

## Equalizing the Cost of Success : Equitable Graduation Rules and the Generalized System of Preferences

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### *Abstract*

*The developing countries which are beneficiaries of the GSP have reason to seek an objectively specified graduation rule to minimize the discretion of the U.S. government regarding who graduates and when. Current rules based on per capita income, however, are not horizontally equitable across countries as they punish openness. We analyze this point in a stylized model of international trade and propose some alternative rules which may have some appeal to policy-makers in the U.S. and developing countries.*

### I. Introduction

The Generalized System of Preferences (GSP) was introduced by the U.S. in 1976 to provide for duty-free access from developing countries to the U.S. market. Some nineteen countries now have similar programs.<sup>1</sup> The intent of the program is to foster economic development. Aid under the program takes an indirect form, via terms of trade improvement rather than direct transfers. The assistance is directed at developing countries. However, in the course of time as development takes place, countries change their status, from *developing* to *developed*.<sup>2</sup> At that stage, the successful country would no longer merit the aid provided by the GSP, and would *graduate* from the program. To facilitate *graduation* a rule specifying change in status is required. This paper is concerned with the determination of such rules. Whereas

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1. In 1987 the U.S. program provided for duty-free access of approximately 3,000 products from 140 developing countries. The value of imports to the U.S. under the program was \$13.6 billion in 1986.

2. On classifications of countries in terms of development status and a discussion of graduation, see O'Neill (1984).

the conduct of international trade policy is often influenced by political considerations, we seek to identify nondiscretionary objective rules for graduation which treat equals equally.<sup>3,4</sup> We begin with a description of current graduation rules. We then proceed to show that prevailing rules do not satisfy an *equal treatment* requirement, and propose two rules that are equitable in equalizing the cost of successful development.

## II. Current Graduation Rules

Currently graduation from the GSP is evoked by one of two procedures. Domestic import-competing industries can lobby to have competitive imports from designated countries removed from the list of products eligible for duty-free access under the GSP. Developing countries consequently find themselves graduated in certain goods following petitions by domestic import-competing producers in the course of the annual GSP review. For example, the graduation announcement of April 1, 1987 included the removal from GSP status of glass globes and shades from Mexico, following pleas by domestic U.S. import-competing producers. Lobbying by domestic firms also contributed to the removal from the duty-free list of ethanol mixtures used in gasoline blending imported from Brazil. GSP status is accordingly subject to change via the domestic political mechanism whereby import-competing interests seek to influence trade policy. In all, eight countries (Taiwan, Korea, Singapore, Hong Kong, Brazil, Turkey, Mexico and Yugoslavia) were *graduated* with respect to specific products in response to petitions filed by U.S. domestic producers and trade associations under the 1987 review, effective as of January 2, 1989.

The second procedure for graduation is based on predetermined rules, albeit with discretionary components. These rules relate to (1) competitive need, as expressed in a country's *competitiveness* in a product in the U.S. market, (2) a country's overall level of development, and (3) the economic interests of the U.S.

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3. On the conduct of U.S. trade policy, see Baldwin (1985).

4. Ray (1987) describes how domestic import-competing industries have influenced trade-policy decisions with regard to preferential status. Of course, the foreign interest here is in not having a graduation rule at all. For a perspective on foreign interests in the conduct of trade policy, see Hillman and Ursprung (1988). See also Hillman (1989a) on the motives underlying trade policy in developed countries. The iteration the political economy of trade policy is surveyed in Hillman(1989b).

The last criterion provides expression for the broad international economic policy interests of the U.S. For example, Indonesia was subject to review for continuation of GSP status in 1987 because of that country's refusal to agree to honor international copyright conventions.

The *competitiveness need* criterion is product and country specific. A country loses GSP access for a good, if its annual exports to the U.S. of that good exceed half of U.S. imports. However, if a country has been found *sufficiently competitive*, graduation occurs at 25 percent of U.S. imports. Graduation may also occur if specified dollar bounds around \$82.5 million in 1988...on the value of a country's exports of a good are exceeded, with the dollar value again varying according to whether the country has been found to be *sufficiently competitive* in a product. These *competitive need* rules are subject to a *de minimis* provision of the 1979 Trade Agreement Act as amended in the 1984 Act, section 504, which allows the President to waive the percentage *competitive need* limit when total U.S. imports of a good do not exceed a predetermined value.

