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TARIFFS AND THE EXPORT OF HOME GOODS THROUGH TOURISM

By

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TARIFFS AND THE EXPORT OF HOME GOODS THROUGH TOURISM

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From a selfish point of view, a tariff up to a certain level may make sense, at least in a world lacking the institutions to carry out the international transfers required by the compensation principle. It is well-known from traditional theory [1] that a country can use its monopoly power to exploit a passive trading partner at the expense of world efficiency. This paper examines the question of whether a country which earns its foreign exchange from the "export" of home goods through tourism [2] might not gain more by a tariff than one would expect from a casual application of the traditional trade model to such a country. For in such a case the traditional model must be modified somewhat to account for the fact that the home country can affect directly not only the prices at which its citizens trade, but also the prices at which the tourists (who comprise its trading partner) trade, since the tourists must trade at home country prices. Properly conceived, a country in such a situation has an additional degree of monopoly power, and one might sensibly expect that an analysis of a model which captures this extra element of monopoly power would reveal a greater potential for gain than would an application of the traditional model. As far as I know, no one has commented in the literature on the need to modify the traditional model for such cases, and thus the gains from a tariff to a country which caters to tourists are perhaps being underestimated. To say this is, of course, not to advocate a tariff for such a country; for even if one is to argue against a tariff, one must know if he is opposed to it because it is selfish or because it is stupid. This paper suggests that a tariff levied by a country which exports tourism is somewhat more likely to be selfish and somewhat less likely to be stupid than previously believed.

Let us define a tourist as a visitor whose presence in the home country has no effects on the home country's production possibilities curve, whose entire income is earned outside of the home country, and whose welfare does not enter into the appraisal of home-country welfare. It is important to realize that a tourist trades with the home country only insofar as he buys goods

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[1] See any international trade textbook, for example, Kindleberger (2), pp. 117-122.

[2] I know of no country which earns all its foreign exchange from tourism. It appears, however, that tourism accounts for about 10% of Kenya's foreign exchange earnings on current account.

and services produced by the home country. Insofar as the tourist comes to the home country with his income and spends it there on imported goods, the flow of goods must be interpreted not as international trade, but as a geographical extension of the domestic trade of the foreign country. The economy of the home country is left untouched.[3] However, the domestic trade of the foreign country, geographically extended as it is, is now peculiarly vulnerable to the policies of the home country; and insofar as a tariff induces tourists to buy goods and services of the home country instead of foreign goods subject to the tariff, the tariff acts not as an impediment to international trade, but rather as a stimulant to international trade,[4] and indeed as an impediment to the domestic trade of the foreign country.

Before setting up a rigorous model, it is well to reflect upon what might be expected from a model depicting such a situation. General international equilibrium in the absence of tariffs is depicted in Figure 1 as the intersection of the offer curve of the home country (OH) and the offer curve of the foreign country (OF), with the ray from the origin to the point of intersection (OP) indicating the equilibrium terms of trade. Now a tariff as traditionally conceived shifts the home offer curve from OH to OH'[5] but leaves the foreign offer curve unchanged. In the new, tariff-ridden equilibrium the terms of trade have improved from OP to OP' — a "good" factor for the home country — but the volume of trade has contracted from OX and OM to OX' and OM' — a "bad" factor for the home country. The home country might wish to exploit the good factor just up to the point where it is marginally counterbalanced by the bad factor, and it could do so by levying the well-known "optimal" tariff, which can be protrayed in Figure 1 with the help of community indifference curves[6] (here transformed into trade indifference curves) as that tariff which induces an equilibrium on the highest possible indifference curve, I_o.

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3 This is true if we ignore, as is usual in simple trade models, the contribution of the home country to transport and merchandising.

4 Actually, it is only the substitution effect of the tariff which stimulates international trade. The tariffs which the tourist pays on foreign goods which he is loathe to give up impoverish him so that he can afford fewer home goods (an income effect).

5 We will be assuming throughout that tariff revenues are handed back to home consumers, to be spent according to their preferences. For a discussion of what difference it makes, see Metzler (4).

6 The assumption of community indifference curves rules out certain problems of distribution which might in some cases provide an additional rationale for tariffs.

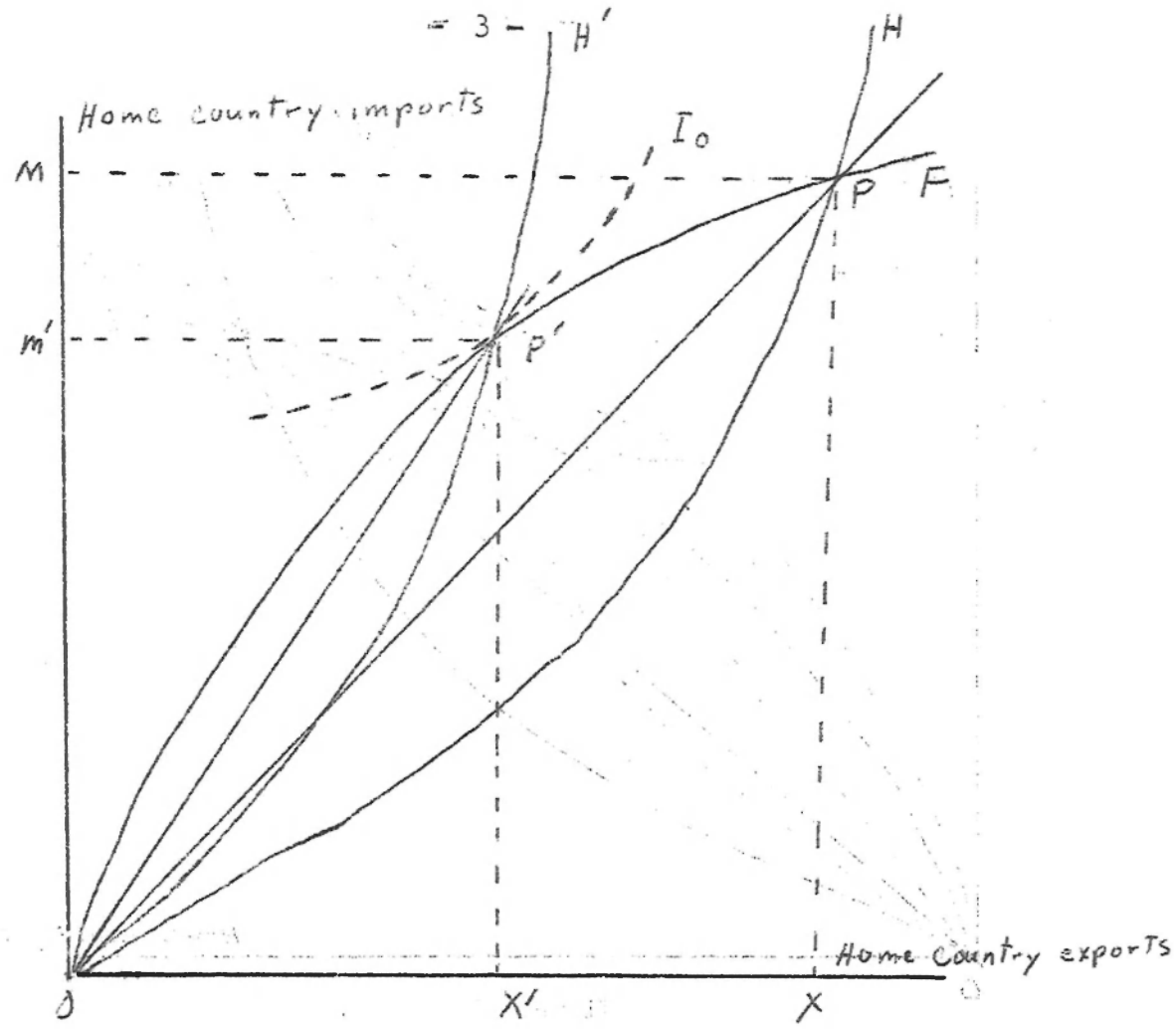

Figure 1

Now what our previous considerations have led us to suspect is that a country which exports tourism can by a tariff shift not only the home offer curve, but also the foreign offer curve, perhaps as indicated in Figure 2. Clearly this opens the possibility of larger gains for the home country. Note that as drawn Figure 2 does not indicate an unambiguous contraction in trade, but rather an expansion of home country imports. In the following analysis of a more rigorous model we wish to determine just how the foreign offer curve is likely to shift and to ascertain whether the gain to the home country from any given tariff is likely to be greater than indicated by the traditional model.[7]

I The Model

A. equilibrium with no tariffs

The home country with its given factor endowments can produce two commodities, in quantities X_1 and X_2, according to a production possibilities curve

1) $X_2 = f(X_1)$.

