Generalized System of Preference Graduation and Hong Kong's Export Performance*

Raymond H. F. Kwok
City Polytechnic of Hong Kong
Kui Wai Li
City Polytechnic of Hong Kong

This study presents estimates of the impact of GSP graduation and the effects of product exclusion on Hong Kong exports. Two methods are used: the mean changes calculation and the OLS regression method. Empirical results show only weak evidence of an adverse impact from GSP graduation, though there are various limitations on the data and the methods employed.

I. Introduction

In 1988, the United States Government granted duty-free, preferential treatment to approximately $18 billion of imports from about 140 beneficiaries of its scheme under the Generalized System of Preferences (GSP). As shown in Table 1, almost $2 billion of the preferential imports came from Hong Kong, but effective January 2, 1989, Hong Kong and three other major beneficiaries, which had been beneficiaries of the US scheme since its implementation in 1976, graduated from the US scheme. Even in years preceding 1989, however, GSP treatment for about a thousand (one-third of) covered items was withdrawn from major supplying beneficiaries. These so-called competitive need exclusions resulted in denial of prefer-

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TABLE 1
HONG KONG EXPORTS AND UNITED STATES IMPORTS, 1986-90
(Unit: millions of U.S. dollars)

Year	1986	1987	1988	1989	1990
Hong Kong domestic exports:					
Total to world	19,741	25,033	27,096	28,731	n.a.
Total to U.S.	8,865	9,833	10,153	9,669	9,400
MFN dutiable in U.S.	8,518	8,833			
Products covered by US GSP	3,557	4,015	4,207	3,853	3,323
Received preferences	1,424	1,703	1,859	n.a.	n.a.
U.S. imports:					
Total from world	367,467	400,388	436,117	463,379	
Covered products from world	119,573	134,231	153,372	172,775	
Total from all beneficiaries	107,602	126,305	139,215	86,085	
MFN dutiable from all beneficiaries	89,887	100,235			
Products covered from all beneficiaries	34,598	42,766	49,955	24,352	
Received preferences from all beneficiaries	13,844	16,300	18,354	10,015	

Source: Hong Kong Government's estimates of Gross Domestic Product, and United States Trade Representative's trade tapes.

ences for roughly $2 billion of 1988 imports from Hong Kong which were otherwise nominally eligible for GSP treatment. This study presents estimates of the impact of graduation and the effects of product exclusions on Hong Kong's exports.

The GSP had potential importance for Hong Kong, because this small territory, devoid of natural resources, always had relied on export as an engine of growth. The near closing of the People's Republic of China four decades ago drastically reduced Hong Kong's role as an entrepot, and induced Hong Kong to turn to labor-intensive manufacturing for export. In 1989, Hong Kong's domestic exports to the world amounted to almost $29 billion, or half of its

TABLE 2
ESTIMATED TRADE EFFECTS OF THE UNITED STATES GSP
:PERCENT INCREASE IN PREFERENTIAL IMPORTS

Model type	Authors	Base years	Trade creation	Trade diversion	Total effect
Ex ante, partial equilibrium	Baldwin, Murray	1971	23	6	29
	Clague	1965	42	4	46
	Ginman et al.	1976	20	44	64
	Iqbal	1971	27	8	35
	Karsenty, Laird	1983	17	4	21
	MacPhee (1987a)	1976	16	1	17
	Pelzman	1979–82	n.a.	n.a.	11–12
Ex ante, general equilibrium	Brown	1976	Before Tokyo Round		6
	Brown	1976	After Tokyo Round		2
Ex post, constant market share	Murray	1974–7	n.a.	n.a.	17
	Pelzman	1979	n.a.	n.a.	9–26
	Pelzman	1982	n.a.	n.a.	10–28
	Pelzman	1979	n.a.	n.a.	–15
	Pelzman	1982	n.a.	n.a.	–67
	Sapir, Lundberg	1975–9	n.a.	n.a.	12
Ex post, statistical cross-section models	MacPhee (1987b)	1976–83	9	1	10
	Pelzman	1976–81	n.a.	n.a.	0–84
	Sapir, Lundberg	1975–79	11	4	15

Source: See references by author.

Note: Results have been adjusted to a common base of preferential imports. In cases where many different estimates were estimated, an attempt has been made to summarize the results with a range or with representative estimates.