Countries have been routinely graduated for certain products under the *competitive-need* criterion. In 1988 for the first time countries themselves have been graduated. Taiwan, South Korea, Singapore, and Hong Kong were graduated by executive discretion.

Discussion of a nondiscretionary rule for country-specific graduation has centered around the level of per capita income at which graduation would take place. The U.S. House of Representatives proposed graduation at a per capita income of \$5,000, the Senate at \$7,000, and the ICDA at a still higher income.<sup>5</sup> The AFL-CIO on the other hand supported an income level which would have immediately graduated those countries which have accounted for around one-half of GSP imports—Taiwan, South Korea and Hong Kong—and which as noted have been recently graduated. The rule adopted graduates countries which achieve per capita incomes of \$8,500, indexed to half of the increase in nominal U.S. GNP since 1984. There is thus a similarity with the graduation rules used by the World Bank for borrowing concessions. There too the eligibility rule is specified in terms of per capita income, at a level of \$2,650. Developing countries understandably enough

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5. In the discussion surrounding H.R. 5136, there was also some sentiment for graduation geared to GSP imports per capita. See, *Renewal of the Generalized System of Preferences*, AEI Legislative Analyses, 1984.

tend to oppose graduation, because of the deterioration in their terms of trade. But also, graduation penalizes rather than rewards success.

Given that graduation is to occur, we are interested in the form which one might wish a nondiscretionary graduation rule to take. It is evident that the *competitive need* rules for products are arbitrary. We focus her on a graduation rule for countries rather than specific products.

### III. The Principle of Equity

Suppose that one were to seek a graduation rule with the characteristic that graduation countries are treated equally. Equity can be interpreted as equal net benefit for the aid implicit in the GSP, or equal burdens imposed as the consequences of loss of GSP status.

We thus confront a choice in specifying the manner in which a graduation rule is to be *equitable*—equal cost of graduation, or equal benefit from access to the GSP. In deciding which criterion of equity to adopt, we look to incentive effects. Equality imposed by equal benefits provides the same gain to developing countries independently of performance over time. The incentive to take advantage of the GSP to improve performance is thus lacking. Rather than propose *equal benefit* from the GSP, we adopt *equal opportunity*, in using to advantage the market access provided by the GSP. Subject to such equal opportunity, and equitable graduation rule equalizes the cost across countries of success in achieving a level of development at which the aid implicit in the GSP is to be foregone.

### IV. The Per-Capita Income Graduation Rule

Now consider the equity implications of the per capita income graduation rule. Per capita income  $y$  can be expressed as :

$$(1) \quad y = y_0 + \Delta y_d + \Delta y_g$$

Where  $y_0$  is income at the onset of preferential access to the U.S. market,  $\Delta y_d$  is the increase in income achieved in the subsequent course of development, and  $\Delta y_g$  ( $<0$ ) is the cost incurred at the time of graduation by loss of GSP status. Given  $y_0$ , the per capita income rule specifies a value of  $\Delta y_d$  at which graduation from

GSP occurs. Let  $y_g$  be the level of per capita income which triggers graduation. Then country  $i$  graduates when

$$(2) y^i = y_g = y_0^i + \Delta y_d^i.$$

This does *not* imply necessarily that for two countries  $i$  and  $j$

$$(3) \Delta y_g^i = \Delta y_g^j.$$

That is, penalties incurred in terms of the fall in instantaneous real income at the time of graduation are not equalized by the equal per capita income graduation rule.

However, the current country-specific graduation rule is formulated in terms of achievement of a specified level of instantaneous per capita income. Given an objective of *equitable graduation*, can one do better than the per capita income rule, subject to the same ground rules that the criterion for graduation entail a trigger which is defined and observable in terms of flow values at the time of graduation? Subject to these ground rules, one would seek a graduation rule which equalized the cost of graduation from the GSP in terms of the cost incurred in terms of income loss when the graduation trigger came into effect.

