

**EFFECTS OF TRADE POLICIES ON THE
STRUCTURE AND GROWTH OF MANUFACTURING
INDUSTRIES IN PENINSULAR MALAYSIA:
1960-1980**

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The paper attempts to assess the effectiveness of Peninsular Malaysia's commercial and industrial promotion policies on the structure and growth of the different industrial sectors. A general equilibrium model is used, which takes into account the interactions between the importables, exportables and home goods market. The "net protective rate" shows the net result of all the policies implemented and the effects of exogenous factors.

Results show that exports of manufactures have been encouraged by changes in income. The incentive components due to domestic policies and exogenous factors have fluctuated between positive and negative values. The net protective effect of domestic policies has tended to be higher for the years since 1974. The actual net protective rates of manufactures have been negative for the years 1968, 1971, 1973, 1975, 1978, and 1979. Except for 1973, the negative effects have been mainly due to exogenous factors.

In the case of imports of manufactures, the protective effect due to changes in income has been positive for all years from 1967 to 1980. The actual net protective effect has been mainly negative for the years since 1976. This has been mostly due to exogenous factors. In the case of SITC 6 and 8, domestic policies have also contributed to this negative effect.

1. Introduction

Malaysia's postwar economic development has passed through three distinct phases: export promotion of primary products in the 1950s, import-substitution in the 1960s and promotion of exports of manufactured goods in the 1970s. A number of different incentives have been offered by the government, but not all the incentives are complementary in their effects on the encouragement of growth of the different industrial sectors.

The objective of this study is to assess the effectiveness of Peninsular Malaysia's commercial and industrial promotion policies by investigating the change in the structure and growth of the different industrial sectors resulting from the implementation of those

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policies. Commercial policies include tariffs, subsidies, quotas and prohibitions on imports/exports and exchange rate policies. Industrial promotion policies include various incentives such as export allowances, duty drawback on imports of raw materials used in export industries, free trade zones and so on. Such an incentive program can change the composition of overall investment by attracting investment from the uncovered sectors to the covered industrial sectors. However, there is no completely satisfactory method of estimating the size of this substitution or resource-allocation effect because there is no persistent technical or behavioral relationship that can be presumed to generate the observed data. Often, partial equilibrium indices such as the effective rate of protection (ERP), the domestic resource cost (DRC) and implicit rate of protection are used to measure the degree of protection offered to industries by the incentives. However, besides the usual criticisms of partial-equilibrium analysis, Evans (1972) has shown that the factors left out of the usual partial-equilibrium analysis are too important to be ignored, and so this study will use a general equilibrium model.

The model used here has its antecedents in the model used by Johnson (1971) and the computable general equilibrium (CGE) models recently used, for example, by de Melo and Robinson (1980), Adelman and Robinson (1978) and Dervis, de Melo and Robinson (1981). The model used in this study takes into account the interactions between the importables, exportables and home goods markets and general equilibrium is attained through changes in the structure of relative prices. The prices of importables and exportables are expressed in terms of home goods, and the relative prices of both traded goods in terms of home goods are assumed to be flexible so as to allow the home goods market to clear. This model is a general equilibrium model in the following sense:

- a) the economy's production point is constrained to lie on the production possibility curve, the location and shape of which are determined by the economy's factor endowment and by technology;
- b) the behaviour of consumers satisfies the three general demand-theoretic restrictions of homogeneity, symmetry of the substitution effects and additivity; and
- c) the role of the budget constraints is to link imports, exports, domestic expenditure and income so that if imports, for example, exceed exports, domestic income must exceed domestic expenditure to maintain the equality of total income and total expenditure.

Analysis based on this general equilibrium model will show whether equilibrium prices of the various industries in the manufacturing sector have changed relative to the prices of nontradables.¹ This analysis of equilibrium prices will be carried out for exportable as well as importable manufactures. If the equilibrium relative prices of exports of manufactures increase over time, this indicates that exports of manufactures have been encouraged by the incentive-package. But if relative prices decrease over time, then it would indicate that the incentive-package has failed to encourage exports of manufactures. In the case of imports of manufactures, an increase in their equilibrium relative prices over time indicates that increased protection is being granted to the manufacturing sector, while a decrease over time indicates reduced protection.

2. The Basic Model

The model has three main building blocks. The first is the consumption side where domestic consumer demands for the n commodities yield a system of demand equations. The second block is the production side which yields the supply functions. However, the input demand equations are not explicitly derived. The final building block is the link between the demand and supply parts of the model; this is provided by the budget constraint which defines the equilibrium condition.

Dornbusch (1974) has shown that the formal model may be reduced to the equilibrium condition in the home goods market and that equilibrium in the home goods market implies trade balance equilibrium.

