

LIBRARY
OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY



Digitized by the Internet Archive
in 2011 with funding from
Boston Library Consortium Member Libraries

MASS. INST. TECH.
DEC 7 1971
DEV'TY LIBRARY

**working paper
department
of economics**

SHOULD GROWTH RATES BE EVALUATED
AT INTERNATIONAL PRICES?

Jagdish Bhagwati and Bent Hansen

Number 82

November 1971

**massachusetts
institute of
technology**

**50 memorial drive
cambridge, mass. 02139**



SHOULD GROWTH RATES BE EVALUATED
AT INTERNATIONAL PRICES?

Jagdish Bhagwati and Bent Hansen

Number 82

November 1971

SHOULD GROWTH RATES BE EVALUATED AT INTERNATIONAL PRICES?

by

Jagdish Bhagwati and Bent Hansen

Contents

I: The Problem

II: The Welfare Criterion

III: The "Productive Capacity" Criterion

IV: Growth Subject to a Production Subsidy

V: Some Complications

VI: Conclusions

References

SHOULD GROWTH RATES BE EVALUATED AT INTERNATIONAL PRICES?*

I: The Problem

It is sometimes argued that growth rates of value-added, income, or GDP as measured by standard methods tend to be misleading when domestic market prices and factor costs are "distorted" by tariffs, quotas, trade and price controls, and overvalued currencies.

For developing countries in particular, it has been argued that standard methods should tend to exaggerate growth rates because it is the fast-growing sectors, usually manufacturing industry, that are protected and hence "overpriced" and "overweighted." Intuition suggests a simple method of adjusting the conventionally measured growth rates by weights equal to the shares of sectoral value-added in total value added estimated at international prices (Hansen, 1969, p. 16, note 2; also suggested independently by Tibor Scitovsky in public lecture at Berkeley, 1969). Thus the conventional formula for a two-sector economy, X and Y denoting sectors,

$$g = g_X w_X + g_Y w_Y$$

where g denotes growth rates, w denotes weights equal to the sectoral shares in value added, $w_X + w_Y = 1$, all measured conventionally at domestic market prices, is replaced by

$$g' = g_X w_X' + g_Y w_Y'$$

where g' is the adjusted overall growth rate and w_X' and w_Y' are the sectoral shares measured at international prices, $w_X' + w_Y' = 1$.

* We are grateful for comments from, and discussions with, Maurice Scott and Tibor Scitovsky. They helped us much in understanding the methods of Little, Scitovsky, and Scott (1970) but we are, of course, responsible for the exposition and interpretation given in this paper. We had the opportunity of discussing the paper at Scitovsky's seminar at Stanford and acknowledge a number of valuable comments from the participants. Bhagwati's research has been supported by the National Science Foundation and the National Bureau of Economic Research.

The growth rate thus adjusted is of course a hybrid in the sense that it uses observed sectoral growth rates of value-added at domestic prices but weights them at shares in international prices. At constant prices, as generally assumed in this paper (to avoid the discussion of standard index-number problems and instead to focus on the new issues raised here), this Hansen-Scitovsky method is clearly equivalent to evaluation at international prices.

Another method for re-valuing value-added and growth contributions has been suggested by Little, Scitovsky and Scott (1970, Chapter 2 and Appendix to Chapter 2, pp. 70-76 and 410-421) in an important, recent study of import substitution in semi-industrialized LDC's. Disregarding non-traded goods which give rise to special problems (see Section IV, below), their method involves in effect that growth rates be measured at international prices although these authors have not fully spelled out this implication of their own methodology. They take it that "the relative prices of the industry's product measure their relative marginal values to society..." (p. 411) and they "...want to measure the social value of the output, and not its social costs." (p. 411, no. 1). Efficiency considerations, on the other hand, seem to require evaluation at international prices because they represent, through foreign trade and the balance of payments (pp. 72-73 and 411-414), the true opportunity costs in production.

As a way out of this dilemma, Little, Scitovsky and Scott propose (p. 73) first to calculate value-added for all sectors at international prices, and then to convert the value-added of each individual sector (thus calculated) to domestic values through a common "multiplicative

factor," Φ , which expresses the average relation between international prices and domestic prices and (in the simplest case without non-traded goods) is taken as the ratio between aggregate value-added for all sectors at domestic market prices and at international prices (p. 416). The method thus consists of an evaluation of each individual sector's contribution to value-added and value-added growth at international opportunity costs, adjusted upwards to be expressed in terms of the average purchasing power (marginal utility) of the consumers' money (income) at domestic market prices.

Clearly this procedure, as contrasted with the standard evaluation at domestic market prices, implies that both the absolute and relative contributions (to value-added as also to change in welfare) of the relatively more highly protected sectors will become smaller, while the total sum of all the sectors' contributions will remain equal to the value-added increase at domestic market prices.¹

At the same time, the relative contribution to value-added, by each sector, under this procedure, is readily seen to be independent of Φ (which multiplies into each sector's value-added at international prices) and hence to be, in effect, measured purely at international prices.