## V. The Bias in the Per Capita Income Graduation Rule

We now proceed to formulate a simple model of the development process to highlight the bias in burdens of graduation implicit in a per capita income graduation rule. Since we are concerned with long-run development paths, we assume intersectorally mobile factors of production: the setting is that of the familiar two-sector model of a small competitive economy. Instantaneous full employment conditions for the inelastically supplied factors of production are

$$(4) \begin{aligned} a_{l1}(\omega)x_1 + a_{l2}(\omega)x_2 &= L \\ a_{k1}(\omega)x_1 + a_{k2}(\omega)x_2 &= K \end{aligned}$$

where  $x_i$  ( $i=1,2$ ) are outputs competitively produced via constant-returns-to-scale technologies and the  $a_{ij}$ 's are the competitively-determined input-output coefficients given the domestic wage-rental ratio,  $\omega$ . In the absence of foreign investment and international transfers, the economy's national income is equal to the value of output evaluated at world prices. Let  $p \equiv p_2/p_1$  denote the relative price of imports under the GSP. National income under the GSP is then

$$(5) y = x_1 + px_2$$

We now require a characterization of the economy's dynamic development. Let population be constant (at the cost of some additional complexity, population increase can be readily introduced) and let the source of growth be factor-augmenting technical change. Development is therefore attributed here to a healthier population, better education, or other sources of non-industry-specific disembodied technical progress. Factor efficiencies are independent of sectoral employment and characterize the economy-wide course of development. The change in  $y$  over time thus corresponds to the change in per capita income. From (5), differentiating logarithmically and using " $\wedge$ " to denote growth rates,

$$(6) \hat{y} = s_1 \hat{x}_1 + s_2 \hat{x}_2$$

where  $\hat{x}_i = dx_i/x_i$  ( $i=1,2$ ) and  $s_i$  indicates the share of sector  $i$  in national income. From (3),

$$(7) \hat{y} = \alpha \hat{K} + \beta \hat{L}$$

where

$$\alpha = (s_2 \lambda_{12}) / |\lambda|$$

$$\beta = (s_1 \lambda_{K2} - s_2 \lambda_{K1}) / |\lambda|$$

$$\lambda_{Lj} = L_j / L, \quad \lambda_{Kj} = K_j / K, \quad j = 1, 2$$

and  $|\lambda|$  is the matrix of sectoral allocations. Denoting by  $K_j$  the relative factor intensity in production of good  $j$ , it follows that

$$|\lambda| \geq 0 \text{ as } K_1 \leq K_2$$

Whatever the relative factor intensities, the factoral weights  $\alpha$  and  $\beta$  remain constant so long as the terms of trade do not change. At given terms of trade, linear combinations of  $K$  and  $L$  therefore yield a constant growth of per capita income  $y$ .

Now consider the changes which occur in the pattern of international trade in the course of development. Imports change over time according to

$$(8) \hat{M} = (c_2 \eta \hat{y} - x_2 \hat{x}_2) / M$$

where  $c_2$  and  $\eta$  are respectively domestic consumption and the domestic income elasticity of demand for good 2 which is imported. Substituting for  $\hat{y}$  from (6) and

using (7) and (8) yields the expression for changes in the degree of openness of the economy

$$(9) \hat{M} = \left[ \frac{c_2}{M} \eta \alpha - \frac{x_2}{M|\lambda|} \lambda_{L1} \right] \hat{K} + \left[ \frac{c_2}{M} \eta \beta - \frac{x_2}{M|\lambda|} \lambda_{K1} \right] \hat{L}$$

Suppose that exports are relatively labor intensive. Thus  $K_2 > K_1$ , and  $|\lambda| > 0$ . The coefficient on  $\hat{L}$  in (9) is then necessarily positive. Increases in  $L$  are export biased and increase imports since trade is balanced. The coefficient on  $\hat{K}$  is, however, positive or negative as  $c_2 \eta (s_2 \lambda_{L1} - s_1 \lambda_{L2})$  is respectively larger or smaller than  $x_2 \lambda_{L1}$ . Increases in  $K$  are import-biased in increasing domestic output of the import-competing good at the expense of the export good, but only if the increased consumption of importable goods reflected in  $c_2 \eta \alpha / M$  exceeds the increased production reflected in  $x_2 \lambda_{L1} / M |\lambda|$  does the volume of trade expand when  $K$  increases.