Equilibrium in the home goods market is attained when excess demand for home goods is zero or when demand for home goods is equal to the supply of home goods. The demand for home goods, H^d , depends on the relative price of exportables, the relative price of importables and income, Y .

$$(1) \quad H^d = H^d(\bar{P}_x, \bar{P}_m, Y)$$

where $\bar{P}_x = P_x/P_h$, $\bar{P}_m = P_m/P_h$ and P_x is the domestic price of exportables, P_m is the domestic price of importables and P_h is the price of home goods. The supply of home goods, H^s , depends on the

¹ Services/home goods sector is also known as the nontradables sector and these two terms will be used interchangeably in this study.

relative price of exportables, the relative price of importables and income, where income is the proxy for productive factors (such as capital and labor) and technology.

$$(2) \quad H^s = H^s(\bar{P}_x, \bar{P}_m, Y)$$

General equilibrium is attained when demand equals supply, i.e., $H^d = H^s$ or when excess demand for home goods is zero. This is because equilibrium in the home goods market implies trade balance equilibrium as well. If there is a displacement from equilibrium (caused, for example, by the imposition of tariffs on imports thus changing relative prices), the home goods market will be in equilibrium again when $\hat{H}^d = \hat{H}^s$ where the hat ($\hat{\quad}$) denotes a percentage change in the variable. To obtain expressions for \hat{H}^d and \hat{H}^s , one takes total differentials of equations (1) and (2) to obtain:

$$(3) \quad H^d = n_{HP_x} \hat{P}_x + n_{HP_m} \hat{P}_m + n_{HY} \hat{Y}$$

and

$$(4) \quad \hat{H}^s = \epsilon_{HP_x} \hat{P}_x + \epsilon_{HP_m} \hat{P}_m + \epsilon_{HY} \hat{Y}$$

where :

- n_{HP_x} : elasticity of demand for home goods with respect to the relative price of exportables
- n_{HP_m} : elasticity of demand for home goods with respect to the relative price of importables
- n_{HY} : income elasticity of demand for home goods
- ϵ_{HP_x} : elasticity of supply of home goods with respect to the relative price of exportables
- ϵ_{HP_m} : elasticity of supply of home goods with respect to the relative price of importables
- ϵ_{HY} : income elasticity of supply of home goods.

Equations (2) and (3) state that \hat{H}^d and \hat{H}^s are the weighed sums of percentage changes in the relative price of exportables, the relative price of importables and income. These two equations may be restated as:

$$(5) \quad \hat{H}^d = \epsilon_{HP_x} (\hat{P}_x - \hat{P}_h) + \epsilon_{HP_m} (\hat{P}_m - \hat{P}_h) + \epsilon_{HY} (\hat{Y})$$

$$(6) \quad \hat{H}^s = \epsilon_{HP_x} (\hat{P}_x - \hat{P}_h) + \epsilon_{HP_m} (\hat{P}_m - \hat{P}_h) + \epsilon_{HY} (\hat{Y})$$

In equilibrium $\hat{H}^d = \hat{H}^s$ and so:

$$(7) \quad \gamma_x (\hat{P}_x - \hat{P}_h) + \gamma_m (\hat{P}_m - \hat{P}_h) + \gamma_y (\hat{Y}) = 0$$

where $\gamma_x = n_{HP_x} - \epsilon_{HP_x}$, $\gamma_m = n_{HP_m} - \epsilon_{HP_m}$ and $\gamma_y = n_{HY} - \epsilon_{HY}$,

γ_x and γ_m are the elasticities of the excess demand function for home goods with respect to the relative price of exportables and importables, respectively. γ_y is the elasticity of the excess demand function for home goods with respect to income. Equation (7) states that general equilibrium is reestablished through changes in the prices of importables and exportables relative to the prices of home goods and also through changes in income if income is not held constant.

For exportables, $P_x = RP_x^*$, where R is the nominal exchange rate of the currency and P_x^* is the world price index of exportables. For importables, $P_m = RP_m^* (1 + t)$ where P_m^* is the world price index of importables and t is the tariff on imports. Letting $T = (1 + t)$, $P = P_m/P_x$, $P^* = P_m^*/P_x^*$, we get:

$$(8) \quad \bar{P}_m / \bar{P}_x = P = P^* T$$

If P^* is exogenous, equation (8) yields:

$$(9) \quad \hat{T} = (\hat{P}_m - \hat{P}_x) - (\hat{P}_m^* - \hat{P}_x^*)$$

Solving for P_m in (9) and substituting the result into (7) one obtains:

$$(10a) \quad (\hat{P}_x - \hat{P}_h) = -W_m [\hat{T} + (\hat{P}_m^* - \hat{P}_x^*)] - W_y (\hat{Y})$$

where $W_i = \frac{\gamma_i}{\gamma_x + \gamma_m}$, $i=x, m, y$. Alternatively, by solving for P_x in

