneficial, negative growth (due to lobbying) is necessarily immiserizing.⁵

FOOTNOTES TO CHAPTER II

1. This point has been acknowledged by Bhagwati and Srinivasan (1981) with attribution to the present work.
2. Price controls may also operate through subsidies. But since in this case no non-exclusive income is generated (i.e., taxes generated are exclusively used to finance the subsidy) the class of lobbying, considered in this paper, is not profitable.
3. In the case of a large country, welfare improvement due to lobbying, is possible through the terms of trade effect. But this would imply the presence of a distortion in foreign trade, in addition to the policy-induced distortion. The following analysis would go through if an optimum tariff is imposed throughout. Similar propositions have been arrived at also in Bhagwati and Srinivasan (1981a).
4. Another example of policy-induced distortion that does not involve $DRT \neq FRT$, is the case when differential factor taxation creates shrinkage of the transformation locus but no non-tangency (see e.g., Magee, 1976). In this case, since the first-best results apply on the shrunken transformation curve, lobbying would necessarily be immiserizing. However, if shrinkage is also accompanied by non-tangency (i.e., $DRT \neq FRT$), lobbying can increase welfare, since in this case, as Bhagwati (1968) has shown, growth can be immiserizing.
5. An alternative explanation of this result given by Bhagwati and Srinivasan (1981a) is that, with a quantitative restriction, the initial situation is in fact a first best one subject to the non-economic objective that requires the quantity constraint. Any deviation must therefore be immiserizing.

CHAPTER III

RENT SEEKING, WELFARE AND THE HARRIS-TODARO MODEL

The normative analysis of distortion-triggered lobbying, developed in the previous chapter, has some interesting implication for the Harris-Todaro (H-T) model which can now be explored.

Recall that in the H-T model the economy is assumed to consist of an urban sector producing a manufacturing good and a rural sector producing an agricultural good. The wage in manufacturing has a binding floor, while agricultural wage continues to be determined competitively. A wage-differential therefore exists between the two sectors. Rural-urban migration is assumed to take place until an equality is established between the actual rural wage and the expected urban wage. The expected urban wage is given by the actual wage in that sector weighted by the probability of being employed. This probability, in turn, is simply given by the ratio of the urban-employed to the urban labour force on the assumption that labour turnover is random and there is no risk aversion. Since the wage in manufacturing exceeds that in agriculture, urban unemployment is consistent with equilibrium in this model.

An interesting implication of the foregoing analysis is that urban unemployment, generated as a result of the rural-urban wage-differential, can be interpreted as a rent-seeking¹ activity. Furthermore, the equality between the actual agricultural wage and the expected urban wage also implies that the orthodox H-T model is a fully competitive rent-seeking

model, i.e., the factor cost in rent seeking equals the value of rents generated and sought. Thus, consider the well known H-T equilibrium condition for the labour market.

$$W_A = \frac{L_M}{N_M} W_M \quad (\text{III.1})$$

where, W_A = agricultural wage

W_M = manufacturing wage

L_M = employment in manufacturing sector

N_M = urban labour force

Equation III.1 can be rearranged as follows.

$$W_A \cdot L_U = (W_M - W_A) L_M \quad (\text{III.2})$$

where $L_U = N_M - L_M$ = urban employment. Since, the rural-urban wage differential represents rent (per unit of labour) associated with a manufacturing job, the RHS of equation III.2 represents the total amount of such rents earned. If the existence of rents in the form of the wage-differential did not attract enough labour from the rural sector to create urban unemployment, it would imply that these rents are earned costlessly.² But the fact that the H-T model assumes equality between the actual agricultural wage and the expected urban wage, implies that the probability of finding employment in the urban sector must be less than one (since manufacturing wage exceeds that in agriculture), i.e., part of the urban labour force must be unemployed. The cost, incurred by the unemployed labour in search of a rent-yielding manufacturing job then represents the rent-seeking cost in this model.³ The opportunity cost of urban unemployment is given by the agricultural wage, since an

unemployed labour in the urban sector can always be employed in the fully competitive agricultural sector. Thus, the LHS of equation III.2 represents aggregate rent-seeking costs. In the H-T model, therefore, all rents are fully dissipated.

This point can be illustrated straight forwardly with the help of Findlay-Corden's (1975) exposition of the standard H-T model. Thus, consider Fig. III.1. The length of the horizontal axis OO^* shows the total labour force available. The marginal product curves are AA' for agriculture and MM' for manufacturing. It is assumed that the prices of the agricultural and the manufacturing good are constant, being determined in foreign trade and each sector has a specific factor, labour being the only mobile factor. The fixed minimum wage in manufacturing is O^*W so that manufacturing employment is given at NO^* .

Since, in equilibrium, expected urban wage must be equal to the agricultural wage, the rest of the labour-force will distribute itself between the agricultural sector and the urban unemployment pool in the following manner. A rectangular hyperbola is drawn through H' (with origin at O^*) intersecting AA' at T . Agricultural wage and employment are then given by GT and OG respectively yielding an unemployment pool of GN . Since the area under the rectangular hyperbola is constant, GT also represents the expected wage in the urban sector. It can easily be seen that in equilibrium, the value of rents $RHWP$ must be equal to the cost of rent seeking $GTRN$.⁴

FIGURE III.1

The issue of optimal policy intervention in the presence of H-T labour market distortion has been addressed to by Harris-Todaro (1970), Bhagwati-Srinivasan (1974) and Findlay-Corden (1975). An interesting result arising out of their analyses is that unlike the orthodox wage-differential model, wage subsidy in manufacturing need not improve welfare while paradoxically a wage subsidy in agriculture must do so⁵. In the wage-differential model since the minimum wage causes the manufacturing sector to pay a price for labour that exceeds its social opportunity cost, the first-best policy is to subsidize it and so bring the price down to this cost. However, in the H-T model, subsidizing employment in manufacturing may induce enough labour to move out of agriculture and into the urban unemployment pool such that the rise in manufacturing output is more than offset by the fall in agricultural output, yielding a net loss. If employment in agriculture, rather than manufacturing, were subsidized, a gain; it is argued, would be certain as long as there is any urban unemployment and provided the minimum wage does not change as a result. Such a subsidy by reducing the wage differential would bring some of the urban unemployed back to land. Since, in this case, the opportunity cost of labour to agriculture is zero, welfare must improve.

The foregoing policy analysis of the H-T model is thus consistent with the conventional notion which considers rent-seeking to be necessarily wasteful. A policy which reduces urban unemployment is welfare improving, in this view, since

the level of (zero output) rent-seeking activity is reduced thereby.

However, it can now be demonstrated, in the light of the analysis in Chapter II, that the conventional conclusions reached in the preceeding analyses need not hold. The reason for this is straight forward. Since, rent-seeking unemployment in the H-T model is triggered by a policy-induced distortion (in the form of the imposition of a minimum wage in the manufacturing sector), second-best conditions apply. Hence, as demonstrated previously, a welfare-improving paradox can arise. In this case, a policy aimed at reducing the level of rent-seeking activity (such as a wage subsidy to agriculture) will, therefore, be welfare-worsening. This possibility is now explored in more detail.

Consider the Findlay-Corden (1975) version of the H-T model which is similar to a standard two-commodity, two-factor Heckscher-Ohlin-Samuelson model. The agricultural and the manufacturing good are produced, under perfect competition, by capital and labour with well-behaved production functions exhibiting constant returns to scale. Manufacturing is capital intensive relative to agriculture. There is no national monopoly power and hence, the fixed product prices are determined in world trade. Thus, in Fig. III.2, the dimensions of the Edgeworth-Bowley box show the total factor stock, origin O_M referring to manufacturing, origin O_A to agriculture.