Now the cost of graduation depends on openness, which changes over time in accordance with (9). In particular, the loss upon graduation for country  $i$  is proportional to openness via the standard welfare expression

$$(10) \Delta y_g^i = -(c_2^i - x_2^i) dp = -M^i dp$$

where  $dp (> 0)$  is the deterioration in the terms of trade due to loss of GSP status.

Equivalently, denoting by  $T$  the U.S. tariff and choosing unitary prices in the neighborhood of  $T=0$ , the cost of graduation is

$$(10') \Delta y_g^i = -E^i dT$$

where  $E^i$  are exports to the U.S.

Now consider (1), which can be expressed as

$$(1') y^i = y_o^i + \Delta y_d^i(K_i^o, L_i^o, \hat{K}_i, \hat{L}_i) + \Delta y_g^i(E^i, dT)$$

where  $(K_i^o, L_i^o)$  are initial resource endowments. Openness is determined by initial resource endowments and factor augmentation, such that

$$(11) E^i = E^i(\hat{K}_i, \hat{L}_i, K_i^o, L_i^o)$$

In (1'), the penalty incurred on graduation  $\Delta y_g^i$  increases with the measure of openness  $SE^i$ .

An interdependence problem thus compromises the use of the per capita income graduation criterion on equity grounds. Two economies beginning from the same initial level of income will graduate under the per capita income rule when  $\Delta y_d$  is

equal for each. However, while  $\Delta y_d$  depends upon initial resource endowments and  $(\hat{K}_i, \hat{L}_i)$ , the cost of graduation  $\Delta y_g$  depends upon the level of openness which also depends upon  $(\hat{K}_i, \hat{L}_i)$ . Many different values for  $(\hat{K}_i, \hat{L}_i)$ , are consistent with a given increase in income  $\Delta y_d$ . However, each country's development path expressed in its specific  $(\hat{K}_i, \hat{L}_i)$  characteristics specifies a unique level of openness via (11) and hence a particular cost of graduation. So while diversity in the development paths<sup>6</sup> is consistent with achievement of a specified level of per capita income at which graduation has been designed to take place, each country's unique development path will yield its own cost of graduation, with countries which have followed more open development paths incurring higher costs of graduation.

## VI. Equitable Graduation Rules

Since the per capita income graduation rule does not treat equals (countries with the same per capita income) equally in terms of the burden imposed by graduation, we are led to seek alternative rules. Two possibilities suggest themselves. Countries could all graduate at a specified level of per capita income, but allowance could be made for openness by differential degree of loss of preferential access. Alternatively, graduation could entail complete loss of preferences, but countries could graduate at different levels of per capita income.

### A. Discrimination via Preferential Status

Let  $C$  be the predesignated common cost of graduation to be imposed on all GSP beneficiaries. Then, normalizing for initial income, if graduation is triggered by the same change in income  $\Delta y_d$  for all countries, equalizing the cost of graduation implies

$$(12) \Delta y_g^i = -E_i dT_i = C \text{ for each country } i.$$

Thus

$$(13) dT_i = -C/E_i.$$

That is, the extent to which a country loses its preferences on graduation  $dT_i$  varies inversely with openness (or exports to the U.S.)  $E_i$ . The more open the economy,

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6. Evidence on the diversity exhibited by countries' development experiences is provided by Chenery and Syrquin (1975) and in Syrquin (1988).

the smaller the decline in the U.S. tariff consistent with equalizing the cost  $C$  over graduating countries.

Under this rule, then, countries graduate at the same per capita income but  $dT_i$  differs across countries. Hence discrimination in trade preferences is sustained. The rule is evidently inconsistent with eventual elimination of the GSP for all beneficiary countries.