¹In correspondence, Scott has kindly demonstrated how the method can be expressed in terms of the model used in this paper. Φ can also be conceived of as "the value of extra domestic expenditure made possible when income increases so as to worsen the balance of payments [by one unit]" (p. 414). In Figure 1 below, an increase in income from G to H ($=C_a S$) unaccompanied by any change in production increases expenditure on X by $C_a Q$ and on Y by QC_b . In terms of X at world prices, the deterioration of the balance of payments is $C_a R$. Hence $\Phi = C_a S / C_a R = GH / JK$ so that $\Phi JK = GH$.

Furthermore, when we calculate a growth rate as the ratio between the sum of all sectoral value-added increments at international prices, each one multiplied by the common Φ , and the sum of all sectoral value-added in a base year, at the same international prices and multiplied by Φ (p. 417)¹, the common factor Φ divides out, of course. The Little-Scitovsky-Scott method therefore implies that relative sector shares, sectoral growth rates as also the total growth rate are measured exclusively at international prices², as with the Hansen-Scitovsky method.

Conventional methods, on the other hand, require measurement of growth rates at either domestic market prices or domestic factor cost. In addition, therefore, we now have measurement at international prices. Measurement at international prices certainly takes into account opportunity costs in international trade but with "distortions" they do not express domestic consumer preferences. Measurement at domestic market prices expresses (by assumption) consumer or community preferences but seems to ignore international opportunity costs. It is clear also that we cannot evaluate at both international and domestic market prices at the same time (although this is, indeed, what the two methods described above appear to make a vain attempt to do). What shall we do then? Is there one method of evaluating growth that is preferable to all other methods? Or should all methods be applied because they illuminate different aspects of growth?

¹For non-traded goods, Little, Scitovsky and Scott propose to multiply the value at domestic market prices by Φ determined on the basis of the trading sectors.

²In terms of Figure 1 the growth rate on the Little-Scitovsky-Scott method is thus $\text{GH}/\Phi\text{OK} = \text{JK}/\text{OK}$.

We shall examine this issue for the case of growth subject to a given tariff in the framework of the simplest conceivable model: the value-theoretic model of traditional international trade theory, with two traded goods, X and Y, produced by non-traded primary factors in a country with exogenously determined trade and a given, well-behaved community preference map. We then examine the same model for the case of growth subject to a given production subsidy. Finally, we discuss briefly complications implied by the existence of traded inputs, monopoly power in trade and non-traded goods.

II: The Welfare Criterion

Assume that the economy, before growth, has a production possibility curve, AB, while after growth it is CD; see Figure 1. In each situation there is a given, common tariff. In the pre-growth equilibrium, production, consumption, and welfare are at P_b , C_b , and U_b , respectively. In the post-growth situation, equilibrium is at P_a , C_a , and U_a . In each equilibrium situation we assume that tariff revenue is redistributed as an income subsidy to consumers; in the pre-growth equilibrium it is equivalent to EH units of X and after growth it is FG.

Note, first, that in this simple case with balanced trade and no factor payments to other countries, we need not distinguish between national and domestic product; and national expenditure and product (value added, national income) are equal in size, provided that both are evaluated at either domestic factor cost, or domestic factor prices, or international prices. The difference between national expenditure (= national product at domestic market prices) and domestic factor cost represents clearly the total revenue from tariffs. This is

the standard national accounting terminology which we shall apply in what follows. In moving from pre-growth to post-growth equilibrium we may thus distinguish among three measures of the resulting change in national expenditure and product and ask which of these measures, if any, can measure (or at least indicate the direction of) the accompanying change in the level of welfare:

1) The change in national product (expenditure) at domestic factor cost (i.e. evaluated at domestic-tariff-inclusive market prices excluding the value of total tariff revenue): measured in terms of commodity X, the absolute change in national product (expenditure) at factor cost is EF; and the rate of change is EF/OE. Clearly, to use this measure as an indicator of the change of welfare is wrong when we actually have immiseration ($U_a < U_b$) as we have drawn Figure 1.¹

2) The change in national expenditure (product) at market prices (i.e. evaluated at domestic, tariff-inclusive prices, including the value of tariff revenue): the absolute change, measured in terms of commodity X, in national expenditure (product) at market prices is minus GH, and the rate of change is minus GH/OH. This measure, showing a reduction in welfare, is consistent with the immiseration that has occurred. Besides, it is a "natural" measure of the actual change in welfare because it may be construed in the Hicksian compensating-variational sense: if domestic expenditure worth GH units of X were

¹The discussion here centers, of course, upon the "odd" cases. For if both the production point and the expenditure point move to the northeast there is no doubt that both production and expenditure have increased. No matter what constant prices we use for evaluating the growth rate of production and/or expenditure, we come out with a positive growth rate. Although the measured growth rates will depend upon the prices, their signs will always be positive. It is when one or both of the expenditure and production points have moved to the northwest or southeast that problems of sign appear.