We shall subsequently interpret good 1 as a manufactured good, the natural import of the home country, and good 2 as local goods and services, a home good which is exported only to tourists. Home demand for the first commodity depends upon the prices of the two commodities and income (assuming, as does,

7 We may, of course, be speaking of negative gains. That is, we may be asking whether the loss is less than indicated by the traditional model.

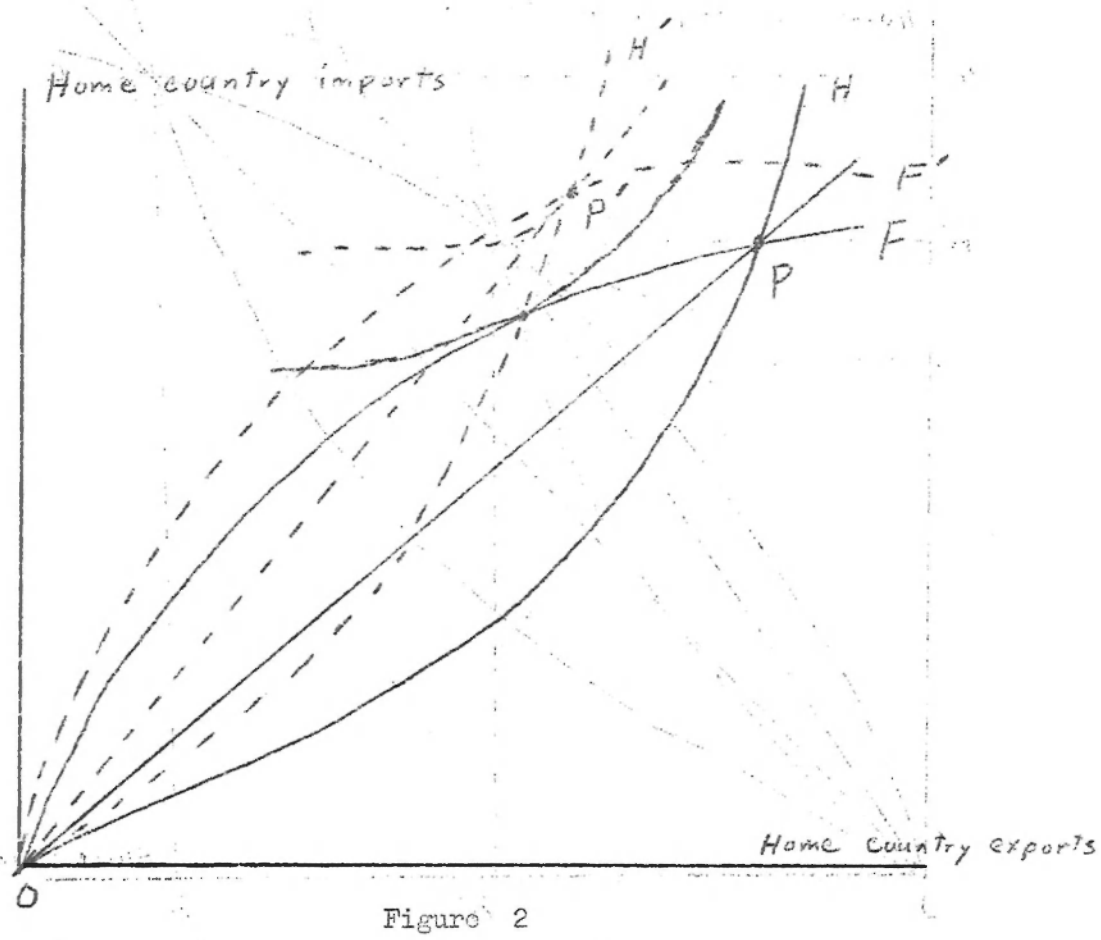

Figure 2

for example, Kemp (1, p.22), that the home community behaves like a single, utility maximizing individual):[8]

2) $D_1 = D_1 (P_1, P_2, P_1X_1 + P_2X_2)$.

We need now only add a budget constraint (which makes unnecessary the specification of a demand function for the second good)

3) $(X_1 - D_1) P_1 + (X_2 - D_2)P_2 = 0$

and an equilibrium condition under the assumption of perfect competition

4) dX_2/dX_1 along f $= P_1/P_2$

These four equations, involving the six unknowns D_1, D_2, X_1, X_2, P_1, P_2 are sufficient, given one absolute price, to determine the traditional offer curve for the home country, which is indicated in Figure 3, where for convenience we define $E_1 \equiv D_1 - X_1$ and $E_2 \equiv D_2 - X_2$.

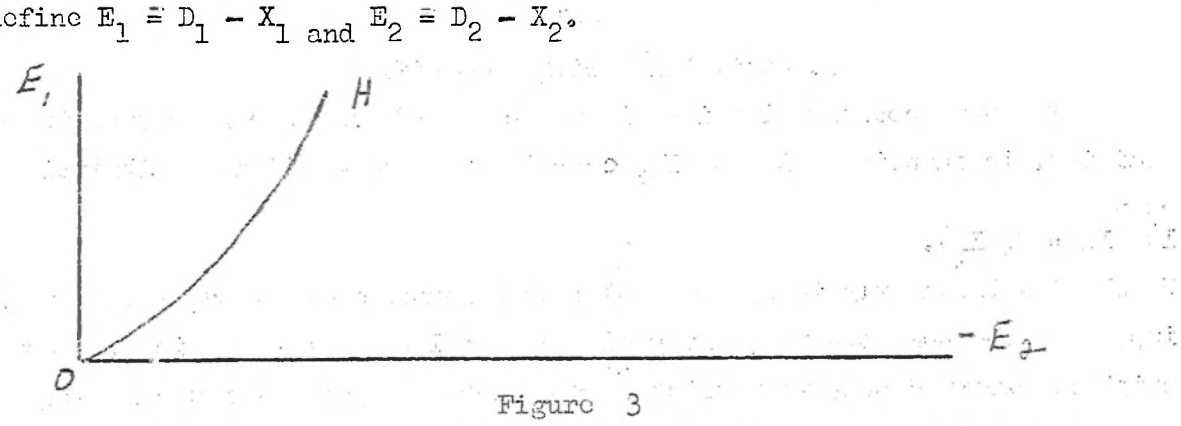

Figure 3

8 Assuming that the home community behaves like a single, utility maximizing individual seems to be equivalent to assuming the existence of community indifference curves.

The offer curve we have thus constructed is formally identical to the traditional offer curve, and it is only our peculiar interpretation of good 2 as a home good which can be exported only to tourists which sets our model apart. It is in the following construction of the foreign offer curve that our model diverges significantly from the traditional.

Foreign tourists arrive in the home country with a given amount of money income $\bar{M}^*$. Since it is sometimes simpler to think in terms of a barter economy, we make the artificial (but not restrictive) assumption that upon arrival they exchange their money for an amount of good 1 which is available to them at a constant price $\bar{P}_1$ (since they are not enough of a market force to perceptibly influence the world price). They then stand ready to barter with the home country so as to obtain the utility maximizing bundle of goods. Note that the good 1 held by the tourists is the only good 1 potentially available to the home country from abroad because in this barter model the home country has nothing to exchange with the rest of the world, since its only export is a home good.9

The foreign demand for good 1 is

(5) $D_1^* = D_1^* (P_1, P_2, \bar{M}^*)$.

Foreign supply of each good is

(6) $X_1^* = \bar{M}^*/P_1$

(7) $X_2^* = 0$

Foreigners are subject to a budget constraint

(8) $D_1^*P_1 + D_2^*P_2 = \bar{M}^*$.

And we assume that

(9) $P_1 = \bar{P}_1$.