(9) and using (7) one may obtain:

$$(10b) \quad (\hat{P}_m - \hat{P}_h) = W_x [\hat{T} + (P_m^* - P_x^*)] - W_y (\hat{Y}).$$

Finally by noting from (9) again that $\hat{T} + (\hat{P}_m^* - \hat{P}_x^*) = \hat{P}_m - \hat{P}_x$, one may obtain:

$$(11) \quad (\hat{P}_x - \hat{P}_h) = -W_m (\hat{P}_m - \hat{P}_x) - W_y (\hat{Y}).$$

$$(12) \quad (\hat{P}_m - \hat{P}_h) = W_x (\hat{P}_m - \hat{P}_x) - W_y (\hat{Y})$$

From equations (11) and (12) we get:

$$(13) \quad (d \ln (P_x / P_h)) = -W_m d \ln (P_m / P_x) - W_y d \ln (Y)$$

and

$$(14) \quad d \ln (P_m / P_h) = W_x d \ln (P_m / P_x) - W_y d \ln (Y)$$

where $d \ln$ is the derivative of the natural logarithm of the particular variable. Assuming W_m , W_x and W_y to be constants, equations (13) and (14) form the basis for the following estimating equations:

$$(15) \quad \ln (P_x / P_h) = a - W_m \ln (P_m / P_x) - W_y \ln (Y) + U_t$$

$$(16) \quad \ln (P_m / P_h) = b + W_x \ln (P_m / P_x) - W_y \ln (Y) + U_t$$

Equations (15) and (16) are the estimating equations for obtaining estimates of the values of W_m , W_x and W_y in order to calculate the values of $(\hat{P}_x - \hat{P}_h)$ and $(\hat{P}_m - \hat{P}_h)$. U_t is the error term with mean zero and constant variance. W_m is the elasticity parameter which shows the percentage change in the relative price of exportables as a result of a unit percentage change in the price of importables relative to that of exportables. W_x is the elasticity parameter which shows how much the relative price of importables will change as a result of a unit percentage change in the price of importables relative to that of exportables. W_y is the elasticity parameter which shows how much the relative prices of exportables and of importables will change as a result of a unit percentage change in income. If data for P_m^* and P_x^* were available, equations (10a) and (10b) could be used to decompose the net protective rates into three components, namely, that due to \hat{T} (which embodies and reflects the effects of domestic industrial and trade policies), that due to changes in world prices and that due to changes in income. However, such data are hard to obtain for Malaysia. Therefore, a decomposition will not be carried out. Furthermore, equations (15) and (16) will not be estimated directly using OLS because of the problem of simultaneous-equations bias. Instead, equation (15) is transformed to

$$(17) \quad \ln (P_x) = a_0 + a_1 \ln (P_m) + a_2 \ln (P_h) + a_3 \ln (Y) + U_t$$

and the parameters are estimated using OLS. Then the values of a_0 , W_m and W_y are calculated according to

$$a_0 = \frac{a}{1-W_m}, \quad a_1 = \frac{W_m}{1-W_m}, \quad a_2 = \frac{1}{1-W_m} \quad \text{and} \quad a_3 = \frac{-W_y}{1-W_m}$$

Similarly, equation (16) is transformed to

$$(18) \ln(P_m) = b_0 + b_1 \ln(P_x) + b_2 \ln(P_h) + b_3 \ln(Y) + U_t$$

Manufactured exportables

The model can be extended to allow for different categories of exportables or importables. When distinction is made between j export categories, for example, equation (7) can be expressed as:

$$(19) \sum_j \gamma_j (\hat{P}_j - \hat{P}_h) + \gamma_m (\hat{P}_m - \hat{P}_h) + \gamma_y \hat{Y} = 0$$

The Malaysian export categories of interest to this study are primary product exports, X_p , and exports of manufactures, X_{mfg} . From equation (19):

$$(20) \gamma_{mfg} \hat{P}_{mfg} + \gamma_p \hat{P}_p + \gamma_m \hat{P}_m = (\gamma_{mfg} + \gamma_p + \gamma_m) \hat{P}_h - \gamma_y \hat{Y}$$

where $\sum_j \gamma_j = \gamma_{mfg} + \gamma_p$ and P_{mfg} and \hat{P}_p are the percentage changes in export price index of manufactures and of primary sector

goods, respectively. Let $\gamma = (\gamma_{mfg} + \gamma_p + \gamma_m)$; $W_{mfg} = \frac{\gamma_{mfg}}{\gamma}$; $W_p = \frac{\gamma_p}{\gamma}$; $W_m = \frac{\gamma_m}{\gamma}$; and $W_y = \frac{\gamma_y}{\gamma}$. Hence $W_{mfg} + W_p + W_m = 1$.