FIGURE III.2

The ray $O_M M$ reflects the capital-labour ratio in manufacturing which yields the institutionally-set minimum real wage. It also yields a unique real capital rental. Given competitive capital market, the capital-labour ratio in agriculture must be such as to yield this capital rental. $O_A A$ reflects this required capital-labour ratio in agriculture. The two rays intersect off the efficiency locus ($O_M O_A$) at P, since the minimum wage in manufacturing is assumed to be above the competitive level. The wage in agriculture along the ray $O_A A$ must then be lower, creating a wage differential. From equation (III.1) this wage differential determines the unemployment ratio. Let production at C and D generate this ratio. The points C and D then are equilibrium points. The labour force in the urban sector is $O_M L_M$ of which CD is unemployed, yielding the equality between the expected wage in the urban sector and the actual wage in the agricultural sector.

The normative implication of rent seeking can now be analysed in the following manner. Consider point P in Fig. III.2. Since P corresponds to full employment of labour, no rent-seeking cost are being incurred at this point. However, given the existence of rents in the form of the rural-urban wage differential, labour is induced to move out of agriculture and into the urban sector. The change in welfare due to this labour transfer can be derived in the following manner.

Assuming the standard H-O-S model described in Chapter II, recall from equation (II.5) that the change in welfare (in terms of the manufacturing good) due to a small movement away from the initial equilibrium can be expressed as,

$$dU = dC_M + P dC_A \quad (\text{III.3})$$

where, the subscript M and A refer, respectively, to the manufacturing and the agricultural good (in place of good 1 and 2) and P denotes the (fixed) relative price of the agricultural good in terms of the manufacturing good.

From the condition for balanced trade,

$$dC_M + P dC_A = dX_M + P dX_A \quad (\text{III.4})$$

Given the equality between the value of output and the value of factor payments under perfect competition, we have,

$$X_M + P X_A = \bar{W}_A L_A + \bar{W}_M L_M + \bar{r} \bar{K} \quad (\text{III.5})$$

where, as before, L_A = employment in agriculture, L_M = employment in manufacturing, $\bar{K}$ = the fixed capital stock (which is always fully employed). $\bar{W}_A$, $\bar{W}_M$ and $\bar{r}$ represents, respectively, the wage in agriculture, the wage in manufacturing and the rental rate on capital. The bar over them reflects that these factor prices are constant, since product prices are assumed to be fixed.

Taking the total differential of (III.5), we have:

$$dX_M + P.dX_A = \bar{W}_A.dL_A + \bar{W}_M.dL_M$$

Successive substitution in (III.4) and (III.3) yields:

$$dU = \bar{W}_A.dL_A + \bar{W}_M.dL_M \quad (\text{III.6})$$

From the condition for full employment of the given capital stock, we have

$$\bar{k}_A.L_A + \bar{k}_M.L_M = K \quad (\text{III.7})$$

where, $\bar{k}_A$ and $\bar{k}_M$ are, respectively, the fixed capital to labour ratios in agriculture and manufacturing.

Taking the total derivative of (III.7) and rearranging:

$$dL_A = -\frac{\bar{k}_M}{\bar{k}_A}.dL_M \quad (\text{III.8})$$

Substitution in (3.6) and rearrangement yields,

$$\frac{dU}{dL_A} = \bar{W}_A + \frac{\bar{k}_A}{\bar{k}_M} \bar{W}_M \quad (\text{III.9})$$

From (3.9), we have

$$\frac{dU}{dL_A} \begin{matrix} > \\ < \end{matrix} 0 \text{ as } \bar{W}_A \begin{matrix} > \\ < \end{matrix} \frac{\bar{k}_A}{\bar{k}_M} \bar{W}_M \quad (\text{III.10})$$

The welfare effects of rent-seeking can now be derived from (III.10). As each unit of labour migrates from the rural to the urban sector, welfare increases, stays constant or decreases according as the ratio of wage in agriculture to

wage in manufacturing exceeds, is equal to or greater than the capital - labour ratio in agriculture relative to manufacturing. This result can be explained intuitively with the help of (III.9). As one unit of labour migrates from the rural to the urban sector, the value of output falls by $\bar{W}_A$. At the constant capital to labour ratios only k_A/k_M (<1 , since manufacturing is relatively capital intensive) can be employed in the manufacturing sector implying that remaining $(1 - k_A/k_M)$ labour enters the urban unemployment pool, i.e., the rent-seeking sector. The value of output, therefore, increases by $(k_A/k_M)\bar{W}_M$. If this exceeds $\bar{W}_A$, there is a net gain and welfare increases. The necessary and sufficient condition for welfare to improve, due to rent-seeking, can formally be established by examining (III.10). Since, the manufacturing wage exceeds that in agriculture, the necessary condition for welfare-improving paradox to arise is that, manufacturing sector must be capital intensive relative to agriculture.⁵ (III.10) can be manipulated to yield the following condition for welfare improvement.

$$\frac{\bar{W}_M}{k_M} > \frac{\bar{W}_A}{k_A} \quad (\text{III.11})$$

Dividing both sides by $\bar{r}$ (the fixed rental rate on capital), we have,

$$\frac{\bar{W}_M \cdot L_M}{\bar{r} \cdot K_M} > \frac{\bar{W}_A \cdot L_A}{\bar{r} \cdot K_A} \quad (\text{III.12})$$

(III.12), which represents the sufficient condition for welfare

improvement, states that manufacturing sector must be labour intensive in value sense relative to agriculture. Therefore, for urban unemployment to be paradoxically welfare improving, the institutionally-set minimum wage in the physically capital-intensive manufacturing sector must be such that the share of payments to capital in the total value of output must be lower than in the agricultural sector.

However, it should be noted that in the welfare-improving case, it is impossible to attain the standard Harris-Todaro equilibrium condition. Thus, recall from (III.1) that this condition is given by

$$W_A = W_M \frac{L_M}{N_M} \quad \text{or} \quad \frac{W_A}{W_M} = \frac{L_M}{N_M} \quad (\text{III.13})$$

i.e., in equilibrium, the employment ratio in the urban sector must be equal to the ratio of wage in agriculture to manufacturing. Before the introduction of rent-seeking, urban employment ratio is unity. As each unit of labour migrates from the rural to the urban sector, as explained before, employment in manufacturing increases by the fraction k_A/k_M . Therefore, the employment ratio in manufacturing will never fall below this ratio k_A/k_M . However, in the welfare improving case, the ratio W_A/W_M is less than k_A/k_M . In this case then, the expected urban wage will always exceed the agricultural wage. This implies that labour will continuously migrate out of agriculture until the economy is completely specialised in the manufacturing good. This completely specialised case, however, constitutes a stable equilibrium situation, since with

the entire labour force engaged in manufacturing employment and urban unemployment, no further adjustments need occur.

The important point to note is that this welfare improving case cannot be ruled out given the basic assumptions that underlies the Findlay-Corden (1975) version of the H-T model. Hence, their policy conclusion that a wage subsidy to agriculture, in the presence of urban unemployment, must lead to welfare gain is rendered invalid. In the admissible welfare-improving rent-seeking case, such a policy will lead to exactly the opposite result?

The foregoing analysis can be illustrated with the help of Fig. III.3, APB represents the production possibility curve for the small open economy facing a fixed terms of trade represented by the parallel lines PC , $P_R C_R$, $P' C'$ and $P'_R C'_R$. Production and consumption under free trade are at P and C respectively. The introduction of a minimum wage in the manufacturing sector, above the competitive level, leads to production inside the transformation curve. P' and C' are the production and the consumption points, corresponding to the minimum wage distortion, before the introduction of rent-seeking. Let rent seeking be introduced in the form of urban unemployment. Given the assumption that manufacturing is relatively capital intensive, withdrawal of labour from production into the urban unemployment pool must, at the fixed terms of trade, cause manufacturing output to rise and agricultural output to fall. If P'_R represents the Rybczynski line for this labour withdrawal, production, as

FIGURE III.4

explained before, must move to P_R and consumption to C_R resulting in welfare gain from U_C' to U_R . This, therefore, constitutes another example of the proposition, introduced in Chapter II, that rent seeking, triggered by a single distortion in the form of a constant price divergence (in this case a divergence between DRT and FRT), can be welfare improving. However, it is interesting to note that this welfare improving paradox will not arise in the case of the orthodox H-T model which assumes perfect immobility of capital between the two sectors. Thus, with fixed capital stock in each sector and institutionally set binding minimum wage in manufacturing, employment and output in the manufacturing sector must remain constant as labour is withdrawn into the urban unemployment pool. This implies that the Rybczynski line for rent seeking must be a horizontal line through P' , such as $P'P_R'$. Production on this line must lead to a lower welfare level such as U_R' . The fixed-capital assumption, by constraining manufacturing output, effectively generates a quantity distortion. As explained in Chapter II, in the presence of a fixed quantity distortion, welfare-improving paradox due to rent seeking cannot arise. Again, the intuitive explanation is straight forward. In the presence of perfect capital mobility, rent-seeking (in the form of urban unemployment) can lead to welfare gain by increasing the output of the manufacturing good, the world relative price of which exceeds its domestic relative marginal cost. However, with the manufacturing output remaining constant in the

fixed-capital model, this source of offsetting gain is ruled out and unemployment must cause immiserisation.