Y

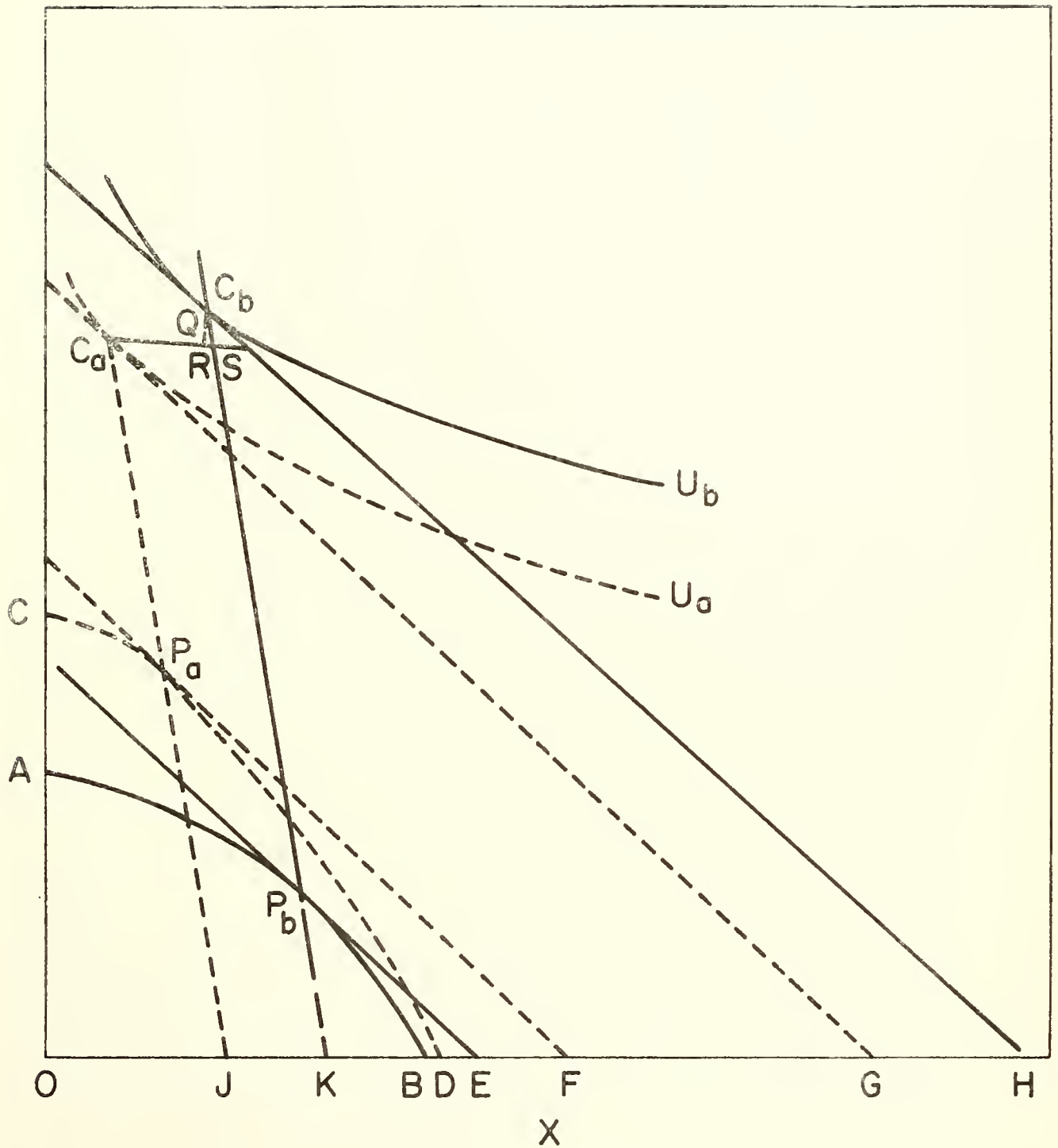


Figure 1

given to the country after growth, it would restore welfare to the same level as before growth occurred.

3) The change in national product (expenditure) revalued at international prices: the absolute change in national product (expenditure), revalued at international prices, would show a decline (in terms of X) of JK; and the rate of change would be minus JK/OK. This measure would again be consistent with the actual immiseration ($U_a < U_b$). However, note two things:

i) This measure would generally have a different magnitude than the change in national expenditure (product) at market prices. In Figure 1, $JK \neq GH$ and $JK/OK \neq GH/OH$; hence it is not a matter of indifference as to which measure is adopted for measuring either absolute growth or growth rates.

ii) Furthermore, this measure, at international prices, makes sense in the following way. If a net transfer (say, aid flow) equal to $C_aP = JK$ units of X were made to this country, starting out from the after-growth situation, the economy would clearly move from C_a to C_b , that is, from U_a to U_b , with C_aQ units of the inflow held in the form of X and QR units transformed into QC_b units of Y. But, note that national expenditure would have increased by C_aR units of the transfer and RS units of tariff revenue. It follows that $C_aR = JK$ units of X represent the net transfer from abroad that would take the tariff-ridden economy back to the pre-growth level of welfare (U_b); it is thus a compensating-variational measure of the inflow of resources from abroad that would be required to restore the economy to its pre-growth level of welfare. Note that this measure is fully consistent conceptually with the preceding measure in

terms of change in national expenditure at market prices: given the tariff, national expenditure must necessarily increase, to the extent that tariff revenue increases, by more than the net transfer. Hence, both measures are different evaluations of the same measure (i.e. of the Hicksian compensating variation) and both would therefore seem "natural" measures of the actual change in economic welfare.