From equation (20):

$$(21) \hat{P}_h = W_{mfg} \hat{P}_{mfg} + W_p \hat{P}_p + W_m \hat{P}_m + W_y \hat{Y}$$

Equation (21) states that \hat{P}_h is a weighted sum of the percentage changes in the export price index of manufactures, export price index of primary sector goods, price index of importables and income. Using exports of manufactures as *numeraire*, (21) can also be expressed as:

$$(22) (\hat{P}_{mfg} - \hat{P}_h) = W_p (\hat{P}_{mfg} - \hat{P}_p) + W_m (\hat{P}_{mfg} - \hat{P}_h) - W_y \hat{Y}$$

noting that $W_{mfg} + W_p + W_m = 1$. Equation (22) forms the basis for the following estimating equation:

$$(23) \ln(P_{mfg}/P_h) = C + W_p \ln(P_{mfg}/P_p) + W_m \ln(P_{mfg}/P_m) - W_y \ln(Y) + U_t$$

To overcome the problem of simultaneous equations bias, equation (23) is transformed into:

$$(24) \ln (P_{mfg}) = d_0 + d_1 \ln (P_h) + d_2 \ln (P_p) + d_3 \ln (P_m) + d_4 \ln (Y) + V_t$$

and estimated using the method of OLS. The values of W_p , W_m and W_y are then obtained and used to calculate the values of $(\hat{P}_{mfg} - \hat{P}_h)$ according to equation (22).

Manufactured importables

To know whether manufactures are protected by the various policies implemented, the value of $(\hat{P}_{mfg}^m - \hat{P}_h)$ is calculated, where \hat{P}_{mfg}^m is the percentage change in the import price index of manufactures. One needs to know the estimates of the various incidence parameters in order to calculate $(\hat{P}_{mfg}^m - \hat{P}_h)$ and the estimating equation is:

$$(25) \ln (P_{mfg}^m / P_h) = \alpha + \alpha_x \ln (P_{mfg}^m / P_x) + \alpha_p \ln (P_{mfg}^m / P_p) - \alpha_y \ln (Y) + U_t$$

where P_p^m is the import price index of primary sector goods. Equation (25) is transformed to:

$$(26) \ln (P_{mfg}^m) = e_0 + e_1 \ln (P_h) + e_2 \ln (P_x) + e_3 \ln (P_p) + e_4 \ln (Y) + V_t$$

From the estimates obtained from equation (26) one derives estimates of α_x , α_p and α_y for calculating

$$(27) (\hat{P}_{mfg}^m - \hat{P}_h) = \alpha_x (\hat{P}_{mfg}^m - \hat{P}_x) + \alpha_p (\hat{P}_{mfg}^m - \hat{P}_p) - \alpha_y (\hat{Y})$$

The value of $(\hat{P}_{mfg}^m - \hat{P}_h)$ is the "net protective rate"² for imports of manufactures. This "net protective rate" shows the net result of all the different policies implemented, as well as the effects of exogenous factors, not just that of tariffs and exchange rates. In practice a number of different policies are in force at the same time and their effects are not necessarily complementary. Furthermore, since

²An illustration of why the change in the equilibrium relative price of importables has been called the "net protective rate" is given by R. Dornbusch (1974, p. 180).

Malaysia is under a flexible exchange rate system, the amount of currency appreciation/depreciation depends on the state of the different markets in trade and it would be difficult (if not impossible) to quantify the effects of each of the policies separately and the amount of currency appreciation or depreciation in order to calculate the "net protective rate." But if the incidence parameters α_x , α_p and α_y are known, then equation (27) can be used to calculate this rate.

3. Empirical Analysis

Based on the model discussed above, the various incidence parameters were estimated using equations (24) and (26) for exports and imports, of manufactures, respectively. The estimation method was Ordinary Least Squares (OLS) and annual data for export and import price indices for manufactures for Peninsular Malaysia for the years 1966 to 1980 were used because such data were not available before 1966. For this study, data limitations have been fairly severe so that degree of aggregation of data has been high; the breakdown of manufactures has been confined to SITC numbers 6, 7 and 8 because SITC numbers 0 to 5 contain manufactures as well as non-manufactures. Data for exports, imports and export and import price indices were obtained from various issues of the Economic Report published by the Ministry of Finance, Malaysia, and 1970 was the base year for these price indices. A two-year moving average of GDP was used as the measure of income. Estimates of the export and import parameters together with their computed t-values, R^2 , \bar{R}^2 , F and Durbin-Watson (D.W) statistics are presented in Tables 1 and 2. For all the equations the D.W. statistic was high enough to indicate that there was no autocorrelation problem. The R^2 and the \bar{R}^2 values were all high and the F-values exceeded the critical F-values both at the 1 per cent and the 5 per cent levels of significance. The signs were also as expected. Thus in general the model may be considered to be correctly specified.