Gross Domestic Product. This high dependence on exports persists despite Hong Kong's ongoing second transformation into a physical and human capital-intensive center of finance, commerce, and services.

Hong Kong's total exports to the US in 1988 were $10 billion, but the potential importance of the GSP has been diminished by the limited product coverage and competitive need exclusions under the US GSP scheme. Hong Kong's exports have been concentrated in textiles and apparel (almost 40 percent), a category of products largely left out of the US GSP scheme. Even where such products were covered, their ability to expand exports on a preferential basis was constrained by the Multifiber Arrangement. Competitive need exclusions also denied preferential treatment to many electrical products, a category that accounts for over one-quarter of total Hong Kong exports. Because GSP treatment was actually received by less than one-fifth of Hong Kong's total exports to the US, the effects of GSP graduation are expected to be significant only for selected products.

Despite the narrow applicability of the GSP, there have been widely varying estimates of the effects of the US scheme, as shown in Table 2. Some ex post estimates even found that GSP implementation reduces imports from beneficiary developing countries, implying that GSP graduation might actually increase Hong Kong exports. The present study briefly reviews prior research methods and the results for Hong Kong. Next, the impact of product exclusions is estimated with a new model that attempts to account for some coincidental disturbances. Finally, the effects of graduation on 1989 are estimated by testing changes in Hong Kong exports for significant differences. No previous study has estimated the impact of graduation statistically and only one other study estimated the impact of product exclusions.

II. Previous Research on the United States GSP

Earlier estimates of the effects of implementing the GSP took several approaches. Ex ante estimates predicted trade creation and diversion as the product of price elasticities and preferential tariff margins. These estimates have been very sensitive to the choice of elasticities, to the timeliness of data on preferential tariff margins, to the samples of products used in the calculations, and to the

levels of product aggregation. All conclude that the GSP initially had positive effects on the exports of beneficiaries.

Ex post studies followed two broad approaches. Cross-section statistical analysis over countries and/or products sought to explain bilateral trade flows. Their explanatory power is usually very low, however, and the results were often sensitive to the choice of years, to the specification of the model, and to statistical problems such as heteroscedasticity. They often employed a dummy variable for the GSP that also could reflect coincidental disturbances, such as recessions and exchange rate changes. Constant-market-share approaches, on the other hand, involve many heroic assumptions (for example Richardson 1971a, 1971b) and often aggregated over products subject to changes in nontariff measures and preferential tariff margins.

Only one study has addressed the impact of US product exclusions for specific beneficiaries such as Hong Kong. MacPhee and Rosenbaum (1989) made use of the fact that under the US scheme, most exclusions are only for one year and are often temporary. They compared mean annual changes in shares of total US imports for GSP products in years of exclusions and for the same products in years of unchanged conditions of market access. After deleting all products with negligible trade or with changed tariffs or nontariff measures, their 1976–83 sample for Hong Kong included 57 exclusions and 359 observations in the control group. Unweighted mean market shares fell 7.9 percentage points for exclusions and fell 0.1 percentage points for the control group. The t-statistic of the difference in these means (−2.87) was significant at the 90 percent confidence level.

MacPhee and Rosenbaum (1989) also compared products subject to exclusions with other products unaffected by changes in market access for separate years when sufficient observations were available (1977, 1978, 1980 and 1981). In all years, the mean market share changes for excluded products were less than the comparable means for the control group, and the difference was significant in two of the four years studied.

III. Product Exclusions over 1981-88

This study uses two methods to update the results of earlier research. One compares mean changes in market shares for 8 pro-

TABLE 3
UNWEIGHTED MEAN CHANGES IN HK GSP DUTIABLE EXPORTS TO US, 1981-88

Products	Unweighted mean changes			t-statistics	
	$\Sigma MX1$	$\Sigma MX2$	$\Sigma MX3$	$\Sigma MX1-\Sigma MX2$	$\Sigma MX3-\Sigma MX2$
Electrical equipment	—	0.38	1.61	—	1.03
Jewelry & gold	—	−0.06	−0.13	—	−0.06
Musical instrument	−0.004	−0.73	−0.20	0.89	1.10
Optical goods	—	−0.55	−0.54	—	0.02
Plastic goods	—	−1.30	0.01	—	1.54†
Toys	0.021	−2.60	−0.81	2.16*	1.06