We may therefore be tempted to conclude that the change in national product (expenditure) either at market price or revalued at international prices would correctly indicate the shift in actual welfare and that the choice between the two is essentially arbitrary.

However, we can conclude something a little stronger. Thus, take Figure 2 where we have a case, based on recent analysis of tariffs by Bhagwati (1968), Kemp (1968) and Vanek (1965), where the growth leads to an improvement in the availabilities locus from $P_b C_b$ to $P_a C_a$ but immiseration nonetheless occurs ($U_b > U_a$).¹ This case requires inferiority in social consumption of the exportable good; and the Pareto-superiority of the availability-locus $P_a C_a$ over $P_b C_b$ implies that a superior equilibrium exists in the after-growth situation which, if chosen, would lead to $U_a > U_b$.

Now, in this situation, our analysis of Figure 1 goes through but with a new twist. We see that, starting from the after-growth situation, a net transfer out, worth RC_a units of X, will lead to a net increase in national expenditure of $C_a S$ units of X (the tariff-revenue increase being RS, the transfer outflow being RC_a , the difference then being $C_a S$).

¹An analogous case with a deterioration of availability and increase of welfare may also occur, but the implications are, of course, the same.

Thus, we have the paradox: the measure in terms of market prices will show a negative growth rate of GH/OH, which is consistent with the actual immiseration; the measure in terms of international prices will show, on the other hand, a positive growth rate of JK/OK, which would contradict the fact of the immiseration that has actually occurred.

We can thus conclude that:

1) As an index of the direction of change in actual welfare, the conventional measure of expenditure (product) at market prices will be correct invariably; the measure at international prices will work in the absence of inferiority in social consumption; and the measure at factor cost is both conceptually unsuitable and would be treacherous (in the presence of immiseration).

On the other hand, noting that in Figure 2 the availability-locus $P_a C_a$ dominates $P_b C_b$ and therefore potential or feasible welfare at the actual production vector will have improved even though actual welfare has reduced after growth, we can conclude that:

2) As an index of potential or feasible welfare at the actual production vector, the measure of national product (expenditure) at international prices will be correct invariably; the measure at market prices will work insofar as, if inferiority in consumption is present, it does not lead to choice of "inferior" equilibria in the Pareto-superior situation;¹ and the measure at factor cost would again be both

¹As Kemp (1968) has shown, plausible stability conditions can be established which rule out the "inferior" equilibria as unstable. Hence, the distinction between actual and potential welfare may not be terribly important in practice, in which case, the two measures, at international prices and at market prices, are both equally "legitimate."