Manufactured exports

Using estimates of the various elasticities, the values of the net protective rates for exports of manufactures, (i.e. SITC 6, 7 and 8) calculated for the years 1967 to 1980 and the results are presented in Table 3. The values of the net protective rates for imports of manufactures are presented in Table 4. The estimated values of $(\hat{P}_{mfg} - \hat{P}_h)$, $(\hat{P}_{mfg6} - \hat{P}_h)$, $(\hat{P}_{mfg7} - \hat{P}_h)$ and $(\hat{P}_{mfg8} - \hat{P}_h)$ were decomposed into two components: (a) that due to income changes (obtained by multiplying the income elasticity with the change in income) and (b) that due to domestic policies, namely commercial and industrial policies. The actual values of $(\hat{P}_{mfg} - \hat{P}_h)$, $(\hat{P}_{mfg6} - \hat{P}_h)$,

Table 1 — Estimates of Export Parameters Using OLS

Dependent Variable	Regression Coefficients of:							R ²	R ²	F	D.W.
	Constant Term	ln (P _m ^m)	ln (P _h ^m)	ln (Y)	ln (P _p ^m)	(P _m ^m /g _g ^m)	ln (P _m ^m /g _g ^m)				
1) ln (P _m ^m /g _g ^m)	-3.00518	0.11291 (0.37662) ^d	0.41184 (1.26536) ^d	0.34827 (1.41355) ^d	0.41010 (1.79949) ^c		ln (P _m ^m /g _g ^m)	0.98033	0.97247	124.62	1.99684
2) ln (P _m ^m /g _g ^m)	-3.5735	-0.08916 (-0.21072)	0.24639 (0.51503)	0.2404 (0.47728)	0.49557 ^d (1.68358) ^d		0.29528 (0.3026)	0.97998	0.96497	65.28	2.12073
3) ln (P _m ^m /g _g ^m)	0.5815	0.16013 (1.12579) ^d	0.25536 (1.69784) ^d	0.40635 (3.52692) ^b	-0.13601 (-1.19426) ^d	0.03836 (0.30209)	-0.269 (-2.38616) ^c	0.98917	0.98105	121.83	3.23359
4) ln (P _m ^m /g _g ^m)	1.66464	0.55881 (1.80567) ^d	0.52765 (1.39868) ^d	0.55921 (1.41418) ^d	-0.27049 (-0.96349) ^d	0.2435 (0.82852) ^d	-1.54909 (-2.38724) ^c	0.96462	0.93809	36.35	3.35592

Note: Figures in brackets are computed t-values:

- a) Significant at the 0.0005 level.
- b) Significant at the 0.005 level.
- c) Significant at the 0.05 level.
- d) Significant at the 0.25 level.

Table 2 — Estimates of Import Parameters Using OLS

Dependent Variable	Regression Coefficients of:							R ²	R ²	F	D.W.
	Constant Term	ln (P _x ^m)	ln (P _h ^m)	ln (Y)	ln (P _p ^m)	ln (P _m ^m /g _g ^m)	ln (P _m ^m /g _g ^m)				
1) ln (P _m ^m /g _g ^m)	0.43768	-0.02417 (-0.17466)	-0.58361 (-4.00845) ^b	0.62367 (8.04155) ^a	0.24982 (2.6348) ^c		ln (P _m ^m /g _g ^m)	0.99288	0.99003	348.46	1.92416
2) ln (P _m ^m /g _g ^m)	0.89442	0.1642 (0.96681) ^d	-0.59752 (-2.64094) ^c	0.29589 (1.26822) ^d	0.36148 (3.0111) ^c		0.2594 (0.56756) ^d	0.99322	0.98814	195.42	2.09404
3) ln (P _m ^m /g _g ^m)	-0.3398	-0.20495 (-1.07954) ^d	-0.23419 (-0.68757)	0.50852 (2.20732) ^c	0.01608 (0.08101)	0.33173 (0.86643) ^d	0.14606 (0.75964) ^d	0.98959	0.98179	126.77	2.3649
4) ln (P _m ^m /g _g ^m)	0.37427	0.13214 (0.36599)	0.0261 (0.0419)	0.11286 (0.25095)	-0.04606 (-0.13068)	0.07905 (0.11118)	0.46217 (0.76055) ^d	0.95724	0.92518	29.85	2.21223

Note: Figures in brackets are computed t-values:

- a) Significant at the 0.0005 level.
- b) Significant at the 0.005 level.
- c) Significant at the 0.05 level.
- d) Significant at the 0.25 level.