How these five equations are equivalent to an offer curve is illustrated graphically in Figure 4. Starting from an endowment point at $\bar{M}^*/P_1$ on the good 1 axis (as stipulated by equations 6) and 7)), the utility-maximizing foreigners trade along a budget constraint (equation 8)) until they reach an optimal amount of good 1 (the amount indicated by equation 5)). The distance $D_1^* - X_1^* \equiv E_1^*$ (here negative) is excess demand for good 1, and the distance $D_2^* - 0 \equiv E_2^*$ is excess demand for good 2. Changing the axes we have an offer curve as in Figure 5.

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9 Of course, in the real world the home country can exchange its currency for foreign goods, but it can do so only insofar as its currency is of use to someone for the purchase of goods.

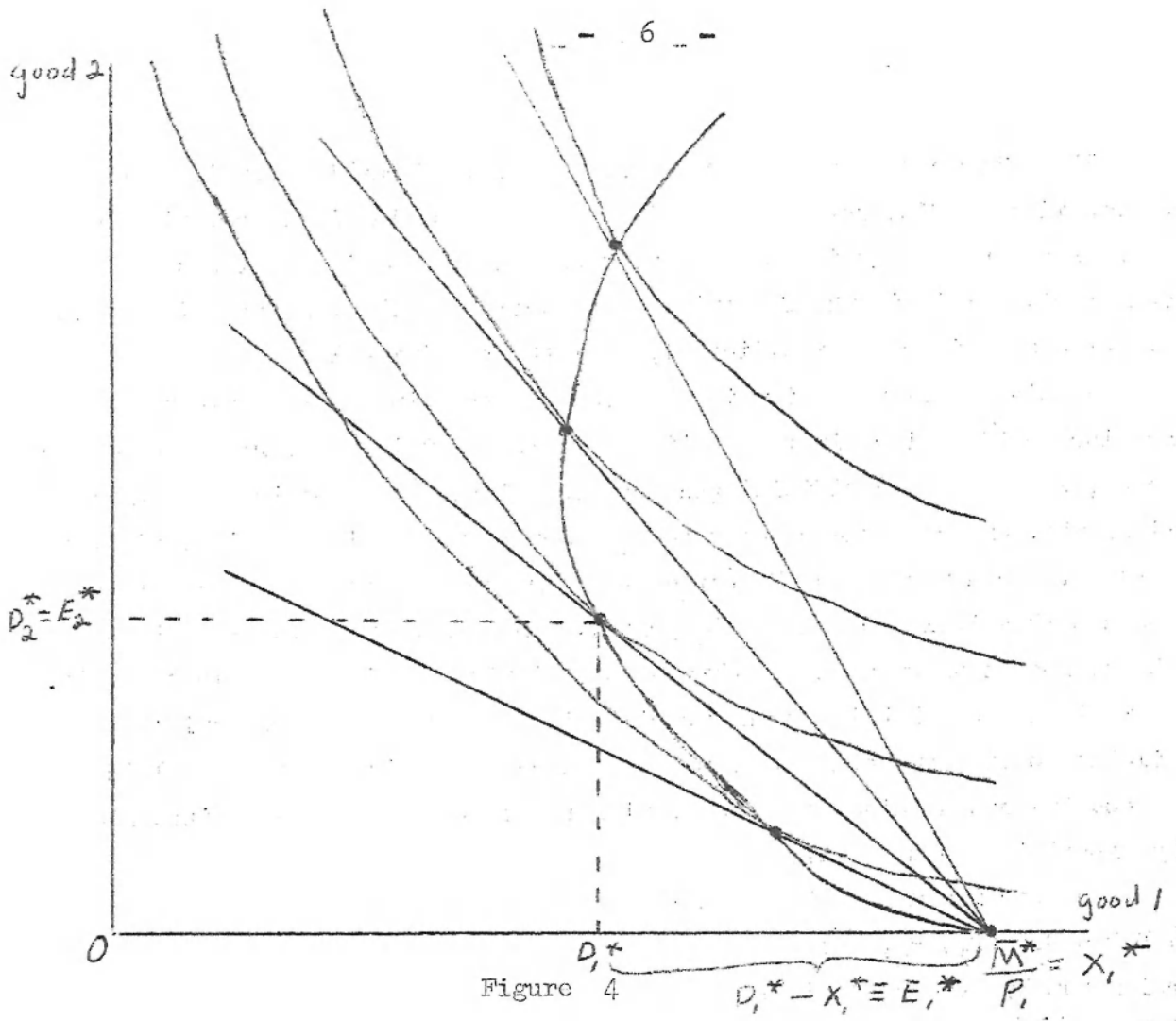

Figure 4

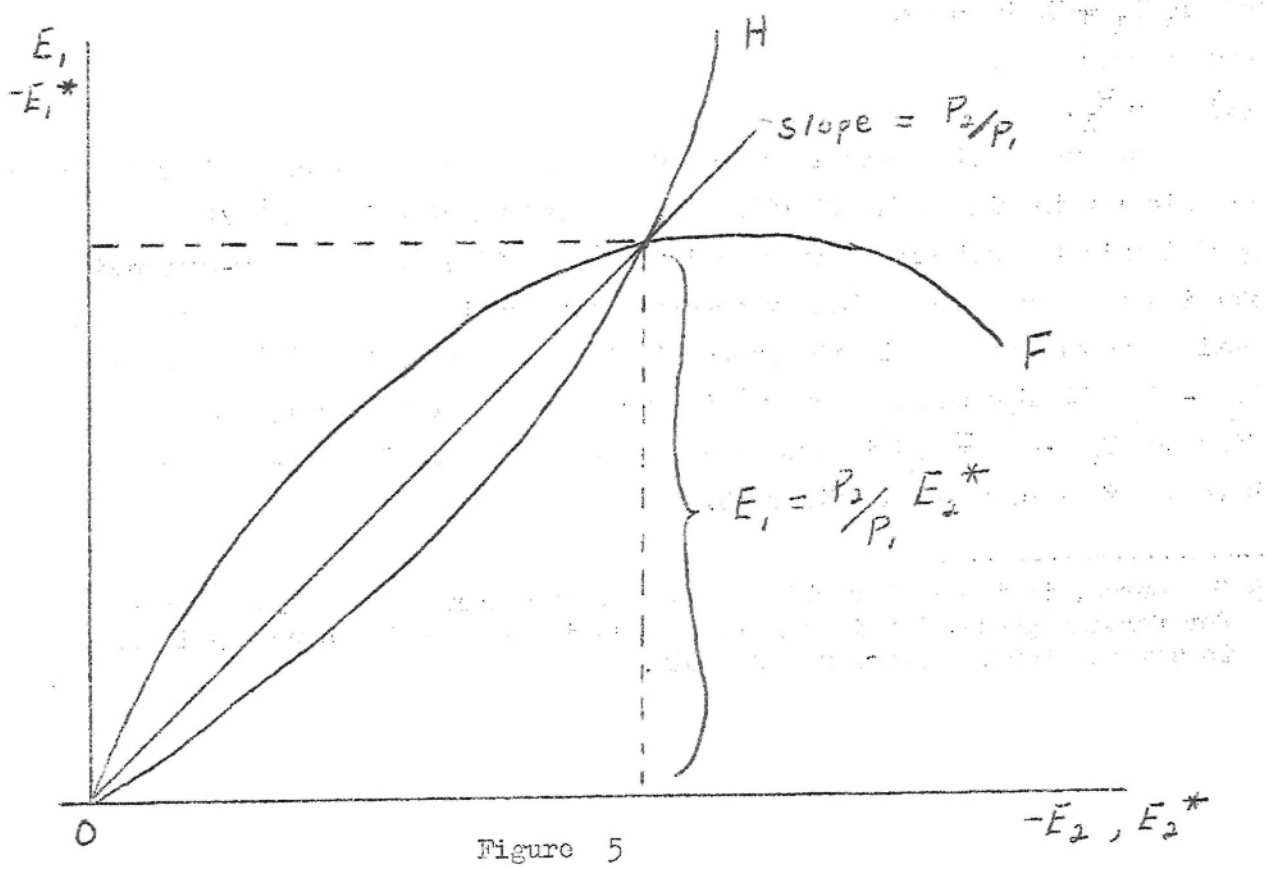

Figure 5

We complete our system by the condition for international equilibrium

10) $P_1E_1 = P_2E_2^*$,

which indicates in terms of Figure 5 that equilibrium must be where the two offer curves intersect.