Finally, it may be worthwhile to re-examine the result that the welfare-improving case leads to complete specialisation in the production of the manufacturing good. This, as noted, follows from the general result that in order for rent-seeking to improve welfare, rents must increase faster than rent-seeking costs. This extreme result can be avoided by limiting the amount of rents which is competitively sought below the amount of rents generated, in the manner suggested by Bhagwati and Srinivasan (1980). One way to achieve this is to assume that labour turnover is not perfect, i.e., part of the manufacturing jobs are tenured. This implies that only a fraction of the rents generated are non-exclusive (for which rent-seeking is profitable). Hence, rent-seeking costs must be less than the rents generated. Thus, in this case, the H-T equilibrium condition (eqn. III.1) can be rewritten as follows:

$$W_A = \alpha \frac{L_M}{N_M} W_M \quad (\text{III.14})$$

where, $\alpha < 1$, is the factor which allows for non-random labour turnover. Rearrangement of (III-14) yields

$$W_A \cdot L_U = \{\alpha W_M - W_A\} L_M \quad (\text{III.15})$$

which implies,

$$W_A L_U < (W_M - W_A) L_M \quad (\text{III.16})$$

i.e., rent-seeking costs are less than rents. Recall from III.11 that in the welfare-improving case $W_A/W_M < K_A/K_M$. With rural

urban migration, as before, the urban employment ratio (L_M/N_M) approaches K_A/K_M . However, now with $\alpha < 1$, H-T equilibrium condition II.14 can be satisfied before complete specialisation occurs. Again, in this case, as explained earlier, wage subsidy to agriculture by reducing urban unemployment will lead to welfare loss, contrary to what Findlay and Corden (1975) assert.

APPENDIX TO CHAPTER III

Economic Expansion with H-T Labour Market Distortion:

Findlay and Corden (1975) demonstrate that in the H-T model, with complete intersectoral capital mobility, economic expansion can have perverse effects on employment.

Thus consider Fig. III.4

Fig. III. 4

The initial factor allocation is shown by points C and D. The urban unemployment is CD. The fixed capital to labour ratios in manufacturing and agriculture are represented by the rays $O_M M$ and $O_A A$ respectively. Assume now that there is an increase in the total capital stock, amount of labour remaining constant. The origin O_A , therefore, shifts vertically up to O_A^* . The new factor allocation, at the fixed capital labour ratios, are given by the points C^* and D^* (since with the terms of trade fixed, urban unemployment ratio must remain unchanged). Urban unemployment, therefore, paradoxically increases from CD to C^*D^* . This follows from the assumption that manufacturing is relatively capital intensive.

However, assume now that conditions for welfare-improving rent seeking apply. This, as explained before, must lead to complete specialisation in the production of the manufacturing good. Equilibrium factor allocation, before growth is, therefore, represented by the point M in Fig. III.4. O_M^M and O_A^M represent, respectively, manufacturing employment and urban unemployment. Growth in capital stock, as before, shifts the origin from O_A to O_A^* . With continued complete specialisation in manufacturing, unemployment must decrease from O_A^M to O_A^{*M} thus reversing the Findlay-Corden paradox. Similar paradox, associated with the growth of the labour force, can be resolved analogously.

IIIA.2

An alternative demonstration of the welfare-improving case in the Findlay-Corden (1977) version of the Harris-Todaro (1970) model is as follows.⁸ Given $\bar{W}_M$, the capital-labour ratio in manufacturing k_M and the rental to capital $\bar{r}$ are uniquely determined. Given the terms of trade and the fact that rental to capital in agriculture must also be the same, $\bar{r}$ determines the capital-labour ratio k_A and the wage rate $\bar{W}_A$ in agriculture. Given k_A and k_M , and aggregate capital and labour availabilities (at $\bar{K}$ and $\bar{L}$ respectively) lead to the following constraints:

$$L_A k_A + L_M k_M \leq \bar{K}, \quad L_A + L_M \leq \bar{L}, \quad L_A, L_M \geq 0$$

where L_A and L_M are respectively the levels of employment in agriculture and manufacturing. Given the assumption that $k_A < k_M$

and $\bar{w}_A < \bar{w}_M$, Figure III.5 shows the constraints describing the feasibility of full employment (and the impossibility of negative employment) of labour and capital. Since the Harris-Todaro equilibrium involves urban unemployment, it can lie only on the stretch AP. However, welfare increases with an increase in:

$$X_M(L_M) + P X_A(L_A) = L_M(\bar{w}_M + r\bar{k}_M) + L_A(\bar{w}_A + r\bar{k}_A) = L_M\bar{w}_M + L_A\bar{w}_A + r\bar{k}$$
 Thus, iso-welfare contours are straight lines with slope $\bar{w}_A/\bar{w}_M$. Hence, if $\bar{w}_A/\bar{w}_M$ is less than $\bar{k}_A/\bar{k}_M$, by moving towards A welfare can be increased. At A, with the economy specialised in manufacturing, welfare is maximised.

FIGURE III. 5

FOOTNOTES TO CHAPTER III

1. The term 'rent-seeking' used in this chapter differs slightly from the nomenclature introduced and explained in Chapter II. There rent-seeking was the generic term used to describe 'directly unproductive activities' triggered by a quantity distortion. However, as the succeeding analysis demonstrates, a minimum wage legislation in the manufacturing sector can generate either a 'price-distortion' or a 'quantity-distortion' depending on whether capital is intersectorally mobile or immobile. In either case, rent-seeking is the common term that will be used to describe the use of labour to search for a rent-yielding manufacturing job.
2. The orthodox wage-differential model, which assumes full employment of labour, despite the existence of rents, can therefore be distinguished from the H-T model in that the latter is a rent-seeking model while the former is not.
3. This implies that labour is the only factor used in seeking for a rent-yielding manufacturing job. A more generalised 'production function' in rent-seeking could involve the use of capital along with labour.
4. An alternative way to understand this result is to note that the H-T equilibrium condition implies that if the manufacturing wage bill is spread over the entire urban labour force, the average urban wage must be equal to the agricultural wage. From this, it follows that excess rewards (ie, rents) earned by the employed labour in manufacturing must be just enough to raise the income of the urban employed to what they could earn in agriculture. However, as Bhagwati and Srinivasan (1974) demonstrates, an optimal wage subsidy to manufacturing exists which raises welfare over its laissez-faire equilibrium level.
6. The welfare-improving paradox can arise in the case when manufacturing is relatively labour intensive if capital is also used in rent seeking. In this case rent-seeking by increasing the output of the manufacturing sector, can lead to welfare gain.
7. However, as the following analysis demonstrates, the policy conclusions in Harris-Todaro (1970) and Bhagwati-Srinivasan (1974) are unaffected since their assumption of capital immobility rules out the welfare-improving paradox.
8. I am grateful to Prof. Srinivasan for suggesting the analysis.

CHAPTER IV
THEORY OF TRADE AND WELFARE IN THE PRESENCE OF
A TARIFF (QUOTA) WITH REVENUE (RENT) SEEKING

In this chapter, the Bhagwati-Srinivasan (1980) model of revenue (rent) seeking is applied. It is demonstrated that, when resources are always spent to capture all revenues or rents generated by a tariff or a quota, several standard comparative-static theories of trade and welfare are significantly affected.