Table 3 — Net Protective Rate for Exports of Manufactures for Peninsular Malaysia (in per cent)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Actual $(\hat{P}_{mfg} - \hat{P}_h)$	0	- 5.00	+ 4.00	+ 13.00	- 5.00	0	- 4.00	+ 51.00	- 10.00	+ 4.00	+ 25.00	- 6.00	- 1.00	+ 4.00
Estimated $(\hat{P}_{mfg} - \hat{P}_h)$	+ 3.42	- 0.15	- 0.32	+ 7.31	+ 3.62	+ 5.96	- 7.68	+ 20.13	+ 4.28	+ 12.60	+ 9.73	+ 7.79	+ 3.36	+ 3.92
a) Due to exog. factors	- 3.42	+ 4.85	+ 4.32	+ 5.69	- 8.62	- 5.96	+ 3.68	+ 30.87	- 14.28	- 8.60	+ 15.37	- 13.79	- 4.36	+ 0.08
b) Due to domestic policies	+ 1.71	- 1.54	- 2.90	+ 4.66	+ 1.74	+ 3.24	- 14.96	+ 10.97	+ 1.18	+ 8.66	+ 2.87	+ 2.95	- 1.90	- 0.61
c) Due to income	+ 1.71	+ 1.39	+ 2.58	+ 2.65	+ 1.88	+ 2.72	+ 7.28	+ 9.16	+ 3.10	+ 3.94	+ 6.86	+ 4.84	+ 5.26	+ 4.53
Actual $(\hat{P}_{mfg6} - \hat{P}_h)$	- 2.10	- 4.40	+ 4.00	+ 14.40	- 6.00	- 1.00	- 3.70	+ 57.30	- 12.00	- 31.60	+ 27.90	- 5.70	- 0.90	+ 3.80
Estimated $(\hat{P}_{mfg6} - \hat{P}_h)$	- 10.17	+ 4.82	- 2.71	+ 12.33	- 0.92	+ 3.42	- 11.38	+ 43.37	- 2.26	+ 16.68	+ 21.02	+ 8.53	+ 0.92	+ 7.38
a) Due to exog. factors	+ 8.07	- 9.22	+ 6.71	+ 2.07	- 5.08	- 4.42	+ 7.68	+ 13.93	- 9.74	- 48.28	+ 6.88	- 14.23	- 1.82	- 3.58
b) Due to domestic policies	- 11.35	+ 3.86	- 4.49	+ 10.50	- 2.22	+ 1.54	- 16.40	+ 37.05	- 4.40	+ 13.96	+ 16.28	+ 5.19	- 2.71	+ 4.25
c) Due to income	+ 1.18	+ 0.96	+ 1.78	+ 1.83	+ 1.30	+ 1.88	+ 5.02	+ 6.32	+ 2.14	+ 2.72	+ 4.74	+ 3.34	+ 3.63	+ 3.13
Actual $(\hat{P}_{mfg7} - \hat{P}_h)$	- 0.40	+ 11.20	+ 2.20	+ 5.10	+ 5.00	+ 0.90	- 5.50	+ 8.60	+ 0.60	+ 1.80	- 7.00	- 11.20	+ 1.30	- 6.40
Estimated $(\hat{P}_{mfg7} - \hat{P}_h)$	+ 10.86	- 9.10	+ 5.77	+ 1.99	- 0.23	+ 2.75	+ 12.42	+ 11.28	+ 1.30	+ 1.52	+ 13.63	+ 5.67	+ 6.26	+ 5.77
a) Due to exog. factors	- 11.26	+ 20.30	- 3.57	+ 3.11	+ 5.23	- 1.85	- 17.92	- 2.68	- 0.70	+ 0.28	- 20.63	- 16.87	- 4.96	- 12.17
b) Due to domestic policies	+ 8.87	- 10.73	+ 2.76	- 1.10	- 2.42	- 0.42	+ 3.93	+ 0.59	- 2.32	- 3.07	+ 5.62	+ 0.02	+ 0.12	+ 0.49
c) Due to income	+ 1.99	+ 1.63	+ 3.01	+ 3.09	+ 2.19	+ 3.17	+ 8.49	+ 10.69	+ 3.62	+ 4.59	+ 8.01	+ 5.65	+ 6.14	+ 5.28
Actual $(\hat{P}_{mfg8} - \hat{P}_h)$	+ 37.00	- 27.00	+ 4.40	+ 5.10	+ 3.00	+ 5.70	- 2.10	+ 27.70	+ 1.50	- 8.70	+ 4.30	- 12.30	- 5.30	+ 3.50
Estimated $(\hat{P}_{mfg8} - \hat{P}_h)$	- 37.44	+ 43.84	+ 7.39	+ 0.16	+ 3.13	- 4.62	+ 12.27	- 29.32	+ 0.02	+ 19.74	- 1.45	+ 9.25	+ 20.03	- 13.52
a) Due to exog. factors	+ 74.44	- 70.84	- 2.99	+ 5.26	- 0.13	- 10.32	- 14.37	+ 57.02	+ 1.48	- 28.44	+ 5.75	- 21.55	- 25.33	+ 17.02
b) Due to domestic policies	+ 40.18	+ 41.60	+ 3.25	- 4.41	+ 0.11	- 8.98	+ 0.58	- 44.03	+ 4.96	+ 13.42	- 12.47	+ 1.48	+ 11.59	- 20.79
c) Due to income	+ 2.74	+ 2.24	+ 4.14	+ 4.25	+ 3.02	+ 4.36	+ 11.69	+ 14.71	+ 4.98	+ 6.32	+ 11.02	+ 7.77	+ 8.44	+ 7.27