Notes: 1. *: significant at 5%, †: significant at 10%.
2. The results for each individual years are similar.

ducts which received duty-free treatment throughtout the period ($MX1$), mean changes for 43 GSP-covered products excluded from duty-free treatment throughout the period ($MX2$), and mean changes for 55 products excluded only in some years ($MX3$). The products are defined at the six digit SITC level and fall into the categories of major Hong Kong exports covered by the GSP: electrical equipment, jewelry and gold, musical instruments, optical goods, plastic goods, and toys. The hypothesized differences in the means are:

1) $MX3-MX2 > 0$, because products receiving some preferences are expected to perform better than products always excluded, and
2) $MX1-MX2 > 0$, because products receiving continuous preferential treatment are expected to perform better than products excluded in all years.

The results in Table 3, however, are somewhat inconclusive. Almost all $MX3-MX2$ are positive, but only one difference is significantly different from zero. Because all $MX1$ were observed in the musical instrument and toy categories, only two tests were possible. Both $MX1-MX2$ were positive, but only one difference was significant.

The main disadvantage of the above approach is that it relies on the law of large numbers to compensate for disturbances coincidental to changes in GSP treatment. If the implicit assumption of normality in the distribution of non-GSP disturbances is invalid, however, this compromises the results. In order to account for ma-

jor disturbances reflected in US consumption (*USC*), US prices (*USP*), and Hong Kong prices (*HKP*), this study estimates a simple, US expenditure function for GSP-covered exports from Hong Kong (*E*) across pooled data for the six major product categories (electrical equipment, musical instruments, optical goods, plastic goods, office equipment, and telecommunication) over eight years.[1] Dummy variables were used to indicate GSP effects: *D*1 for products which received duty-free treatment throughout the period, *D*2 (the regression constant) for GSP-covered products excluded from duty-free treatment throughout the period and *D*3 for products excluded only in some years.[2]

US consumption corresponding roughly to the six Hong Kong export categories was approximated by wholesale sales for machinery and equipment, apparel and notions, miscellaneous durable, and sport and recreational goods from the US Department of Commerce. The respective US prices were machinery and equipment, miscellaneous manufactures, and toys and leisure manufactures from the US Bureau of Labor Statistics. The respective Hong Kong prices were the unit value indexes of domestic exports from the Hong Kong Census and Statistics Department.

The general form of the expenditure function and expected signs of coefficients are

$$E = f(USC,\ USP,\ HKP,\ D1, D3)$$
$$+ \quad + \quad - \quad + \ +$$

The only expected sign worthy of comment is that for *HKP*. The negative sign for *HKP* is based on the assumption that the US demand for Hong Kong exports is elastic.

This equation was estimated in log linear form with and without the dummy variables and the results appear in Table 4. With one exception, all coefficients are significant at the 95 percent confidence level and have expected signs. The significant positive sign for *D*3 shows that occasional preferential treatment is associated with higher Hong Kong exports. The coefficient of *D*1, however, is

[1]The six product categories used in the regression are slightly different from those used in Unweighted Mean Shares calculation. This purely is due to data complications of some product categories.

[2]The dummy variable applies to Xi ($i = 1, 3$) if in any year export of that particular product falls within the Xi category. For example, in 1981, aggregate export of Electrical Equipment fell on $X2$ and $X3$ categories, then the entries of dummy variale would be 0, 1, 1 respectively for *D*1, *D*2 (constant) and *D*3.

TABLE 4
ORDINARY LEAST SQUARES REGRESSION RESULTS FOR HONG KONG EXPORTS OF SIX PRODUCT CATEGORIES TO THE UNITED STATES, 1981-88

Independent variables	Estimated coefficients (t-statistics)	
Constant	−21.14	
	(−3.01)	
USC	1.19	1.23
	(4.90)	(5.36)
USP	4.04	4.91
	(2.34)	(3.21)
HKP	−1.28	−1.79
	(−1.76)	(−2.37)
*D*1		−0.55
		(−1.68)
*D*2		−23.33
(Constant)		(−3.78)
*D*3		0.47
		(2.37)
$\bar{R}^2$	0.51	0.62
D.W.	1.80	1.67
Heteroscedasticity	8.74	2.70

Source: See text.

not significantly different from zero. Reverse causation may be an explanation for the *D*1 result in that products are not excluded from the GSP treatment unless they have achieved a large relative or absolute share of the US import market in the previous year.