We have in the construction of our model held M* constant. This means first of all that the original money income of the foreign tourists, which by assumption is all earned outside the home country, is not determined by the model. If tourists are merely a cross section of rest-of-the-world income earners, it is not unreasonable to suppose that economic variables of a small home country do not perceptibly influence their incomes. Secondly this means that the total amount of income with which tourists arrive in the home country (they may have left some at home) is the same regardless of the price level in the home country. This is in turn consistent with either of two interpretations: 1) The same number of tourists arrive with the same amount budgeted for vacation expenses regardless of the home-country price level.[10] 2) Fewer tourists come, but budget more for vacation expenses.

B. traditional treatment of a tariff (Model A)

If we were without regard to a realistic interpretation to impose a tariff as traditionally conceived on the equations of this model, we would have the following system:[11]

1A) $X_2 = f(X_1)$

2A) $D_1 = D_1(P_1(1+t), P_2, P_1(1+t)X_1 + P_2X_2 + E_1P_1t)$

3A) $(D_1 - X_1)P_1(1+t) + (D_2 - X_2)P_2 = E_1P_1t$

4A) dX_2/dX_1 along $f = P_1(1+t)/P_2$

5A) $D_1^* = D_1^*(P_1, P_2, \bar{M}^*)$

6A) $X_1^* = \bar{M}^*/P_1$

7A) $X_2^* = 0$

8A) $D_1^*P_1 + D_2^*P_2 = \bar{M}^*$

9A) $P_1 = \bar{P}_1$

10A) $P_1E_1 = P_2E_2^*$.

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10 Applying the principle of Marshall (3) that the elasticity of demand for a good is likely to be smaller, the smaller the proportion of total expenditures accounted for by expenditure on that good, this first interpretation may be approximately true for East Africa, where the primary expense for most tourists is the air fare.

11 We can be sure that the domestic money price of good 1 is always $p_1(1+t) = \bar{P}_1(1+t)$ because as long as some good 1 comes from abroad the domestic price must equal the foreign price plus the tariff, any difference having been arbitraged away. And we know that some good 1 comes from abroad since the tourists in effect bring it with them, and the relative price adjusts so that some of it is taken off their hands.

Note that equations 2) and 3) have been modified to account for tariff revenues. The system is graphed in Figure 6.

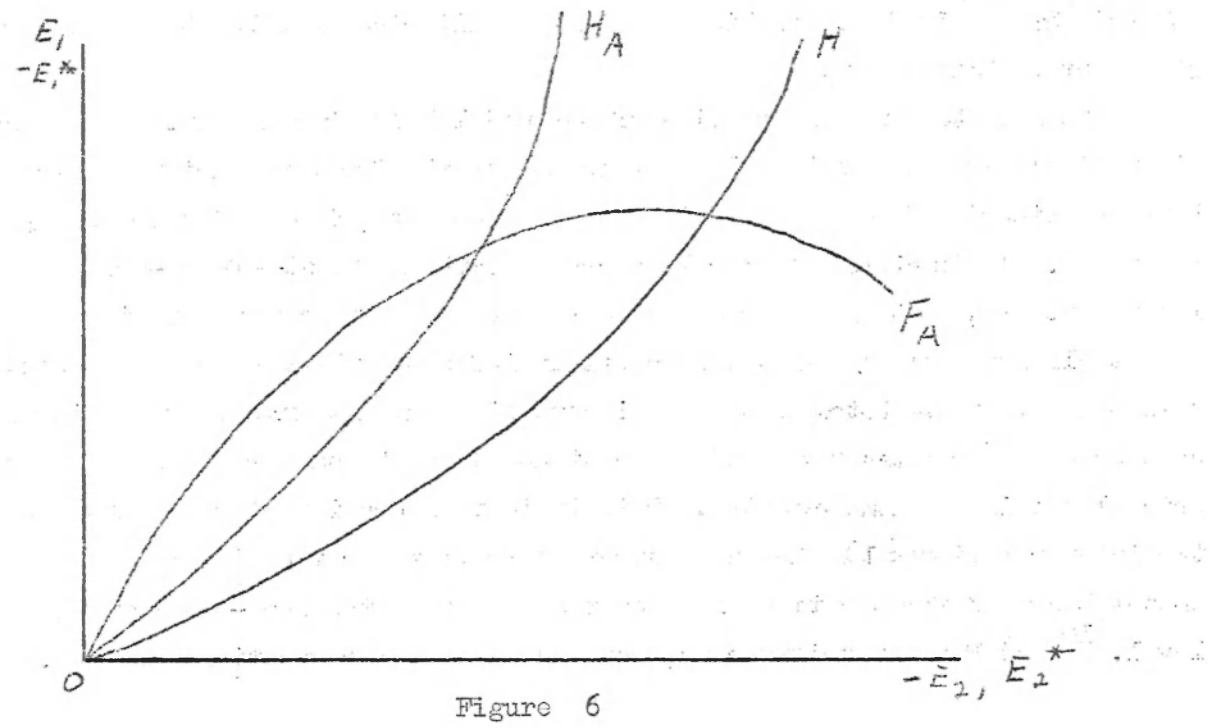


Figure 6

C. a model for tourism (Model B)

An interpretation of good 2 as a home good exported only to tourists, who are subject to the home-country price ratio, suggests the following mathematical system:

1B) $X_2 = f(X_1)$

2B) $D_1 = D_1\left(P_1(1+t),\ P_2,\ X_1P_1(1+t) + X_2P_2 + \frac{\bar{M}^*t}{1+t}\right)$

3B) $(X_1 - D_1)P_1(1+t) + (X_2 - D_2)P_2 = \frac{\bar{M}^*t_o}{1+t}$

4B) $dX_1/dX_2 \text{ along } f = P_1(1+t)/P_2$

5B) $D_1^* = D_1^*(P_1(1+t),\ P_2,\ \bar{M}^*)$

6B) $X_1^* = \bar{M}^*/P_1(1+t)$

7B) $X_2^* = 0$

8B) $D_1^*P_1(1+t) + D_2^*P_2 = \bar{M}^*$

9B) $P_1 = \bar{P}_1$

10B) $P_1E_1 + P_2E_2^* = 0$

The equations in Model B which determine the home country offer curve, 1B) - 4B), differ from the corresponding equations in Model A in that they include additional tariff revenues. In Model B, home country tariff revenues are bound to be $\frac{\bar{M}^* t}{1+t}$, since the foreigners' money income is all spent on imported good 1 (some of which is later traded off to the home country); and thus tariff revenues in Model B exceed those in Model A by $\frac{\bar{M}^* t}{1+t} - E_1 P_1 t$.

Equations 5) - 9), which deterimine the foreign country offer curve, are modified to indicate that foreign tourists now trade at tariff-distorted prices and that some of the tourists' potential supply of good 1 is in effect "confiscated" at customs.

Although one might take total derivatives of the equations of both models with respect to t and compare the response to a change in t of the various variables in Model A with the response of the same variables in Model B, I propose to proceed by analyzing graphically the indicated shifts in each of the offer curves as one moves from Model A to Model B. Implicit in such a procedure is the assumption that our equations are such as to give us "normal-looking" offer curves, as drawn above.