IV.1 The Bhagwati-Srinivasan Model

Consider the revenue-seeking analysis of Bhagwati and Srinivasan (1980) in Figure IV.1. They introduce a standard Heckscher-Ohlin-Samuelson model with two primary factors producing two traded goods 1 and 2. AB is the production possibility curve for this small open economy with fixed terms of trade (represented by the parallel lines $P_T C_T$ and $P_R C_R$). Production and consumption in the conventional analysis of tariff is at P_T and C_T respectively. Costless transfer of the associated tariff revenue (EF in terms of good 1) to the consumers is assumed.

Fully competitive revenue seeking is now introduced. Production moves from P_T to P_R along the generalized Rybczynski Locus, representing production points, as factors are successively withdrawn into revenue seeking in constant proportions, at the unchanged domestic product (and therefore factor) prices.

FIGURE IV.1

Consumption moves from C_T to C_R , which lies on the line EC_R representing domestic income at factor cost. Production and consumption points are aligned, through trade, by the constant international terms-of-trade line $C_R P_R$. Tariff revenue as well as factor cost in revenue seeking is given by GE in terms of good 1. As Bhagwati and Srinivasan (1980) show, fully competitive revenue seeking (for all revenues) will, under incomplete specialization, always lead to consumption on the domestic price line, tangent to the transformation locus, representing national income at factor cost.

The analysis of rent seeking proceeds along similar lines. Thus if a quota is fixed at the level of imports obtained at the initial tariff-equilibrium in Figure IV.1, fully competitive rent seeking will lead to consumption on the domestic price line representing national income at factor cost and production on the generalized Rybczynski locus for factor withdrawal in rent seeking, by the same arguments. The crucial difference, however, is that the level of imports, obtained at the seeking-equilibrium with unchanged implicit tariff, may not equal the fixed quota. Equilibrium with fully competitive rent seeking may therefore involve a different implicit tariff. This is how Bhagwati and Srinivasan (1980) are able to show the non-equivalence of a tariff and a quota (equivalent in the non-seeking case) when both revenue and rent seeking are introduced.

An important implication of the foregoing analysis is that when all tariff revenues (or quota profits) are dissipated

through resource-using 'seeking' activities, welfare depends on the domestic terms of trade. Thus in Figure IV.1, at the revenue seeking equilibrium the cost of imports are equivalent to HI in terms of the exportables - $P_R H$, in actual exports and $P_R I$ in resources used up for revenue seeking. This implies an effective terms of trade given by the slope of the domestic price line $P_T C_R$. In the presence of a tariff, ambiguity arises in some comparative-static welfare analyses, because of the divergence between domestic and foreign rates of transformation. Revenue seeking, by making welfare a function of the domestic relative price alone, therefore simplifies these results, some of which are now explored.

IV.2 Economic Expansion with Revenue Seeking and Rent Seeking

An interesting normative implication of economic expansion in the presence of a fixed tariff, for a small country, is the paradoxical possibility of welfare loss from growth. The intuitive explanation of this result, due to Johnson (1967) is that, the potential increase in real income, caused by factor accumulation, may be offset by an increase in the costly domestic production of the protected good. Thus, although the value of national production at constant domestic prices must rise, the value at fixed international prices can decline, reducing welfare for the small economy.

However, if all tariff revenues are always competitively sought, the paradox disappears. In this case, as demonstrated,

consumption with incomplete specialization occurs on the domestic price line, tangent to the transformation locus (reflecting national income at factor cost). Since, with constant domestic (producer) prices, national income at factor cost always increases, growth can never be harmful for a small economy with a fixed tariff and revenue seeking. An alternative way of understanding the paradox is that immiserizing growth in the standard case is caused by the loss of tariff revenues due to reduced imports. But with revenue seeking, since all tariff revenues are always assumed to be dissipated through equivalent resource waste, variation in tariff revenues ceases to have any influence on welfare.

A completely opposite paradox occurs when growth takes place in the presence of a fixed quota, instead of a tariff, for the small open economy. In this case, as explained in Chapter II, shadow factor prices are necessarily positive. It follows, therefore, that in the absence of rent seeking (since all factors are then productively used) growth can never be harmful.

Immiserizing growth, however, becomes a possibility once the quota is continuously accompanied by competitive rent seeking (for all rents). Thus in Figure IV.2, the pre-growth transformation locus is AB. Production and consumption are at P_R and C_R respectively and the fixed import quota is represented by the vector $P_R C_R$. A possible post-growth rent-seeking equilibrium can lead to production at P_{RQ} and consumption at C_{RQ} .

FIGURE IV.2

causing welfare to go down from U_R to U_Q .¹ It is obvious from the illustration that, as a necessary condition for growth to be immiserizing in the presence of a quota with rent seeking, the implicit tariff must rise with growth. The sufficient condition for the implicit tariff to rise is that growth, with the level of rent seeking held constant, is protrade biased. In this case, the demand for imports must exceed the fixed import quota and hence the new (post-growth) rent-seeking equilibrium must be associated with a higher implicit tariff. The immiserizing-growth paradox can be resolved by noting that, with a rise in the implicit tariff, rents on the fixed imports also increase. This implies that more resources are now devoted to rent seeking. Thus, positive growth of factors can actually be accompanied by a negative growth of productively used factors (i.e., P_{RQ} lies on a lower production possibility curve than P_R), causing immiserization.²

IV.3 Foreign Capital Inflow in the Presence of a Tariff with Revenue Seeking

In the context of the standard Heckscher-Ohlin-Samuelson model of international trade, Brecher and Diaz Alejandro (1977) have demonstrated that a tariff-induced inflow of capital from abroad, receiving the full value of its marginal product, must reduce the welfare of the host country, provided that this country is small and continues to import the capital-intensive good while remaining incompletely specialised.

Thus, recall their exposition in Figure IV.3. AB is the host country's transformation curve generated by the national endowments of capital and labour. The tariff-inclusive domestic price ratio is given by the slope of the line P_0Z , tangent to AB at P_0 . The international terms of trade (fixed by the small country assumption) is represented by the parallel lines P_0C_0 and ZC_1 . Production and consumption points before the inflow of foreign capital is at P_0 and C_0 respectively. C_0 lies on the intersection of the international terms of trade line P_0C_0 and the income-consumption line (corresponding to domestic prices) OO' . As usual, a community indifference curve (not drawn) passes through C_0 with a slope equal to that of the domestic price line P_0Z .

Foreign capital is now allowed to flow in. A one-shot increase in capital stock shifts out the transformation curve AB. Let P_0R be the Rybczynski line for capital expansion corresponding to the (fixed) ratio of domestic prices. As drawn, P_0R is steeper than the world price line implying that the value of aggregate output increases at world prices. Therefore, if the additional capital was nationally owned, welfare would have gone up. However, since this capital is in fact foreign owned, foreign profits must be subtracted to derive national income. Assume that the inflow of foreign capital leads to production at R. Let foreign capital receive the full value of its marginal product in terms of the exportables X_1 .

FIGURE IV.3

Valued at domestic prices, this is represented by the distance RZ . Z , therefore, represents the national commodity bundle which can be traded internationally along C_1Z to achieve consumption at C_2 . It is easily verified that C_2 must lie on a lower indifference curve than C_1 and hence, foreign capital inflow reduces the host country's welfare.³

The preceding analysis makes use of the standard assumption that revenues, generated by the tariff, are always costlessly redistributed to the consumers. However, it can now be demonstrated that if revenue seeking is allowed, the foregoing conclusions are significantly affected.

Thus, consider Figure IV.4. As before, AB represents host country's production possibility frontier corresponding to the national endowment of capital and labour. The fixed world price ratio and (the tariff-inclusive) domestic price ratio is represented by (the slope of) the lines $Z''C_0$ and EC_0 respectively. P_0Q is the generalised Rybczynski locus for revenue seeking. Production and consumption, with revenue seeking (for all revenues) under incomplete specialisation, are at P_1 and C_0 respectively. As usual, the consumption point lies on the line EC_0 representing domestic income at factor cost and the production point lies on P_0Q , the generalised Rybczynski locus for revenue seeking.