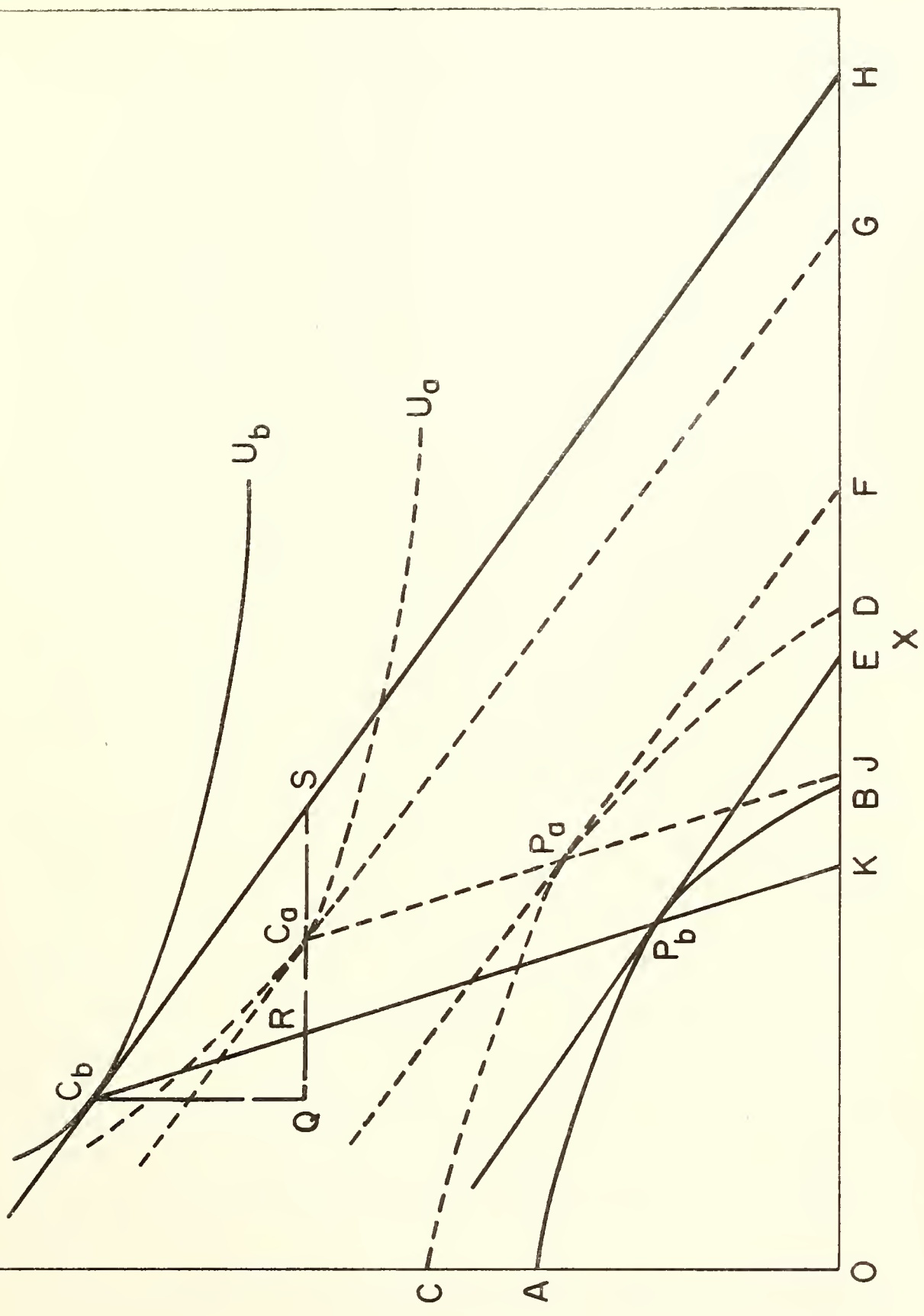


Figure 2

conceptually inappropriate and treacherous (in the presence of immiseration).

III: The "Productive Capacity" Criterion

So far we have chosen to evaluate the different national product (expenditure) measures by reference to whether they suitably indicate welfare-change. Suppose instead that we are interested in measuring changes in "productive capacity." Would the re-valuation of actual production at international prices be correct in that case? Unfortunately, it fails here; and the correct measure (in a sense to be shortly defined) would be national product (expenditure) at factor cost -- i.e. the production vector evaluated at the domestic, tariff-inclusive price ratios but excluding tariff revenue.

For, if we aim to measure changes in "productive capacity," we are essentially measuring the shift, in Figures 1 and 2, in either the production possibility curve from AB to CD or the availability-locus defined inclusive of the trade possibility.

1) In the former case, it only makes sense to measure the shift in the production possibility curve by positing a price-ratio and competitively choosing the production vector by reference to it: measuring the change in national product at domestic factor cost would do precisely this. Both production vector and price ratio would then be observable. Evaluating the production vector, which has been chosen by reference to the tariff-inclusive price ratio, at the international price ratio would for this purpose be a meaningless hybrid and could, indeed, show a decline in productive capacity, as in Figure 1, when in fact the productive capacity has increased (i.e. the production possibility curve has been pushed outwards).

2) In the latter case, where the shift in the availability-locus,

inclusive of the trade opportunity, is sought to be measured, however, the international price vector does become relevant: but it should be used to evaluate a production vector which is chosen by reference to it -- in Figures 1 and 2, the production bundles must be chosen, in our competitive economy, by putting the international price-ratio tangent to AB and to CD successively. In that case, evaluation at international prices measures both productive capacity and maximal feasible welfare; but this production point is not directly observable. When the production possibility curve has shifted outward, implying increase in productive capacity in the trade-augmented sense as well, the measure of increment in national product at factor cost will, however, be directionally correct as it must show an increase in productive capacity.¹ On the other hand, a measure which merely revalues the given production vector (chosen by reference to the tariff-inclusive prices) could, as we have just argued via Figure 1, show a reduction in "productive capacity" and hence be directionally incorrect as well.

IV: Growth Subject to a Production Subsidy

If, however, we consider the case of a production subsidy -- which differs from the tariff in not causing a consumption distortion as well -- then the revaluation at international prices yields a measure of welfare-change which is identical with that yielded by evaluation at domestic market prices; both therefore indicate correctly the actual and potential change in welfare resulting from growth. (The inappropriateness of either for measuring the change in "productive capacity," however, continues.)

¹Assuming, of course, that the old and the new production possibility curves do not intersect. This could happen if natural resources upon which the production of one of the commodities depend, were exhausted, for instance.

Thus, in Figure 3, assume that commodity Y enjoys a subsidy on production at rate RS/QR . Production is therefore at P_b before growth, and at P_a after growth, at the subsidy-inclusive price-ratio equal to the slope of P_aW or P_bS . RS is the subsidy actually paid out, measured in terms of commodity X, in the situation before growth: it is assumed that it is collected by lump sum taxation from the earnings at factor cost. The measure of national product (expenditure) at factor cost is therefore OS and OW , before and after growth, respectively.

Clearly, therefore, the increment in national product at factor cost is an erroneous measure of welfare change: it shows positive increment at rate SW/OS , whereas immiseration has occurred ($U_b > U_a$). But the increment at market price correctly shows immiseration at rate JR/OR ; and so does valuation at international prices. Thus the re-valuation at international prices yields the correct measure of welfare-change: but note that it reduces, in view of the equality between the domestic prices at which consumption occurs and the international price vector, to the same measure as the measure in terms of domestic market prices.