IV. GSP Graduation in 1989

The above results concerning the ineffectiveness of the GSP for products subject to exclusions from preferential treatment suggest that the impact of graduation would be evident only among those products receiving continuous preferential treatment under the GSP.

Table 1 shows that Hong Kong exports to the world grew between 1988 and 1989, while those to the US fell. Exports of products covered by the GSP fell proportionally more than total exports to the US. In fact, almost three-quarters of the fall in total exports between 1988 and 1989 consisted of reduced exports of covered

products. In comparison, in 1988 covered exports only accounted for 41 percent of total exports to the US.

There are problems associated with attribution of aggregate changes to GSP graduation. The changes could be due to unrelated shifts in product mix, particularly since only 44 percent of covered exports actually received GSP treatment in 1988. Moreover, data have been obtained for only one post-graduation year. The influence of these problems is apparent in Table 5 where major covered products consistently excluded from GSP treatment (Group 1) are compared with major products continuously receiving preferential treatment through 1988 (Group 2). The only data obtained thus far for the groups are for Hong Kong exports, so the percentage changes in the exports are compared.

If graduation had a negative impact, then the percentage change in Group 2 exports should be more than the percentage change in Group 1 exports. Table 5 illustrates both the percentage change and the *t*-statistics for the period 1985-89. When GSP graduation was effective in 1989, the percentage change calculations show the reverse is the case. However, the *t*-statistics of the differences in the mean percentage changes are significant. This is also true for comparisons using other base years, such as 1985.

The drawback associated with comparisons of percentage changes is that such comparisons ignore conditions of export markets and changing industrial structure in Hong Kong. There is the possibility, for instance, that US consumption was growing more slowly for Group 1 than for Group 2. In the absence of 1989 data on Hong Kong shares of US import markets, however, this study can only address this problem by observing the US share of Hong Kong exports. In Table 6, it can be seen that the percentage of Hong Kong's total shipments in Group 1 headed to the US has been in decline since 1985. Thus, the poor performance of Group 1 is probably due to factors other than annual product exclusions from the GSP.

V. Major Factors Affecting Hong Kong's International Competitive Status

In the last section, we show that GSP graduation is not the main factor affecting Hong Kong's competitive export status, instead labor shortage, high labor cost, high land prices and political uncer-

TABLE 5
PERCENTAGE CHANGE OF HONG KONG EXPORTS TO THE US, 1988-89

Group 1	1985	1986	1987	1988	1989
Electrical household appliances	−12.23	−24.06	6.10	−35.95	−41.6
Electrical articles, telecommunication equipment & parts	14.57	−6.67	−1.15	−6.40	−33.4
Parts of watches bracelets, jewelry & other personal adornment, nes	27.40	−15.81	−8.10	−14.67	4.9
Dolls & stuffed toys	−29.52	−32.71	−57.92	−48.31	−18.3
Telephone sets & equipment	23.69	−41.17	−82.86	−57.36	−46.4
Frames, mountings & parts of eyeglasses	−41.58	58.30	−0.76	19.71	−9.8
Average	−2.95	−10.35	−24.11	−23.83	−24.1
Group 2					
Artists' paints, etc.	88.49	−51.91	1654.88	−80.51	26.3
Glass rods, tubes, nes	−39.63	305.18	−62.41	−83.82	0.7
Cabinet locks, base metal, not cylinder	144.38	−91.25	367.78	−58.05	−57.7
Files & rasps	6.86	124.55	−34.38	59.57	3.3
Needle books & cases	91.86	63.05	−30.71	−17.20	−37.7
Crown corks & bottle caps of base metal	−84.81	−1.96	−76.61	773.77	8.9
Anaesthetic apparatus, instruments & parts	−80.76	−17.13	453.77	72.60	−9.9
Parts for ship's log	460.39	−92.55	238.31	−68.54	9.3
Bagatelle, billiard & pool balls,	−58.12	118.31	−55.06	123.87	−17.5
Brush bristles of rubber or plastic, nes	32.69	−63.45	332.40	−22.91	80.9
Average	56.14	29.28	278.80	69.88	0.66

Year	1985-88	1985-89	1985	1986	1987	1988	1989
t-statistics[1]	−1.9*	−1.99*	−0.87	−0.75	−1.38†	−0.88	−1.49†

Source: See Table 6.