Let an exogenous amount of capital flow in from abroad. Assume, for the moment, that the allocation of nationally-owned factors between productive and seeking activities remains

FIGURE IV.4

unchanged. The inflow of capital, therefore, moves production from P_1 to P'_1 along the Rybczynski line (at constant domestic prices) for capital expansion. However, if foreign capital is now paid the full value of its marginal product in terms of X_1 , the host country is left with the commodity bundle Z . Clearly the exchange of Z , at the fixed terms of international trade, would lead to a reduced level of imports, thus reducing tariff revenues. Since, the factor cost in revenue seeking has been held constant at the initial level (EF in terms of X_1), this cannot constitute a revenue-seeking equilibrium. It is easily verified that the condition for a revenue seeking equilibrium is satisfied when the national commodity bundle, after foreign capital has been paid its marginal product, lies on the initial international terms of trade line $Z''C_0$. The production point, employing only domestic factors of production, must, therefore, move up from P_1 to P_2 . From P_2 , as before, injection of foreign capital shifts production from P_2 to P'_2 (along the Rybczynski line for capital expansion). After foreign capital is paid the full value of its marginal product at domestic prices, P'_2Z' in terms of X_1 , the host country is left with the commodity bundle Z' . Exchange of Z' at the fixed world price ratio leads to consumption at C_0 . Tariff revenues as well as factor cost in revenue seeking are given by GE in terms of X_1 . The inflow of foreign capital in the presence of revenue seeking, therefore, has no effect on national welfare (under the same conditions that generated welfare loss when revenue seeking

was absent). The intuitive explanation of this result is straight-forward. In the Brecher-Diaz Alejandro (1977) case immiserizing capital inflow resulted from a reduction of home imports causing a fall in tariff revenues. However, with fully competitive revenue seeking since all tariff revenues are fully dissipated (i.e., the value of consumption always equals the value of national income at factor cost) the source of welfare loss is eliminated.⁴

Analogous analysis follows if factor intensity rankings are reversed. As Brecher and Diaz Alejandro (1977) demonstrates, if importables are labour intensive, inflow of foreign capital must be welfare improving. However, with revenue seeking welfare must remain unchanged as before. Thus, in Figure IV.1 when importables are labor intensive, foreign capital inflow leads to production at P'_3 (along the Rybczynski line $P_3P'_3$). The host country is left with the bundle Z'' after paying foreign capital its marginal product (P'_3Z'' in terms of X_1) which leads to consumption at C_0 . The intuitive explanation again is that in the Brecher-Alejandro case, the source of welfare gain is an increase in imports causing tariff revenues to increase. With revenue seeking, however, the increase in these revenues is exactly offset by an equivalent rise in revenue-seeking costs.

Brecher and Diaz-Alejandro (1977) also consider the impact on national welfare of a continuous flow of foreign capital. Thus, in Figure IV.5, the free-trade pre-inflow position is at F . The welfare loss, due to the imposition of a tariff (before foreign

FIGURE IV.5

capital inflow), is given by FT. In the presence of the constant tariff, the welfare effects of foreign capital inflow is represented by the curve T'AMM'D, assuming that home importables are capital-intensive along FT. Along TA, as demonstrated by Brecher and Diaz Alejandro (1977), welfare declines continuously as imports are reduced until they are extinguished at A. Segment AM represents the welfare gain as the domestic price ratio approaches the world price ratio. They become equal at M which represents the equilibrium analysed by Mundell (1957). Along the horizontal segment MM' home country remains incompletely specialised with no capital-intensive imports. At M' home specialisation in the capital intensive good is complete and further inflow of foreign capital raises welfare along M'D by reasoning similar to McDougall's (1960).

When revenue seeking is introduced, the welfare effect is represented by the curve T'AMM'D. It should be noted that in the Brecher-Alejandro (1977) case, A represents the welfare level associated with the point where imports of the capital-intensive good is just reduced to zero, i.e., the consumption bundle which is the same as the national endowment bundle lies on the domestic price line tangent to the national production possibility frontier. But, revenue-seeking equilibrium leads to consumption precisely at the same point. Hence, with revenue seeking, welfare level remains constant at this level as long as the home country continues to import the capital intensive good (i.e., some tariff revenues are being generated),

by reasoning discussed in this chapter. Along AMM'D, however, imports of the capital-intensive good ceases, hence no tariff revenues are generated (and no resources are spent in revenue-seeking activity). The welfare impact of foreign capital inflow, in this range, therefore, coincides with the standard case.

Finally, it should be noted that, in the standard case, analysed by Brecher and Diaz Alejandro (1977) immiserization due to foreign capital inflow can be avoided by appropriately taxing the earnings of capital from abroad. But, in the revenue seeking case, if all revenues (including those generated from the tax on foreign capital) are competitively sought, welfare must remain unchanged as before, since domestic income at factor cost remains constant.

IV.4 Foreign Capital Inflow in the Presence of a Quota with Rent Seeking

The inflow of foreign capital may also be induced by a quota imposed by the host country on its capital-intensive imports. The welfare effects of such an inflow have, however, been neglected in the literature. It is now demonstrated that the welfare impact on the host country, of an inflow of foreign capital in the presence of a fixed quota, differs significantly from the tariff-induced capital-inflow case analysed by Brecher and Diaz Alejandro (1977).

Thus, consider Figure IV.6. As before, AB represents the production-possibility-frontier, generated by the national

FIGURE IV.6

endowment of factors of production. The pre-inflow production and consumption, in the presence of a quota imposed by this small host country on its capital-intensive imports, is at P_0 and C_0 respectively. The quota is represented by the vector P_0C_0 , the slope of which is the fixed world price ratio. The equilibrium domestic price ratio generated by the quota is represented by the slope of the line P_0Z' . Assume now that there is a once-for-all inflow of foreign capital which shifts out the production possibility frontier from AB to A'B'. Production, at the unchanged implicit tariff, moves from P_0 to P'_0 . If foreign capital is now paid its marginal product in terms of the exportable good X_1 the host country is left with the bundle Z' which can be exchanged internationally to achieve consumption at C'_0 . But at the constructed equilibrium national imports must be less than the initial quota, since the endowment bundle contains more of the importables whereas the consumption bundle contains less of it. If the quota is fixed, the implicit tariff associated with this quota must fall until the new equilibrium satisfies the quota-constraint.

In Figure IV.6 in the new equilibrium, with a lower implicit tariff, the national production point moves from P_0 to P_1 . The aggregate production point is at P_2 . Paying foreign capital the full value of its marginal products in terms of X_1 (represented by the distance P_2Z) leaves the host country with the bundle Z . The exchange of Z at the constant international terms of trade leads to consumption at C_1 . Note that imports at this point,

represented by the vector ZC_1 ; just satisfies the fixed quota constraint. As drawn, foreign capital inflow is welfare improving, thus reversing the Brecher-Díaz Alejandro (1977) result. This result can be intuitively explained as follows. The fall in the implicit tariff implies that after foreign capital has been paid the full value of its marginal product the national commodity bundle can contain more of the importable and the exportable good, thus increasing national income at international prices and welfare while satisfying the import constraint.⁵

However, the welfare improving case is not the only possible outcome. Thus, in Figure IV.7 the effect of the reduced implicit tariff is not sufficient to increase the value of national income at international prices, after paying foreign capital the full value of its marginal product. Consumption at C_2 , therefore, represents a lower level of welfare. It should be noted that it is still possible for welfare to go up, despite a reduction in the value of national income at international prices, since the substitution effect in consumption, caused by the fall in the implicit tariff may offset the income effect. Therefore, the effect of a quota-induced foreign capital inflow on the welfare of the host country which is small, incompletely specialised and continues to import the capital-intensive good is ambiguous.