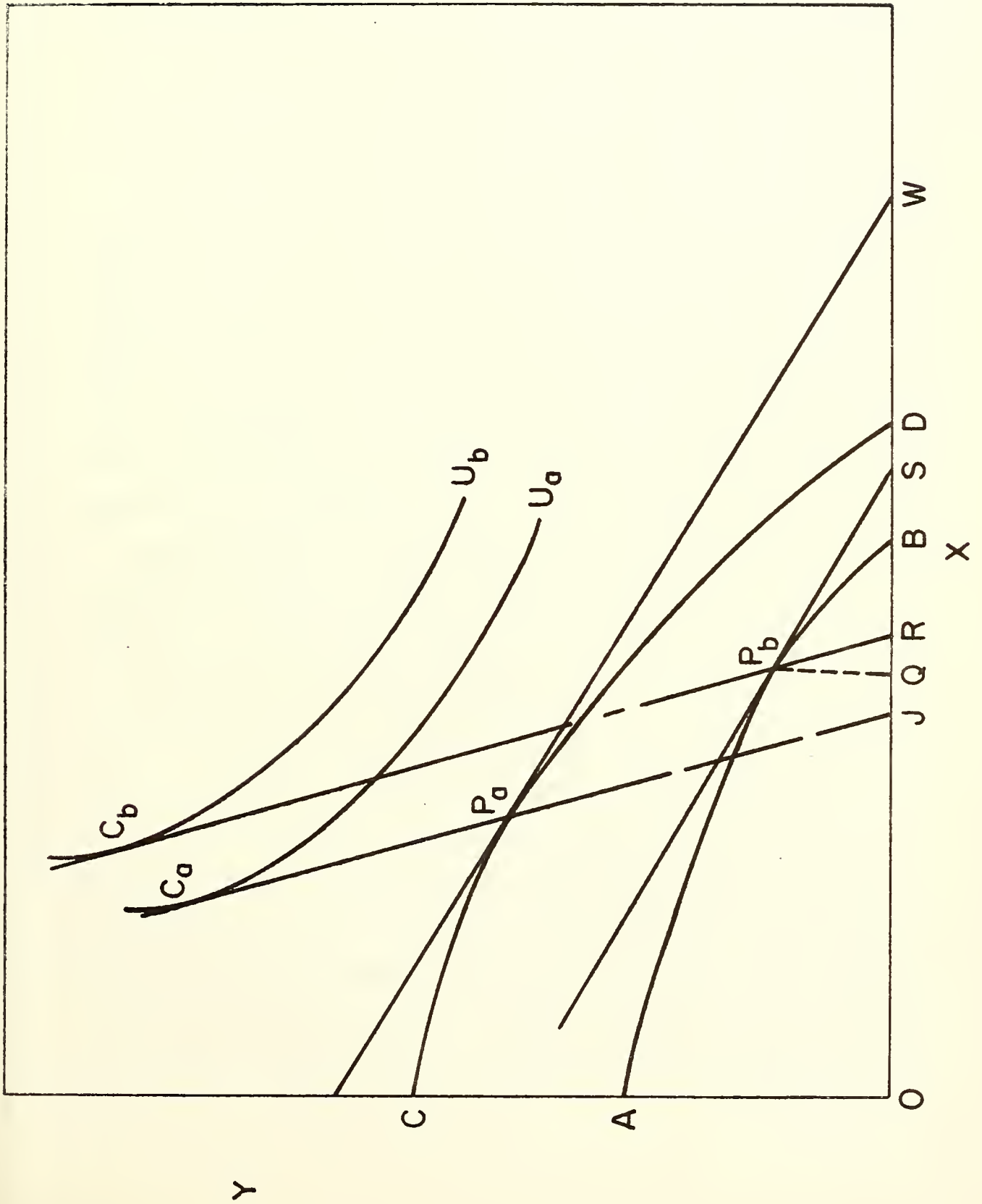


Figure 3

V: Some Complications

Our analysis clarifies the issues in relation to a highly simplified value-theoretic, trade model. This simplicity of the model helps us to focus on the important issues. At the same time, however, it masks a number of difficulties.

Some of these difficulties are well-known and common to all methods of evaluating growth rates: e.g. price changes between the pre-growth and the post-growth situations, the presence of externalities and non-marketed output such as government services, the treatment of investment goods, and so on. We focus now rather on (1) problems, if any, arising from introducing multiple goods and intermediates; and (2) the differential effect on our different measures of the presence of monopoly power in trade and of non-traded goods.

Multiple Goods: Clearly our analysis is not conditional on the assumption of only two goods; it would readily carry over into a multi-good model, holding the other features of the model unchanged.

Intermediates: Our model disregards the use of produced or imported inputs in production, but abandoning this simplification does not really upset our conclusions. For such commodities are either used by both consumers and industries (for example, gasoline), or they are only used by industry (aluminium). Unless there are special consumer taxes that industry does not pay, produced or imported inputs are indeed evaluated at domestic market (consumer) prices in the first case. In the second case there is no direct consumer evaluation; the value of the inputs to the consumer is then equal to the value of the marginal product of the

input at domestic market prices for the output. Profit maximization should make sure that in equilibrium the value of the marginal product is equal to the domestic market price of the input. Thus produced inputs do not present us with any new problems as far as measuring the growth rate is concerned.