First for the home-country offer curve: The home country in effect collects an additional $(\frac{\bar{M}^*}{P_1} - E_1) \frac{t}{1+t}$ of good 1, which is not obtained from international trade but is expropriated from foreigners who are merely trying to pursue domestic trade. Since in the construction of the home country offer curve $\bar{M}^*$, P_1, and t are parameters, the additional tariff revenues depend (inversely) on the single variable E_1. Thus, in terms of Figure 7, when the home country exchanges OE_2^1 of good 2 for OE_1^1 of good 1 in trade along the offer curve of Model A, it acquires $(\frac{\bar{M}^*}{P_1} - E_1) \frac{t}{1+t}$ of good 1 as an added boon. In general, however, the home country does not wish to take its increased income all in the form of good 1, but (assuming that good 2 is not inferior) desires to consume more of good 2 also. Therefore at the indicated prices it is no longer content to trade away OE_2^1 of good 2 for OE_1^1 of good 1, but wishes to keep somewhat more of good 2 for its own consumption and take in somewhat less of good 1 in exchange. This is equivalent to saying that the offer curve OH_B lies above OH_A, as indicated in Figure 7.[12]

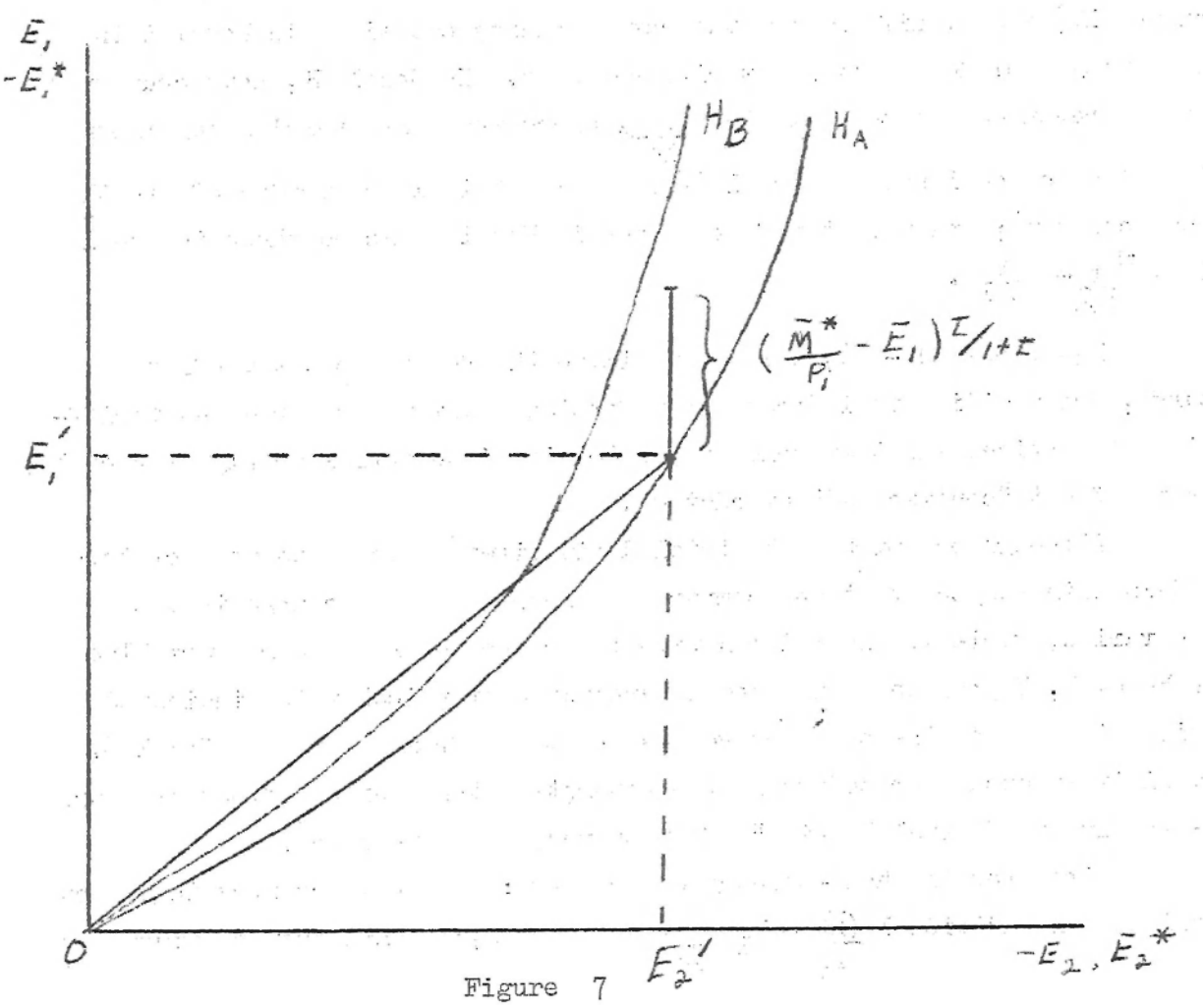


Figure 7

12 I have not succeeded in finding a graphical demonstration of exactly how the new offer curve is derived from the old.

And now we consider the foreign offer curve. Consider the again the graphical technique of Figure 4, reproduced in Figure 8. The foreign supply of good 1 available for exchange, X_1^*, is reduced from $\frac{\bar{M}^*}{P_1}$ to $\frac{\bar{M}^*}{P_1(1+t)}$. Our problem is to find the new offer curve emanating from point $\frac{\bar{M}^*}{P_1(1+t)}$, remembering that the relevant price rays must now be designated $P_1\frac{(1+t)}{P_2}$

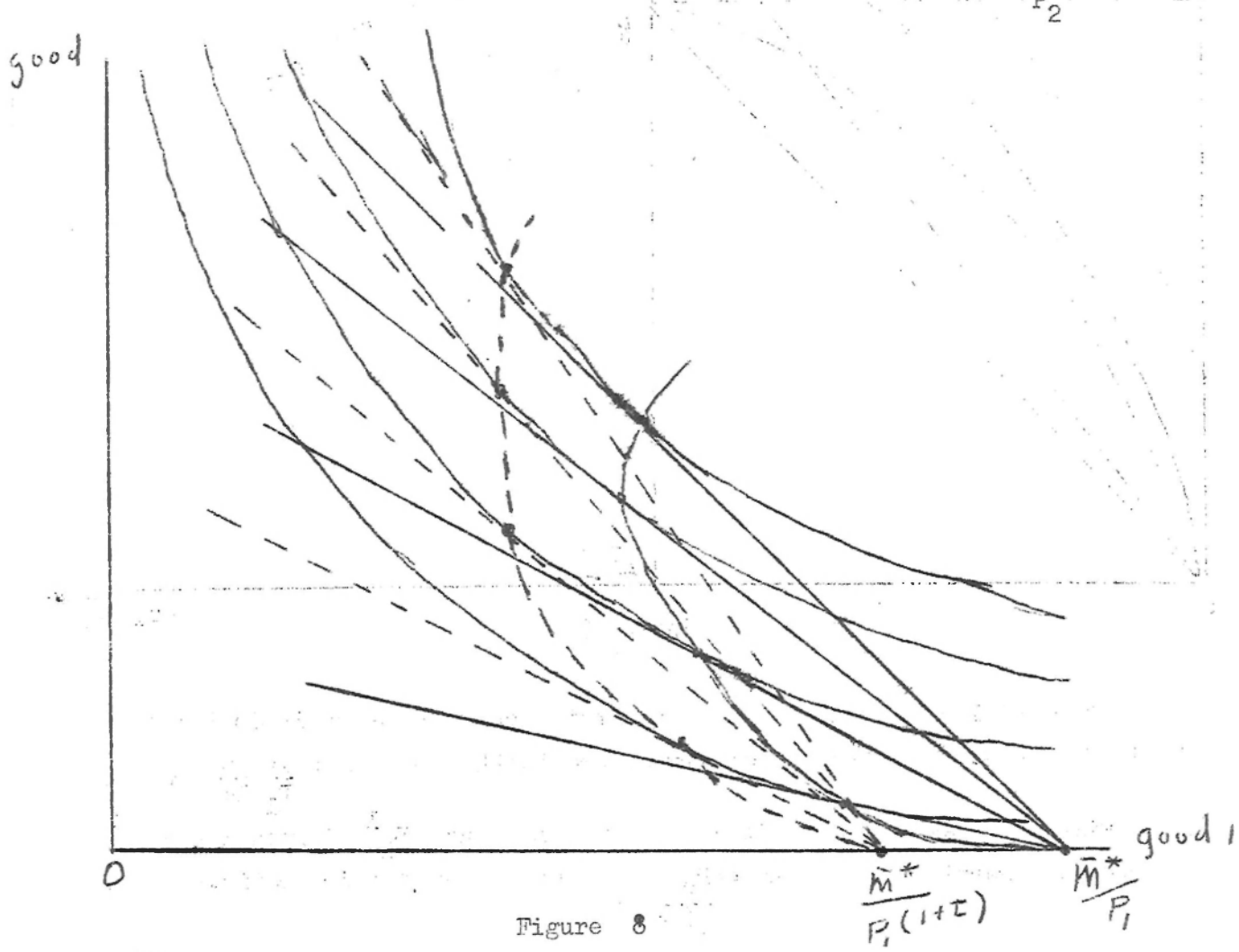


Figure 8

The question we are asking is nothing other than what happens to $E_1^* = D_1^* - X_1^*$ when X_1^* (and thus real income) is reduced by an amount ΔX_1^*. The answer, of course, is that E_1^* is reduced as long as good 1 is not inferior in foreigners' tastes, but that it is reduced by less than ΔX_1^*, as long as good 2 is not inferior in foreigners' tastes.