FIGURE IV.7

This ambiguity, however, disappears if rent seeking for the quota-created premium is introduced. This can be demonstrated in Figure IV.8. As usual, AB is the transformation locus for the small host country before the inflow of foreign capital. Consumption and production in the presence of a quota with fully competitive rent seeking (in the pre-inflow situation) are at P_1 and C_0 respectively. As usual, P_1 lies on the generalised Rybczynski locus for rent seeking P_0Q and C_0 lies on the domestic price line, tangent to the transformation locus, representing national income at factor cost. The level of fixed import quota is represented by the vector P_1C_0 . The slopes of P_1C_0 and P_0C_0 represent, respectively, (the (fixed) world price ratio and the domestic price ratio. Let an exogenous amount of foreign capital flow in. As demonstrated before, if the implicit tariff remains unchanged the level of imports must fall in the final equilibrium, after foreign capital has been paid the full value of its marginal product. In the rent-seeking equilibrium, with a fixed quota, therefore, the implicit tariff must fall. In Figure IV.6, the post-inflow rent seeking equilibrium leads to production at P_2 and consumption at C_1 . It can easily be verified that at this equilibrium point, the value of rents (FE in terms of X_1) is equal to the value of the rent-seeking costs. Furthermore, the foreign capital is paid the full value of its marginal product (P_2Z) in terms of X_1 and the import level ZC_1 is equal to the binding quota constraint. Clearly, the inflow of foreign capital is welfare

FIGURE IV.8

improving. Since, in the rent seeking equilibrium, consumption must lie on the domestic price line tangent to the transformation locus (representing national income at factor cost), the fall in the implicit tariff has the same effect as the improvement in the terms of trade, under free trade. Welfare must go up as a result.

If importables were, instead, labour intensive, it can easily be demonstrated that foreign capital inflow must be immiserizing, if the rest of the assumption of the model remains unchanged. In this case, foreign capital inflow, with a constant implicit tariff must lead to a higher level of domestic imports. The implicit tariff must rise as a result causing immiserization.

IV.5 Normative Analysis of Illegal/Preferential Trade in the Presence of Revenue Seeking

The modification of the traditional analysis to include the possibility of smuggling was first undertaken by Bhagwati and Hansen (1973). A basic conclusion of their analysis is that smuggling to evade an import tariff need not improve economic welfare.

Bhagwati and Hansen assume a small country producing and consuming two goods as shown in Figure IV.9. As before, AB is the domestic transformation locus and (the slope of) $P_T C_T$ represents the fixed international terms of trade. In the absence of smuggling, an import tariff which raises the domestic

relative price of the importables to that shown by the slope of $P_T C_S$ leads to domestic consumption at C_T . If smuggling can be undertaken at a price ratio $P_S C_S$, illegal imports will compete away legal imports, and equilibrium domestic production and consumption will be at P_S and C_S respectively. As drawn, illegal trade leads to lower welfare. If consumption with the tariff in the no-smuggling case were instead at C_T welfare would have gone up with smuggling. This ambiguity arises because illegal imports compete with two alternative sources of the same product - higher-cost domestic production and lower-cost legal imports.

The ambiguity, however, disappears when smuggling is compared to legal trade with a tariff and competitive revenue-seeking. For when revenue seeking is introduced, production and consumption in the absence of smuggling, are at P_R and C_R respectively. As before, C_R lies on the domestic price line reflecting national income at factor cost and P_R on the generalized Rybczynski line for revenue seeking. It is clear that smuggling at the terms of trade $P_S C_S$ must improve welfare from U_R to U_S . Since with fully dissipating revenue seeking, the effective terms of trade is equivalent to the domestic price ratio, illegal trade, in effect, simply replaces higher cost domestic production.

It is easily demonstrated that the analogy between the welfare effects of smuggling and a trade-diverting customs union, noted for the conventional case by Bhagwati and Hansen

FIGURE IV.9

(1973), also holds for the revenue seeking case. Thus, in Figure IV.9 if $P_S C_S$ now represents the terms of trade of the partner country, welfare may rise or fall, in the absence of revenue seeking, since imports from the partner country can replace both costlier domestic production and cheaper foreign (rest of the world) sources. But with fully competitive revenue seeking, welfare must improve from U_R to U_S as before.⁶

IV.6 Welfare Analysis of a Tariff with Revenue Seeking for a Large Country

The preceding analysis has an obvious implication for the optimum tariff argument for a large country. It is well known that when a country is large (in the sense of being able to affect its barter terms of trade), it is always possible (in the absence of retaliation by the other country) to impose an appropriate trade tax and consume beyond the free-trade consumption-possibilities frontier. The theory of optimum tariff rests on the proposition that if a country possesses monopolistic or monopsonistic power in world markets, the world relative price of its imports will not correspond to the domestic rate of transformation (of exportables into importables) in production. An appropriately chosen trade tax can ensure that $DRS = DRT = FRT$ for full Pareto optimality and maximize national welfare.

However, as noted, with fully-dissipating revenue seeking consumption takes place on the domestic price line reflecting income at factor cost and welfare depends on the domestic price

ratio. Hence, even a large country will not benefit from a tariff, unless the domestic relative price of the importable falls. This is the Metzler (1949) case. As Metzler pointed out, it is not inconceivable that the imposition of a tariff may turn the barter terms of trade so much in favour of the tariff imposing country that relative domestic price of the importables fall.

The well-known condition for Metzler's paradox to occur is that the foreign offer curve must be inelastic in the region of free-trade equilibrium (assuming no inferiority in consumption). If fully competitive revenue seeking is introduced, however, the preceding condition need not hold. Thus, consider Figure IV.10. AB is the transformation locus for the large (home) economy. PC represents the terms of trade under free trade. Consumption and production are at C and P respectively, PP'C being the foreign offer curve (with its origin at the consumption point C). Assume that following imposition of a tariff by the home country, the domestic relative price does not change in the full revenue-seeking equilibrium. Consumption (which must take place on the domestic price line tangent to the transformation curve) therefore remains unchanged at C. Production moves from P to P' (along the generalized Rybczynski line PQ for revenue seeking) on the foreign offer curve. In the case drawn, equilibrium occurs in the elastic region of the offer curve. Thus, with revenue seeking, inelasticity of foreign offer curve is not necessary for the Metzler paradox to arise.

FIGURE IV.10

The intuitive reasoning is as follows. With full revenue seeking and unchanged domestic prices, consumption does not change, but improvement in the terms of foreign trade implies that foreign exports (domestic imports) must fall if the foreign offer curve is elastic. Markets can clear at the unchanged domestic prices, however, as domestic production of the importables can rise with revenue seeking. Thus, in the presence of an elastic foreign offer curve, in order for Metzler's paradox to arise, revenue seeking must increase the production of the importables.⁷ Hence, if the foreign offer curve is elastic and revenue seeking does not increase the output of the importables, the optimum tariff for even a large country must be zero, since improvement in the domestic terms of trade is ruled out in this case.⁸

APPENDIX TO CHAPTER IV

Tariff and the domestic price ratio in the presence of revenue seeking:

Following the essence of Jones' (1969) analysis and assuming that initially there is free trade, the effect of a tariff on the domestic price ratio can be expressed as follows:

$$\left(\frac{dP}{dt} \right) = \frac{P(a^*+m-1)}{a^*+a-1} \quad (IV.1)$$

where,

P = The relative price of good X_2 (home importables) in terms of good X_1 (home exportable).

t = The home rate of tariff.

a^* = The price elasticity of demand for imports in the foreign country.

a = The price elasticity of demand for imports in the home country.

m = The home marginal propensity to consume the importable.

With the denominator of (IV.1) positive to ensure market stability, $dP/dt < 0$ only if $a^*+m < 1$. In other words, if the sum of the foreign elasticity of demand for imports and the home marginal propensity to consume importables fall short of unity, the introduction of the tariff will lead to a decline in the domestic relative price of the importable commodity. This is the well known Metzler (1949) paradox. Clearly, the necessary condition for the Metzler paradox in the absence of

inferior goods is that the foreign import demand be inelastic.