Note: 1. *: significant at 5%, †: significant at 10%.

2. The results are similar if the unequal variances between the groups are considered.

TABLE 6
MARKET SHARES OF HONG KONG EXPORTS TO THE US

Product	1985	1986	1987	1988	1989
Household type, electrical & non-electrical equipment, nes	62.7	62.9	52.1	40.2	34.2
Telecommunications equipment & parts	32.5	36.6	32.2	28.3	23.0
Electrical machinery & apparatus, nes	29.2	35.2	47.0	39.7	34.9
Watches & clocks	41.1	34.3	33.7	33.9	30.0
Jewelry, gold- & silversmiths' wares	51.5	45.7	40.4	35.7	35.7
Toys, games & sporting goods	56.7	53.7	47.7	43.2	36.3
Optical goods, nes	59.4	59.8	54.6	53.6	50.8

Source: Li and Kwok (1991).

Note: The figure are derived from the formula: $(A_i/B_i)\cdot 100$, where i = GSP items, A = total Hong Kong export to US, B = total Hong Kong exports to the world. Export figures were grouped under SITC group (3-digit) classification.

TABLE 7
TOP EIGHT FACTORS AFFECTING HONG KONG EXPORT'S PERFORMANCE

1. Labor shortage	(77)
2. High wages	(64)
3. High land price	(49)
4. Static technology	(9)
5. High labor turn over rate	(5)
6. Political uncertainty	(5)
7. Strict government policy	(4)
8. Insufficient quota	(3)

Source: Federation of Hong Kong Industries (1990).
Note: 1. Number in the bracket is the counts.

tainty are the main factors. Rising economic ties with China has accelerated the transformation of the Hong Kong economy from one which is manufacturing-oriented into a services-oriented economy. Labor demand by the service sector has pushed up the wage rate further. With high wage rate and labor shortage, Hong Kong export suffered. Hong Kong manufacturers are forced to move their industrial base out of Hong Kong to maintain their competitive status in the international market. A recent report by the Federation of Hong Kong Industries (1990) shows that Hong Kong manufacturers have increased their investments to the Southeast Asian Countries, mainly to China, so as to make use of their cheap labor force and maintain their export competitiveness. Table 7 reproduces the top eight factors in the Federation report which imposed serious threats to Hong Kong's export competitiveness: Trade tariff or GSP graduation does not appear in these factors. One can conclude that GSP graduation is not the prime factor affecting our exports or for firms in Hong Kong decide to make offshore investment.

VI. Conclusion

This study has attempted to assess the impact of GSP graduation and earlier product exclusions from the GSP on the basis of recent data. The analysis had to overcome a number of problems, not the least of which was the change in classification of US import data with the adoption of the new Harmonized Tariff System. Several estimates have been made using SITC data which closely matched the GSP-covered items.

Because there is no one perfect method to make ex post estimates of the effects of policies such as the GSP, this study employed several different approaches. Mean market share changes for products subject to competitive need exclusions were compared with corresponding means for products receiving continuous preferential treatment prior to graduation. The differences in these means reflected the adverse impact of product exclusions, but few differences were statistically significant.

Regression analysis of Hong Kong exports to the US improved the results slightly by accounting for changes in US consumption, and US and Hong Kong prices. Dummy variables for GSP treatment suggested that occasional preferential treatment had a positive impact on Hong Kong exports to the US, while continuous exclusions had a negative impact. The positive impact of continuous preferential treatment, however, was not significant.

An examination of aggregate data reveals that most of the drop in Hong Kong exports to the US in 1989 consisted of GSP-covered products. Statistical comparisons between the rates of change in Hong Kong exports to the US before and after graduation show that products receiving continuous GSP treatment before did not suffer in 1989 relative to products which had been excluded from preferences. Closer examination of the latter products revealed that the share of these Hong Kong products purchased by the US had been in decline long before GSP graduation. Therefore, they make a poor control group for estimating the effects of graduation.

Given the limitations of the data and methods employed here, this study has found only weak evidence of an adverse impact from GSP graduation. Even if a strong negative effect had been found, however, it would have applied to only the small fraction of Hong Kong exports which actually received preferential treatment. Overall, GSP graduation will have minor effects on Hong Kong's export performance in comparison to factors such as relative production costs and exchange rates.

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