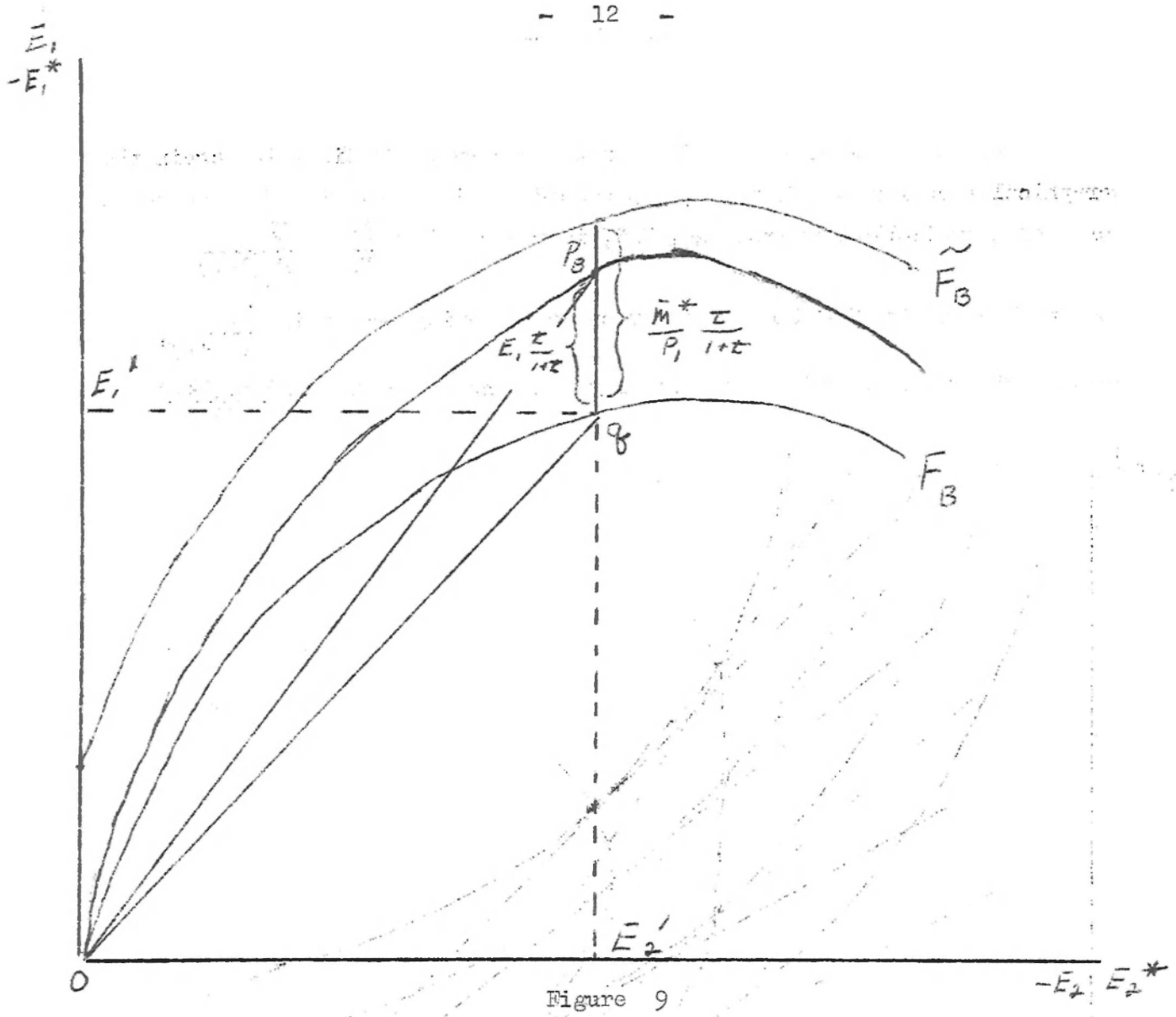


Figure 9

For Model B we therefore have a foreign offer curve as indicated by OF_B in Figure 9. The foreign country automatically surrenders $\frac{M^*}{P_1} \frac{t}{1+t}$ of good 1 and with its smaller supply is willing to trade away E_1^1 of good 1 for E_2^1 of good 2, regarding the ray $Oq = \frac{P_2}{P_1(1+t)}$ as the relevant price ratio. In sum the foreign tourists give up an amount of good 1 indicated by the curve $\tilde{OF}_B$ (and it is this curve which we will subsequently compare with the foreign offer curve of Model A).

Of the tariff revenues, $E_1 \frac{t}{1+t}$ are in effect being paid by the home country consumers of good 1 when they decide to purchase the imported good 1 from the foreign tourists at the tariff-distorted price; and thus the price ratio at which the home country as a whole obtains imports is $\frac{P_2}{P_1}$, represented by the ray $O P_B$. It is the point P_B through which in equilibrium

the home country offer curve must pass.

Such an equilibrium is shown in Figure 10. The equilibrium terms of trade are OP_B and the home country obtains from abroad E_1^{11} of good 1 in exchange for E_2^{1} of good 2 and $E_1 - E_1^{11} = \frac{M^*}{P} - E_1 \frac{t}{1+t}$ of good 1 in tariff collections from foreigners. Thus point C is the final home country consumption point.