The intuitive explanation of this result runs along the following lines. Assume that P , the domestic relative price, is kept constant. The improvement in the terms of trade resulting from the home tariff leads to a rise in home real income which, at the unchanged P , increases the demand for the home exportable commodity (reflected by the term $l-m$). With the constant P , there is no substitution effect in either consumption or production. In the foreign country, by contrast, the improvement in the terms of trade leads to a decline in the demand for the home exports which is represented by a^* . If the increase in the home demand for its exportable, $l-m$, exceeds the decrease in foreign demand for the same good, given by a^* , at the initial P , there is an excess demand for the home exportable good. Hence, to restore equilibrium, the relative price of the exportable good must rise in the home country thus generating the Metzler paradox.

With fully-competitive revenue seeking, however, the Metzler condition requires revision. In this case, as explained in Chapter IV, consumption must occur on the domestic price line, tangent to the transformation locus, reflecting national income at factor cost. Thus, following the essence of the preceeding analysis, an excess supply for home importables must occur at the constant domestic price ratio, in order for the Metzler paradox to arise. In the revenue-seeking equilibrium, however, at the constant domestic

prices domestic consumption remains fixed. But domestic production must change due to the withdrawal of factors for revenue seeking. Hence, the necessary condition for the Metzler paradox, in the presence of revenue seeking, can be expressed as follows:

$$\left[\frac{dE_2^*}{dt} - \frac{dX_2}{dt} \right]_{dP=0} > 0 \quad (\text{IV.2})$$

where,

E_2^* = Foreign excess supply of good X_2 (the home importable)

X_2 = Home production of the importable

t = Home rate of tariff.

m = Home marginal propensity to consume the importable.

Since, initial free trade is assumed and domestic prices are held constant, we have

$$dt = -dP^*/P^* \quad (\text{IV.3})$$

where,

P^* is the terms of international trade.

Hence,

$$\frac{dE_2^*}{dt} = -P^* \frac{dE_2^*}{dP^*} = -(a^*-1)E_2^* \quad (\text{IV.4})$$

From the analysis by Bhagwati and Srinivasan (1980), the following result can be derived:

$$\frac{dX_2}{dt} = \frac{\partial X_2}{\partial X_r} \cdot \frac{dX_r}{dt} = \frac{(\hat{l}_1 \hat{k}_r - \hat{k}_1 \hat{l}_r)}{(\hat{k}_1 \hat{l}_2 - \hat{k}_2 \hat{l}_1)} \frac{dX_r}{dt} \quad (\text{IV.5})$$

where,

$\hat{k}_i$ = The fixed (due to the constancy of domestic prices) capital output ratio, $i=1,2,r$ refers respectively to X_1 , X_2 and the revenue seeking sectors.

$\hat{l}_i$ = The fixed labour output ratio, $i=1,2,r$.

X_r = The activity ("output") level in revenue seeking.

Substitution of (IV.4) and (IV.5) into (IV.2) yields the necessary condition for the Metzler paradox in the presence of revenue seeking:

$$-(a^*-1)E_2^* - \frac{(\hat{l}_1 \hat{k}_r - \hat{k}_1 \hat{l}_r)}{(\hat{k}_1 \hat{l}_2 - \hat{k}_2 \hat{l}_1)} \frac{dX_r}{dt} > 0 \quad (\text{IV.6})$$

Assumption of initial free trade implies that $dX_r/dt > 0$ (i.e., the imposition of the tariff must raise the level of revenue seeking activity from zero to a positive number). Therefore, assuming $a^* > 1$ for an elastic foreign offer curve, the necessary condition for the Metzler paradox is:

$$\frac{(\hat{l}_1 \hat{k}_r - \hat{k}_1 \hat{l}_r)}{(\hat{k}_1 \hat{l}_2 - \hat{k}_2 \hat{l}_1)} > 0 \quad (\text{IV.7})$$

(IV.7) implies:

$$\frac{\hat{k}_r}{\hat{l}_r} > \frac{\hat{k}_1}{\hat{l}_1} > \frac{\hat{k}_2}{\hat{l}_2} \quad (\text{IV.8})$$

Thus, in the presence of an elastic foreign offer curve, the necessary condition for the Metzler paradox is that, if X_1 (home exportable) is capital intensive relative to X_2 (home importable), the capital labour ratio in revenue seeking must exceed the capital labour ratio in the production of X_1 . Intuitively, with an elastic foreign offer curve, foreign excess supply of X_2 must fall with the imposition of the home tariff and (IV.8) implies that home production of X_2 must rise with revenue seeking (keeping domestic prices constant throughout). If the latter effect outweighs the former, at constant domestic prices an excess supply of X_2 occurs. Hence, domestic price of the importable must fall giving rise to the Metzler paradox.

It can easily be verified that if inelastic foreign offer curve is admitted, the Metzler paradox can arise under alternative factor-intensity rankings.

It should be observed that, in the revenue seeking case (with an elastic foreign offer curve), the Metzler paradox occurs with a rise in the production of the importables. Whereas, in the orthodox case the Metzler paradox must imply "deprotection" (i.e., the tariff must reduce the output level of the importable).

FOOTNOTES TO CHAPTER IV

1. This case is analytically similar to Bhagwati's (1958) demonstration of immiserizing growth for a large country, due to deterioration of external terms of trade, under free trade.
2. It must be assumed, that import licenses, for the fixed import quota, is not allocated once and for all. Otherwise, the rise in the implicit tariff, due to growth, would simply imply windfall gain for original quota holders. In order for full rent dissipation to occur; a new allocation of the quota has to be assumed for each period.
3. As Brecher and Diaz Alejandro (1977) demonstrates, the qualitative aspect of this result does not depend upon the type of good used to repatriate foreign profits.
4. The payment to foreign capital in terms of the importables or a combination of the two goods will again leave the result qualitatively unchanged. However, in the revenue-seeking case, the production point associated with the post-inflow equilibrium is sensitive to the way foreign profits are repatriated (unlike the standard Brecher-Diaz Alejandro, 1977, case). This is because the import levels will vary with different repatriation schemes. Hence, revenue seeking costs and therefore the distribution of nationally-owned factors between productive and seeking activities must also be different, leading to different production equilibria.
5. Again, in the case of a quota, equilibrium is sensitive to the way foreign profits are repatriated. Since, as before, import level depends on the composition of the goods in repatriated foreign profits, the change in the implicit tariff and the final equilibrium is therefore a function of the way foreign profits are transferred.
6. In the presence of a quota, as demonstrated by Falvey (1978), the ambiguity in the normative implication of illegal trade disappears. Since legal imports are quantitatively fixed, illegal imports, by simply replacing higher cost domestic production, must be beneficial. When rent seeking is present, illegal trade continues to be welfare improving because the implicit tariff must fall as a result.
7. If exportables are capital (labour) intensive, the sufficient condition for revenue seeking to increase the output of the importables is that capital (labour) intensity in revenue seeking exceeds that in exportable production.

8. Thus, if the economy remains completely specialized in the exportables, the optimum tariff with an elastic foreign offer curve must be zero (since the production of the importables remains fixed).

CHAPTER V

THE THEORY OF NON-ECONOMIC OBJECTIVES IN THE PRESENCE OF REVENUE SEEKING

It is well known from the theory of policy intervention to achieve a non-economic objective (Bhagwati and Srinivasan, 1969) that the optimal policy is to intervene at the source. Thus optimal policy to constrain imports is a tariff (Johnson, 1965); and if consumption is to be restrained, a consumption tax is the corresponding first-best policy (Bhagwati and Srinivasan, 1969). However, these results assume that any revenue generated incidentally from the tariff or the tax is costlessly redistributed to the consumers. If resources are used to seek these revenues, it can be shown that the foregoing results need not hold.

V.1 Equilibrium with a Consumption Tax and Revenue Seeking

The revenue seeking case in the presence of a consumption tax is illustrated in Figure V.1. AB is the transformation locus for the small open economy. The fixed international terms of trade are given by (the slope of) PC. In the absence of lobbying, production is at P and consumption at C. Consumption of X_2 is subject to a tax and (the slope of) FF' is the price ratio faced by the domestic consumers. The tax revenues generated from the consumption tax (EF in terms of good 1, evaluated at the consumer prices) are traditionally assumed to be redistributed to the consumer costlessly.