Monopoly Power in Trade: Falling demand and rising supply curves abroad (monopoly) imply that export and import prices do not express marginal opportunity costs. The marginal revenues and costs that should be substituted for prices in such circumstances are not directly observable, and this fact immediately deprives international price evaluation of one of its major advantages. Little, Scitovsky and Scott (1970, p. 418) mention this possibility in the case of exports but express the hope that export taxes may have been optimal. Should this hope be fulfilled, market prices would clearly be identical with marginal revenues, and evaluation of production at "international opportunity costs" would be identical with evaluation of production at factor cost. On the other hand, evaluation at domestic market prices would remain the correct method if an index of actual welfare is sought.

To assume that actual export taxes are optimal would, of course, be to beg the question of measuring marginal revenue (and costs) in foreign trade. But quite apart from whether tariffs actually are optimal or not, there are a number of problems when we attempt to measure at international prices, making it necessary to take a careful look at our criteria when monopoly power in trade obtains.

(i) Our first criterion was actual welfare. Given our general assumptions, the introduction of monopoly power in trade is consistent with the existence of a unique expenditure point with an associated utility level in each situation before and after growth, whether actual tariffs are optimal or not; and the change of this point is still to be measured in terms of domestic market prices to obtain a measure of the change in actual welfare.

(ii) But our second criterion, feasible or potential welfare at given production, may break down. Feasible expenditure at given production can no longer be expressed uniquely at the observed, given international price because the price itself depends upon the volume of trade. And, in any case, international prices no longer measure opportunity costs. Hence we may shift to evaluation at marginal revenue. But generally speaking, marginal revenue also depends upon the volume of trade. Feasible expenditure at given production now takes place along a non-linear offer curve superimposed à la Baldwin (1952) on the production point. Evaluating each point of the offer curve at the corresponding marginal revenue (the slope of the offer curve at that point), we find now that the value of expenditure in terms of the exportable good in

the simple two-good model will be larger the larger is the volume of trade. And there is no one-to-one correspondence between the value of expenditure thus evaluated and the utility level obtained. As trade increases along the offer curve from the production point, utility will increase up to a point and then decrease while the value of expenditure in terms of X will continue increasing. We could then ask if there is any particular point on the offer curve which could be singled out. If we are looking for feasible welfare, this point would naturally be the point of highest utility--that is, the point of tangency between the offer curve and the utility curves. Should the tariffs happen to be at optimum, this point will be identical with actual expenditure and what we measure is identical with expenditure at domestic market prices. If tariffs are not at optimum, evaluation of expenditure at marginal revenue in trade at the highest utility level (as defined here) is indeed an independent measure, but to make this evaluation we would have to work with quantities and marginal revenues, neither of which is directly observed and would require knowledge not only of the offer curve but also of the preference map for their (econometric) estimation.

(iii) Our third criterion, "productive capacity," may now be interpreted as either the production possibility curve or the efficient Baldwin-envelope. What we said in Section II about the production possibility curve applies here, too, mutatis mutandis: only one set of related prices and quantities can be directly observed, viz., actual production and factor costs, and measurement at factor cost is a correct solution. Concerning the Baldwin-envelope, on the other hand, the actual

expenditure point (the only directly observable point) will be on the Baldwin-envelope only if tariffs are optimal and we are then back to evaluation at domestic market prices. If tariffs are not optimal, however, no point on the Baldwin-envelope (with the corresponding marginal revenue) will be directly observable. And even if the envelope could be econometrically estimated, we would have to evaluate the "capacity" with respect to the preference map if we wish to come out with economically meaningful single numbers.

Thus, the existence of monopoly in trade seems to imply that evaluation at the "correct" quantities and related international "prices" (i.e. marginal revenues) is generally impossible without resort to econometric estimation of the foreign offer curve--and not just of marginal revenue around the observed trade point alone--and specification of the country's own preference map. In the very special case of optimal tariffs, evaluation of international "prices" simply coincides with one of the conventional methods, evaluation at market prices or at factor costs. The conventional methods, on the other hand, make sense in the same way as they did in the case where the country had no monopoly power in trade.

Non-Traded Goods: Conceptually, we may further modify the model to allow for non-traded goods by either introducing a sector which is non-tradeable (e.g. services) or assuming that all "goods" are in principle tradeable but that each good has an f.o.b. and a c.i.f. price and that, in equilibrium, one or more goods may become non-traded (with their prices lying between the c.i.f. and the f.o.b. price).

In either conceptualization, the measure of change in domestic expenditure at market prices should continue to provide an idea of the change in actual welfare. However, serious difficulties arise in revaluation of the production vector at international prices. In the former model, the non-tradeable sector has no "international" price by assumption; whereas, in the latter case, the equilibrium allocation of resources is likely to involve the presence of non-traded goods whose price is between the c.i.f. and the f.o.b. prices and hence which do not have a single, identifiable "international" price.¹ Hence, these non-traded goods have to be perforce evaluated at ~~other~~ other-than-international prices and the international-price-valuation approach is just not applicable in the presence of non-traded goods--as literally stated.