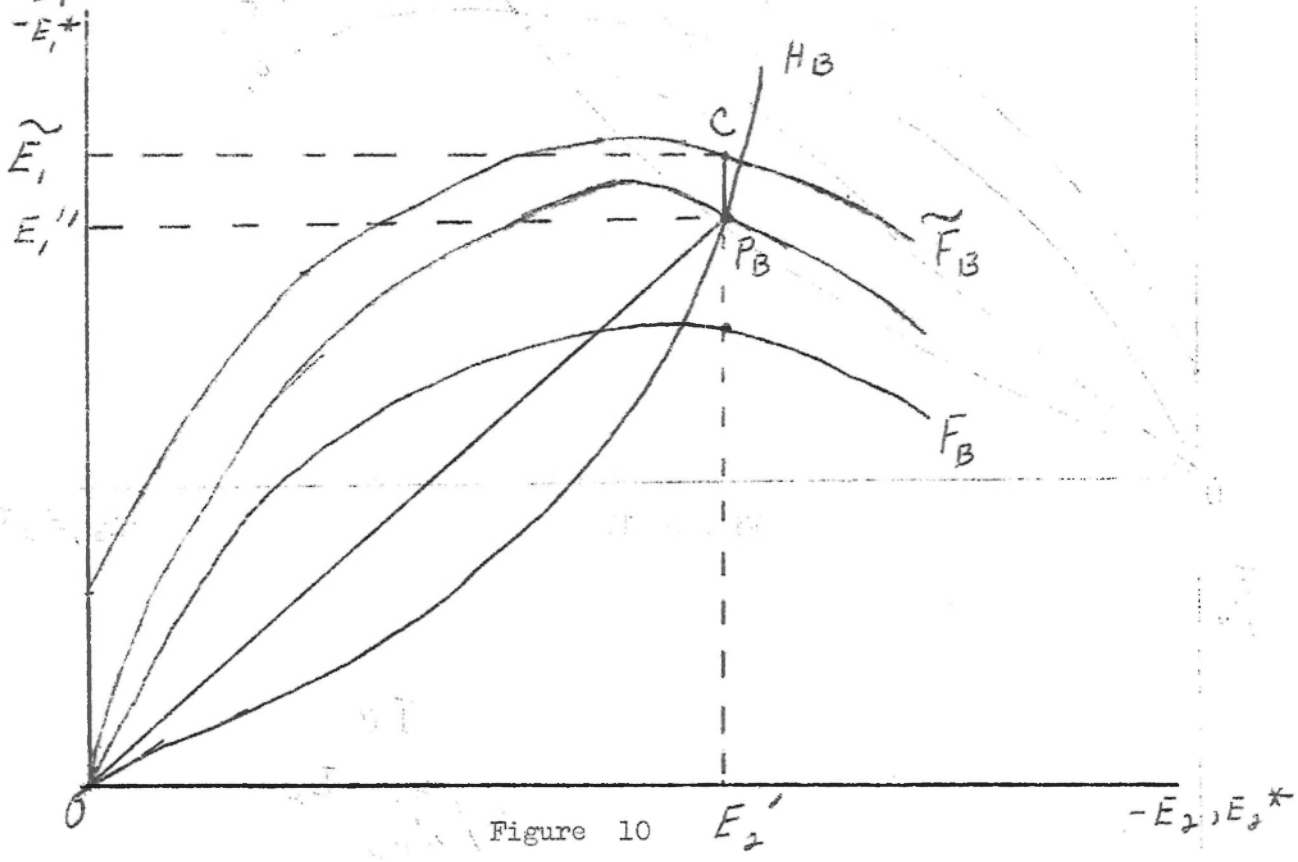


Figure 10

II The Gains from a Tariff Under Alternative Models

Is the gain to the tariff-levying country greater in Model B than in Model A? If good 2 is not inferior in the tastes of either the home country or the foreigners, under our assumptions the answer is bound to be "yes". For then we know that the offer curves lie as indicated in Figure 11. OH_B lies above OH_A, and $O\tilde{F}_B'$ must lie above OF_A because at a given price the foreigners' offerings of good 1 will contract by less than the reduction in market supply, all of which reduction is turned over to the home country.

If good 2 is inferior in the tastes of either the foreign or home consumers, the answer may but need not be "no". Even if good 2 is inferior in the tastes of both groups of consumers, it is not evident that the answer must be "no", as Figure 12 illustrates.