Let competitive revenue seeking (for all revenues) be introduced. National income at factor cost, evaluated at world (producer) prices is OE in terms of commodity 1. Since the domestic consumer price of X_1 is the same as the world price, OE also represents the maximum possible consumption of X_1 . If the entire income at factor cost (OE) is spent on good 2, then the maximum consumption of X_2 is given by OE', as the consumption of X_2 is subject to a tax. EE' therefore is the expenditure line, reflecting the consumption-possibility locus for the consumers, when income at factor cost is spent on the two goods. The difference between the actual expenditure line FF' and EE' is therefore made up by the consumption-tax revenues. Thus, with competitive revenue seeking, by the familiar argument of Chapter IV, consumption must lie on EE'. As before, in the revenue seeking equilibrium consumption point C' is determined by the intersection of the income-consumption line OD with EE' (representing the expenditure line at factor cost) and the production point P' is determined by the intersection of the international price line through C' with the generalized Rybczynski locus for revenue seeking PP'.

V.2 Optimum Consumption-Restriction Policy in the Presence of Revenue Seeking

Consider now the question of optimal policy intervention to achieve a consumption goal. In the conventional case as demonstrated by Bhagwati and Srinivasan (1969) a consumption

tax/subsidy policy is first best. Fully-dissipating revenue seeking is now introduced in Figure V.2. With a consumption tax and revenue seeking, production and consumption are at P' and C_C respectively (by the familiar analysis of Figure V.1). As drawn, a tariff (with full revenue seeking) by shifting production to P_T' and consumption to C_T achieves the consumption goal at a lower welfare cost, thus reversing the policy hierarchy. The reasoning behind this possible result is that the consumption tax generates higher revenues compared to a tariff (at the same rate), since consumption exceeds imports under incomplete specialization. Hence, revenue seeking costs are higher with a consumption tax and can offset the production efficiency associated with a consumption tax. This can make it inferior to a tariff as a consumption-restriction policy.

V.3 Optimum Import-Restriction Policy in the Presence of Revenue Seeking

Consider next the non-economic objective that requires imports to be constrained. Johnson (1965) has demonstrated that the optimal policy for this is a tariff. However, let revenue seeking be introduced in Figure V.3. With a tariff and fully competitive revenue seeking, consumption is at C_T and production at P_T' on the generalized Rybczynski line $P_T P_T'$. A consumption tax (with fully-dissipating revenue seeking), achieving the same level of imports (as the tariff with revenue seeking case), leads to consumption at C_C and production at P' on the generalized Rybczynski line PP' . As drawn, the welfare

level associated with the consumption tax is higher, implying that this is a superior import-restriction policy. A necessary condition for this to happen is that the Rybczynski line for revenue seeking must be negatively sloped and flatter than the domestic price line, i.e., revenue seeking must increase the production of the importables.

The intuitive explanation of the foregoing unconventional results is that, with revenue seeking, policy intervention generates two distortions. In addition to creating the usual marginal divergence, imposition of a tax policy also leads to production inside the transformation locus due to seeking activities. The latter effect can offset the optimality of the former effect in achieving a non-economic objective.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The first part of this dissertation reconsiders the normative implication of lobbying activities (using real resources) for non-exclusive income, generated by an exogenously-specified policy intervention. In the traditional analysis, such activities were considered wasteful since their direct impact is simply to redistribute income rather than to contribute to it. Bhagwati and Srinivasan (1980) and also Bhagwati (1980) have recently pointed out the possibility that such lobbying activities may paradoxically improve welfare since they are undertaken in a second-best situation, and therefore the shadow price of a factor used in these (zero-output) activities may be negative. It is demonstrated in this dissertation, however, that it is impossible for second-best shadow factor prices to be negative if the only constant distortion is created by a policy that quantitatively restricts a variable. Furthermore, negative shadow prices are also precluded in the presence of an only constant distortion generated by a policy that directly affects the price (i.e., a tax policy), unless it creates a distortion in production. In these specific distorted cases, therefore, the effect of lobbying on the conventional social welfare function must be negative. In other words, the conventional wisdom regarding the normative implication of lobbying continues to remain valid in the aforementioned second-best situations.

The foregoing result, developed in Chapter II, is applied to the orthodox welfare analysis of the Harris-Todaro model in Chapter III. It is first of all demonstrated that urban unemployment, generated by the rural-urban wage differential, can be interpreted as a rent-seeking activity. In this case, since rent seeking is triggered by a policy-induced distortion, it is demonstrated that urban unemployment may paradoxically improve welfare. The sufficient condition for this possibility to occur is that the manufacturing sector be capital intensive in the physical sense but labour intensive in the value sense. In this welfare-improving case, it is not possible to sustain the orthodox view (e.g., represented by the analysis of Findlay and Corden, 1975), according to which a wage subsidy to agriculture must be welfare-improving in the presence of urban unemployment. In fact, such a policy, by reducing urban unemployment, would reduce welfare. Although it turns out that the welfare-improving case must lead to complete specialisation in the production of the manufacturing good, this extreme result can be avoided by limiting the amount of non-exclusive rents. The assumption that a part of the manufacturing jobs are tenured is sufficient to generate this case.

Chapter IV considers the alternative issue raised by the introduction of lobbying for non-exclusive income associated with a policy intervention, i.e., comparative-static welfare analysis of different policy-distorted states when lobbying is continuously present. The analysis is restricted to the

full-dissipation model of revenue (rent) seeking in the presence of a tariff (quota) imposed by a small country, à la Bhagwati and Srinivasan (1980). It is first of all demonstrated that when all revenues and rents are always dissipated through resource-using seeking activities, welfare depends solely on the domestic price ratio (reflecting national income at factor cost). Hence, the ambiguity in several standard comparative-static welfare theories in the presence of a tariff or a quota, which results from the divergence between the domestic and the foreign price ratios, disappear. This important result is applied initially to show that in direct contrast with orthodox results, economic growth must always be beneficial for a small country with a constant tariff although growth may be immiserising in the presence of a constant quota. Furthermore, foreign capital inflow in the presence of a tariff for a small country is shown to have no impact on welfare.

In the case of a large country, it is demonstrated that the optimum tariff in the presence of revenue seeking must be zero unless the Metzler conditions (which are shown to be different from the orthodox case) are satisfied. This is a significant result in the sense that one of the few valid economic arguments for a tariff appears to be in jeopardy when revenue seeking is admitted.

Finally, Chapter V reconsiders the theory of optimum policy intervention to achieve non-economic objectives. It is demonstrated that policy intervention at the source need no longer be optimal when costs of policy-induced seeking activities are taken into account. The intuitive reason for this is that unlike the orthodox case, the policy intervention now generates two distortions. The first is the usual departure from the conditions for Pareto optimality. The additional distortion in the revenue seeking is caused by the operation inside the efficient transformation locus due to the withdrawal of factors for seeking activity.

A few topics for further research in the related area suggest themselves. Thus, the revenue seeking analysis should be readily extendable to the case of a tax on foreign investment. The standard analysis of optimum taxation of foreign investment may be reanalysed, by introducing a resource-using lobbying process to dispense the tax revenues. In the case when there are physical restrictions to factor movements, the orthodox welfare analysis of factor migration may analogously be extended by introducing rent seeking. It is not uncommon, e.g., for potential migrants from low-wage less developed countries to spend resources in order to successfully migrate to high-wage developed countries (the wage-differential being

maintained usually by a physical restriction on immigration imposed by the developed countries). Implication of such rent-seeking activities for the standard normative analysis of migration from the less developed to the developed countries may be an interesting topic for further work.

Welfare analysis of lobbying activities may also be analysed under more complicated second-best situations. Thus, for example, the implication of resource-using lobbying can be investigated in the presence of unemployment (generated e.g., by an economy wide binding minimum wage).

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