Table 4 — Net Protective Rate for Importables for Peninsular Malaysia (in per cent)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Actual ($\hat{P}^m - \hat{P}_H$)	+ 3	+ 5	- 3	+ 8	+ 5	+ 4	+ 5.00	+ 41.20	+ 5	-11.00	- 4.00	-14.00	- 6.00	+ 13.00
Estimated ($\hat{P}^m - \hat{P}_H$)	- 2.39	+ 1.96	+ 11.20	+ 3.33	- 4.08	+ 0.45	+ 19.28	+ 13.20	- 3.85	+ 16.18	+ 20.02	+ 10.83	+ 14.09	+ 3.25
a) Due to exog. factors	+ 5.39	+ 6.96	+ 8.20	+ 4.27	+ 9.08	+ 3.55	- 14.28	+ 27.80	+ 8.85	- 27.18	- 24.02	- 24.83	- 20.09	+ 9.75
b) Due to domestic policies	- 5.50	- 4.50	+ 6.50	- 1.50	- 7.51	- 4.50	+ 6.01	- 3.50	- 9.50	+ 9.00	+ 7.51	+ 2.00	+ 4.50	- 5.01
c) Due to income	+ 3.11	+ 2.54	+ 4.70	+ 4.83	+ 3.43	+ 4.95	+ 13.27	+ 16.70	+ 5.65	+ 7.18	+ 12.51	+ 8.83	+ 9.59	+ 8.26
Actual ($\hat{P}^m - \hat{P}_H$)	+ 5.00	+ 3.00	+ 0.30	+ 13.3	+ 6.00	+ 4.60	+ 2.20	+ 22.30	+ 7.20	- 8.90	- 5.30	- 13.30	- 9.80	- 2.30
Estimated ($\hat{P}^m - \hat{P}_H$)	+ 4.09	+ 1.83	+ 6.11	+ 6.55	+ 3.62	+ 5.37	+ 11.65	+ 7.20	+ 5.79	+ 8.68	+ 12.17	+ 8.99	+ 7.48	+ 1.48
a) Du to exog. factors	+ 0.91	+ 1.17	- 5.81	+ 6.75	+ 2.38	- 0.77	- 9.45	+ 15.10	+ 1.41	- 17.58	- 17.47	- 22.29	- 17.28	- 3.78
b) Due to domestic policies	+ 1.03	- 0.66	+ 1.49	+ 1.81	+ 0.25	+ 0.51	- 1.38	- 9.20	+ 0.24	+ 1.63	- 0.12	+ 0.32	- 1.94	- 6.63
c) Due to income	+ 3.06	+ 2.49	+ 4.62	+ 4.74	+ 3.37	+ 4.86	+ 13.03	+ 16.40	+ 5.55	+ 7.05	+ 12.29	+ 8.67	+ 9.42	+ 8.11
Actual ($\hat{P}^m - \hat{P}_H$)	+ 3.90	+ 2.40	- 4.00	+ 16.70	+ 5.00	+ 2.70	+ 6.10	+ 38.2	- 2.70	- 9.60	- 6.5	- 13.80	- 5.80	- 1.60
Estimated ($\hat{P}^m - \hat{P}_H$)	+ 3.73	+ 2.66	- 2.04	+ 10.23	+ 3.60	+ 3.00	+ 5.08	+ 7.60	- 3.16	+ 1.77	+ 1.09	+ 3.38	+ 3.10	- 6.68
a) Due to exog. factors	+ 0.17	- 0.26	- 1.96	+ 6.47	+ 1.40	- 0.30	+ 1.02	+ 30.60	+ 0.46	- 11.37	- 7.59	- 17.18	- 8.70	+ 5.08
b) Due to domestic policies	+ 2.28	+ 1.48	+ 4.23	+ 7.98	+ 2.00	+ 0.69	- 1.10	- 0.18	- 6.79	- 1.57	- 4.74	- 0.73	- 1.37	- 10.53
c) Due to income	+ 1.45	+ 1.18	+ 2.19	+ 2.25	+ 1.60	+ 2.31	+ 6.18	+ 7.78	+ 2.63	+ 3.34	+ 5.83	+ 4.11	+ 4.47	+ 3.85
Actual ($\hat{P}^m - \hat{P}_H$)	+ 6.1	+ 1.0	+ 5.0	+ 11.1	+ 7.0	+ 7.3	0	+ 12.0	+ 15.9	- 11.30	- 2.20	- 13.8	- 13.00	- 1.70
Estimated ($\hat{P}^m - \hat{P}_H$)	+ 1.76	- 2.41	+ 9.50	+ 0.70	+ 0.66	+ 3.9	+ 12.75	+ 7.33	+ 6.58	+ 5.30	+ 15.83	+ 7.23	+ 8.08	+ 7.57