These problems can be fairly serious in practice. Two examples may suffice as illustrations. In Egypt, the c.i.f. price for fertilizer (15.5 calcium nitrate) was LE 18.53 per hkg in 1960 at an f.o.b. price of LE 14.95. In Afghanistan (average for 1964-65 - 67/68), at a wheat price of 7.3 USc/kg f.o.b. U.S. port, the price c.i.f. Kabul was 10.9 USc/kg, implying a hypothetical price f.o.b. Kabul for shipment to U.S. port of 3.7 USc/kg.² Similarly, the proportion of non-tradeable services

¹We may also note that no matter which method of evaluation is used, a commodity that is exported or non-traded in the pre-growth situation may be imported in the post-growth situation even at given c.i.f. and f.o.b. prices and tariffs; this will also generally lead to price changes and hence index number problems.

²Little, Scitovsky and Scott (1970, pp. 414-418 and 432) unfortunately are not always explicit on the problem of c.i.f. and f.o.b. prices. The existence of c.i.f. - f.o.b. gaps implies, for example, that each country has its own international prices and there is no unique "world price." On the other hand, one passage (p. 433, third sentence) reads as if c.i.f. prices have been used for all traded goods, including exportables; and for sugar it would seem that prices c.a.s. Cuba (p. 447) have been generally applied. For non-traded goods a so-called "ideal" method has been applied; it implies that non-traded goods have been evaluated at their domestic market price multiplied by the Φ factor explained at the beginning of this paper. The logic of these procedures is somewhat opaque.

in LDC's is often a large fraction of total GNP and cannot be dismissed lightheartedly.

VI: Conclusions

Not surprisingly we come out with the result that the answer depends upon the question. It is best to try to specify what is meant by growth and then to look around for adequate yardsticks. We find then that:

(1) If we are looking for an indicator of the development of actual welfare, granted the existence of a well-behaved community preference man, the correct measure is the conventional growth rate at domestic market prices.

(2) If we seek, however, an indicator of feasible, potential welfare at actual production, the growth rate of national product or expenditure evaluated at international prices is the correct measure. But in the latter case there are serious problems arising from the existence of non-traded tradeables and non-tradeables; and with monopoly power in trade, the measure at international prices breaks down (in the sense discussed earlier).

(3) In either case, the measures are at best ordinal; thus we cannot tell whether a particular measure "exaggerates" the growth rate--this is simply a non-issue.

(4) If we are interested, however, in productive capacity, the growth rate as conventionally evaluated at factor cost is a correct ordinal measure and the only one that is based on directly observable quantities and prices. If we allow for the possibility of using non-observable, estimated production, international prices may be used for obtaining a measure of capacity at optimal production, and maximum

feasible welfare; but when monopoly power in trade prevails, the "correct" quantities and "prices" (i.e. marginal revenues) have to be estimated, and this would require knowledge not only about the production possibility and offer curves, but also about the social preference map.

We do not exclude the possibility, finally, that growth may be defined in ways other than those discussed here; other measures may then be the correct ones.

References

- Baldwin, R. E., 1952, "The New Welfare Economics and Gains in International Trade," Quarterly Journal of Economics, Vol. 64, 99-101.
- Bhagwati, J., 1968, "The Gains from Trade Once Again," Oxford Economic Papers, 20, 137-48.
- Hansen, B., 1969, Economic Development in Egypt, Rand Corporation and Resources for the Future, RM-5961-FF, October 1969.
- Kemp, M., "Some Issues in the Analysis of Trade Gains," Oxford Economic Papers, 20, 149-61.
- Little, I., Scitovsky, T., and Scott, M., 1970, Industry and Trade in Some Developing Countries (Oxford University Press, London).
- Vanek, J., 1965, General Equilibrium of International Discrimination (Harvard University Press, Cambridge).

Date Due

| | |
|--|--------------------|
| <p>NOV 30 '78</p> <p>DEC 31 '78</p> <p>MAR 02 '79</p> <p>SEP 27 '79</p> <p>Oct 27.</p> <p>JAN 2 '81</p> <p>MAR 02 '81</p> <p>AUG 19 1981</p> <p>APR 3 '82</p> <p>MAY 13 '82</p> <p>JUN 13 '82</p> | <p>MAY 11 2006</p> |
|--|--------------------|

Lib-26-67

MIT LIBRARIES



3 9080 003 928 592

MIT LIBRARIES



3 9080 003 959 621

MIT LIBRARIES



3 9080 003 928 584

MIT LIBRARIES



3 9080 003 959 639

MIT LIBRARIES



3 9080 003 928 618

MIT LIBRARIES



3 9080 003 959 571

MIT LIBRARIES



3 9080 003 959 654

MIT LIBRARIES



3 9080 003 928 709

MIT LIBRARIES



3 9080 003 928 766

MIT LIBRARIES



3 9080 003 928 782

MIT LIBRARIES



3 9080 003 928 733