#### B. Discrimination via Per Capita Income Trigger Levels

Suppose that we insist that graduation entail eventual elimination of all tariff preferences. Then for all graduating economies

$$(14) \quad dT_i = \text{constant} = dT.$$

Given the designated cost of graduation  $C$ , for each country  $i$ ,

$$(15) \quad \Delta y_g^i = -E_i dT_i = C$$

Country  $i$  graduates at

$$(16) \quad y_g^i = y_o^i = \Delta y_d^i$$

If graduation is triggered by the same increase in income  $\Delta y_d^i$  from a given income base  $y_o^i$ , then clearly all graduating countries can incur the common cost of graduation  $C$  only if on graduation they have the same level of openness as measured by  $E_i$ . Accommodating differences in openness while maintaining (15) requires that for any two countries 1 and 2,

$$(17) \quad \Delta y_g^1 - \Delta y_g^2 = \Delta y_d^2 - \Delta y_d^1$$

and hence,

$$(17') \quad \Delta y_g^1 = \Delta y_g^2 + (E_1 - E_2) dT.$$

Thus, let economy 2 be more open, so this economy would incur a higher cost of graduation if graduation were to occur at the same per capita income level for all countries. (17') indicates the extent to which per capita income at graduation in country 2 should exceed that in the less open economy 1, if graduation costs are to be equalized and trade preferences to be entirely abolished for each country upon graduation.

Thus consider two countries following the same development path from initial common income  $y_o$  at the onset of preferences. Country 2 is however more open. At

time  $t_1$ , country 1 graduates after an addition to income  $\Delta y_d^1$  and the prescribed loss  $C$  is incurred. Graduation by the more open economy 2 at the same trigger level of income  $y_g^1$  would impose an additional burden of graduation  $C_1$  on that country. A reduction in the cost of graduation incurred by the more open economy 2 to equal the loss incurred by the less open economy 1 is achieved by setting a higher trigger level of income  $y_g^2$  for the more open economy. This latter economy thus graduates later, at time  $t_2$ .

The graduation procedure here entails specifying the loss  $C$  which is to be incurred via loss of GSP status, and, with  $dT$  given, waiting for one country to attain a level of per capita income which, given its level of openness on graduation, results in the loss  $C$ . This provides values  $\Delta y_d^1$  and  $E_1$  for substitution into (17'). The level of openness  $E_1$  for substitution into (17'). The level of openness  $E_2$  of country 2 then determines  $\Delta y_d^2$ , and hence the greater trigger level of income  $y_g^2$  for country 2.

## VI. Concluding Remarks

The developing countries which are beneficiaries of the GSP have reason to seek an objectively specified graduation rule to minimize the discretion of the U.S. government regarding who graduates and when<sup>7</sup>. They would suggestively wish such an objectively specified rule to have the characteristic that equals are treated equally. i.e., horizontal equity. This can mean equal benefit from access to the GSP or equal burden from loss of access. We have taken the view that because of incentive effects equal opportunity is preferred to equal benefit. Given equal opportunity, equitable graduation entails equalizing the cost of success in attaining a development status beyond which GSP treatment is no longer warranted. Rules for graduation by country which are specified in terms of the attainment of a given per capita level of income do not treat equals equally in this regard. We have however proposed two graduation rules which do equalize the cost of success.

Our horizontally equitable rules take account of the effect of the degree of openness of an economy on the cost of graduation. Of course, as a consequence, our

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7. See especially paragraph 7 of the 1979 Tokyo Round enabling clause entitled "Differential and More Favorable Treatment, Reciprocity and Fuller Participation of Developing Countries". Incidentally, this also represents the legal basis for the GSP.

rules discriminate, albeit among those who have in the first place benefitted from discrimination. The rules reveal that if graduation is to occur at a prespecified level of income, a more open economy loses less of its preferential access to the U.S. market ; or, if GSP access is completely eliminated, a more open economy graduates at a higher level of per capita income than a less open economy.

We foresee here some objections, in particular if an economy's openness and closeness are policy induced. The more open economy will in general have had a more successful development experience than the economy wherein policy makers have emphasized import-substitution policies.<sup>8</sup> Thus, our rules which discriminate by compensating for openness may at the same time tend to discriminate against those whose very policies have made them losers in the development stakes. Yet this is what is called for to achieve horizontal equity in terms of equalizing the cost of successful development.

Domestic political pressure by U.S. import-competing industries can conversely be expected to be directed at having the more open economies graduate sooner (at lower per capita income levels), or at having such economies forego more of their preferential market access. For economies which have followed the more open development strategy are precisely those which will tend to have achieved the greater import penetration of U.S. domestic markets.

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8. On aspects of the links between trade policy and the development path, see for example Kravis (1970) or Krueger (1980). Of course, there need not be continued commitment to a development strategy.

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