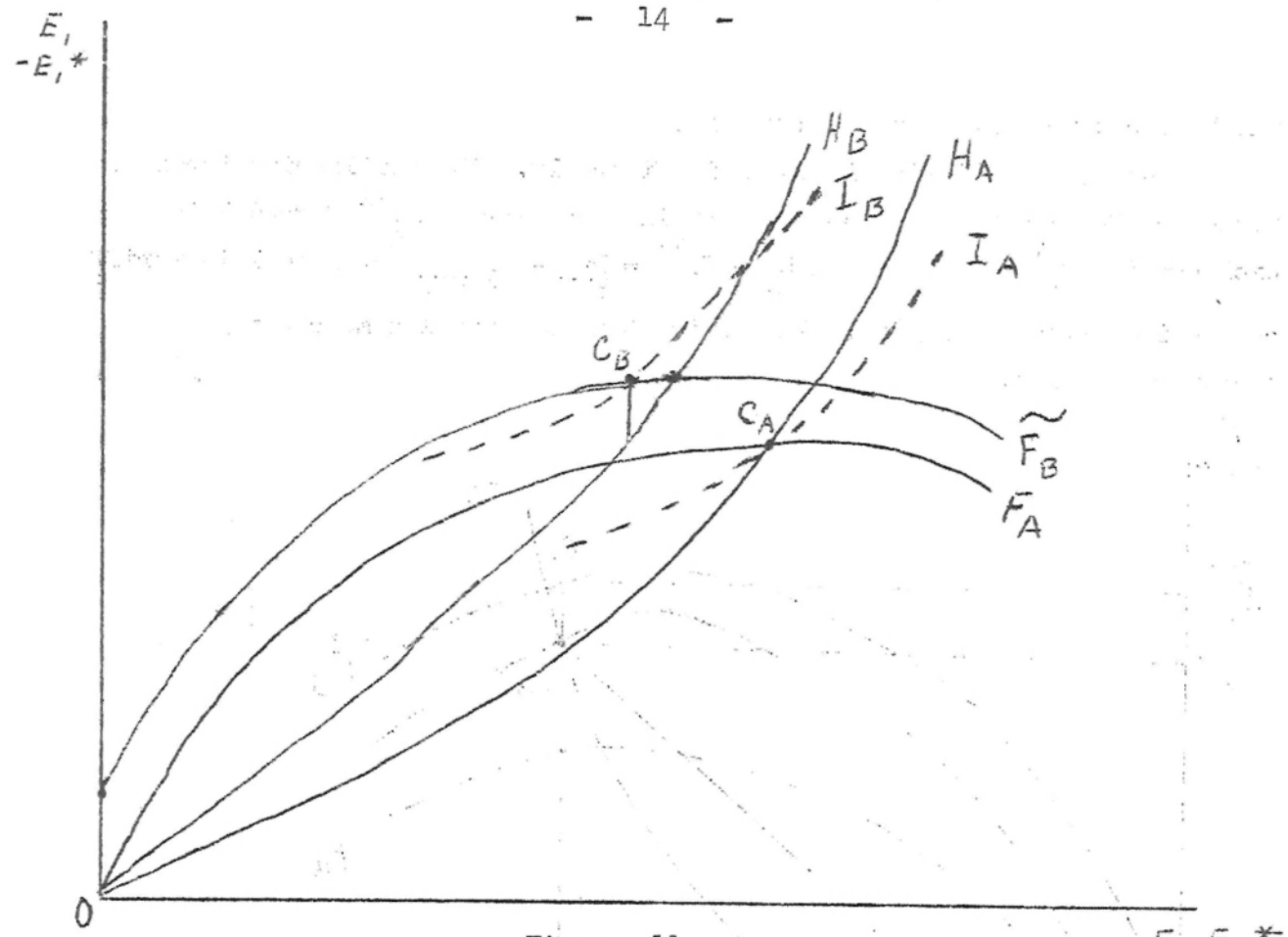


Figure 11

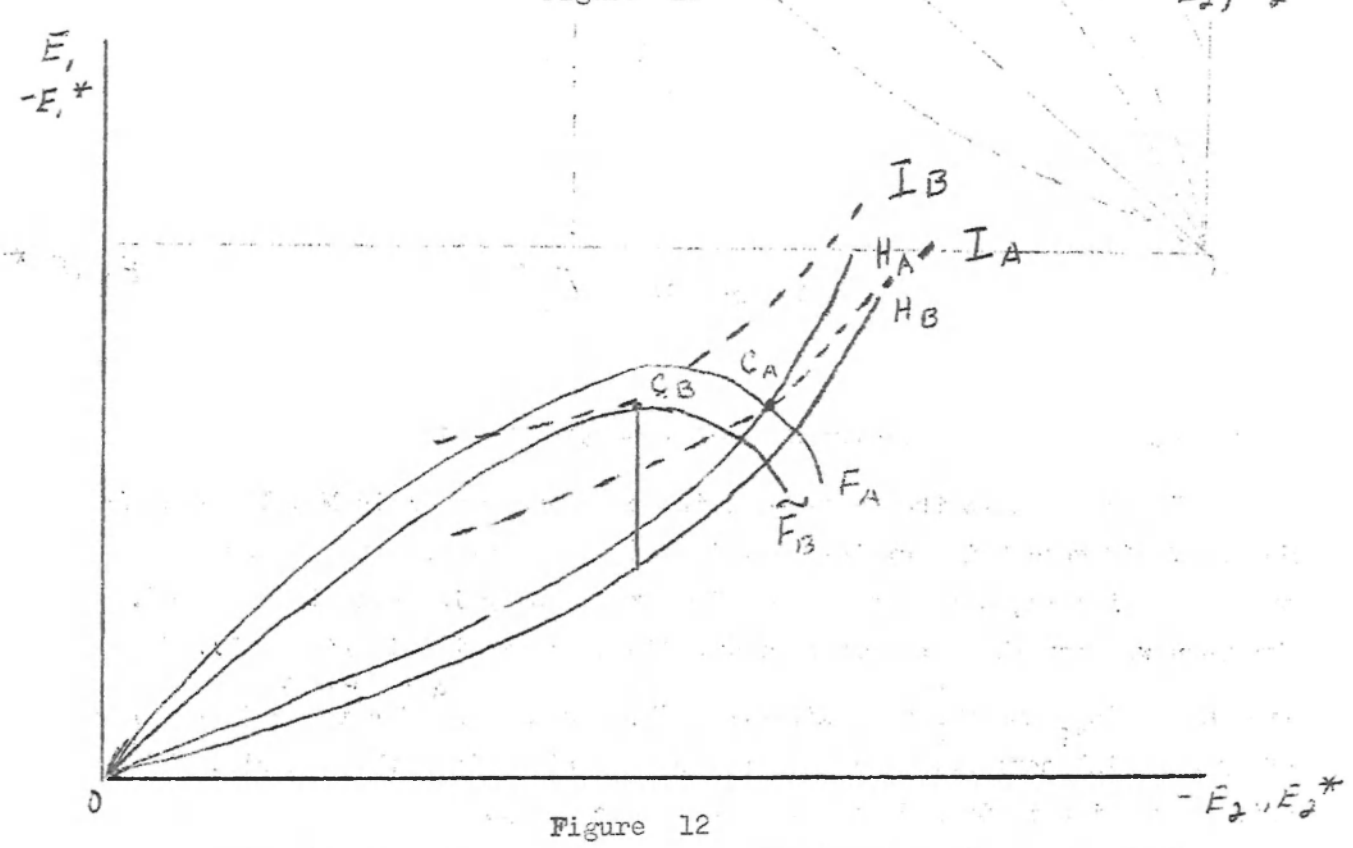
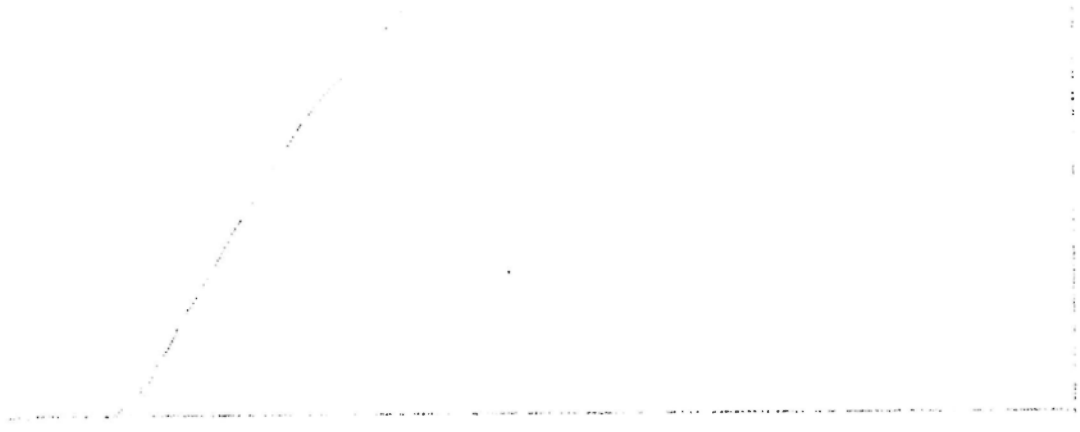


Figure 12

In general, it seems reasonable to say, under our assumptions, that it is very likely that the gain in Model B is greater than the gain in Model A. If one relaxes our assumption that M* constant, and assumes that M* decreases somewhat as the prices in the home country rise, then the likelihood of an affirmative answer decreases somewhat.

And, indeed, for a high enough tariff one must relax our assumption that that M* is constant if he to avoid the absurdity of saying that tourists keep coming to the home country undeterred by the fact that they must effectively surrender all their income. If one did not relax our assumption, the optimal tariff for the home country would be infinite; for by such a tariff the home country could confiscate all the good 1 which the tourists in effect bring with them. But if one cannot justify holding M* constant for a high tariff, one might nevertheless justify holding M* constant for a moderate tariff. Thus M* might depend upon t as indicated in Figure 13. In the absence of empirical data, the best assumption about M* for moderate values of t might be that it is constant at $\bar{M}^*$.[13]



13 One might introduce an elasticity of M* with respect to t; but giving something unknown a sophisticated name does not extend knowledge. On the other hand the elasticity of M* with regard to P, the home country's price level, might be estimated empirically. But how P reacts to t is determined only in general equilibrium, and the problem becomes mathematically too complex for me.

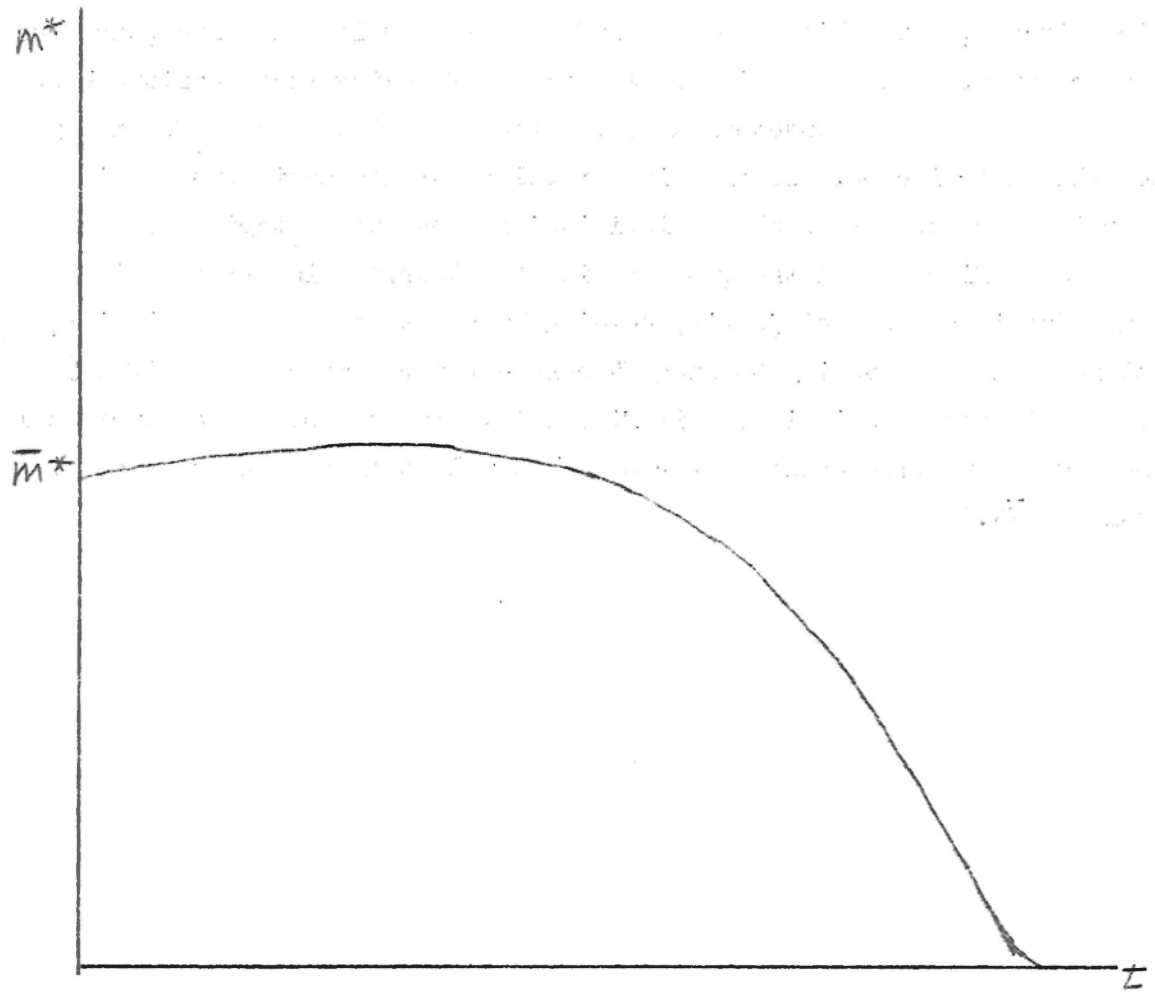


Figure 13

III Conclusion

If one were to ask policy makers in certain countries which cater to tourists why certain items are subject to high tariffs, I would expects them to express sentiments something like the following: "These items are purchased mostly by foreigners and we wish to collect tariff revenues from these foreigners and to encourage them to purchase domestically produced goods and services instead". This paper is meant to suggest that such sentiments are more sensible than has been recognized by international trade theorists.

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