a) Due to exog. factors	+ 4.34	+ 3.41	- 4.50	+ 10.4	+ 6.34	+ 3.4	- 12.75	+ 4.67	+ 9.32	- 16.60	- 18.03	- 21.03	- 21.08	- 9.27
b) Due to domestic policies	- 0.71	- 4.42	+ 5.77	- 3.13	- 2.06	- 0.03	+ 2.23	- 5.91	+ 2.10	- 0.39	+ 5.91	+ 0.23	+ 0.48	+ 1.02
c) Due to income	+ 2.47	+ 2.01	+ 3.73	+ 3.83	+ 2.72	+ 3.93	+ 10.52	+ 13.24	+ 4.48	+ 5.69	+ 9.92	+ 7.00	+ 7.60	+ 6.56
Actual ($\hat{P}^m - \hat{P}_H$)	+ 1.60	+ 17	- 6	+ 11	+ 2	- 0.04	- 6.2	+ 19.00	+ 3.50	+ 14.50	- 15.00	- 9.80	- 10.70	- 4.70
Estimated ($\hat{P}^m - \hat{P}_H$)	- 0.68	+ 11.16	- 6.36	+ 1.02	- 0.13	- 1.72	- 3.38	+ 5.02	- 1.47	+ 15.17	- 7.07	+ 3.77	+ 1.08	+ 0.37
a) Due to exog. factors	+ 2.28	+ 5.84	+ 0.36	+ 9.98	+ 2.13	+ 1.68	- 2.82	+ 13.98	+ 4.97	- 0.67	- 7.93	- 13.57	- 11.78	- 5.07
b) Due to domestic policies	- 1.31	+ 10.65	- 7.31	+ 0.04	- 0.82	- 2.72	- 6.07	+ 1.64	- 2.61	+ 13.72	- 9.60	+ 1.98	- 0.86	- 1.30
c) Due to income	+ 0.63	+ 0.51	+ 0.95	+ 0.98	+ 0.69	+ 1.00	+ 2.69	+ 3.38	+ 1.14	+ 1.45	+ 2.53	+ 1.79	+ 1.94	+ 1.67

$(\hat{P}_{mfg7} - \hat{P}_h)$ and $(\hat{P}_{mfg8} - \hat{P}_h)$ minus their respective estimated values is the component attributed to exogenous factors such as changes in world prices. Table 3 shows that exports of manufactures have been encouraged by changes in income. These increases in income reflect both the incentive provided by domestic demand expansion as well as improvement in technology and skill gained through experience. The incentive components due to domestic policies and exogenous factors have fluctuated between positive and negative values. For exports of manufactures in general, domestic policies have provided positive net protection in the years 1967, 1970-72 and 1974-78 while exogenous factors have provided positive net protection in the years 1969-70, 1973-74, 1977 and 1980. On the whole, the net protective effect of domestic policies has tended to be higher for the years since 1974. The actual net protective rates for exports of manufactures have been negative for the years 1968, 1971, 1973, 1975, 1978 and 1979 and except for 1973, the negative effects have been mainly due to exogenous factors.

Except for imports of SITC 8 the income elasticity figures are higher for importables than for exportables. This is to be expected since domestic income is domestic purchasing power and is therefore a more important and relevant factor for domestic demand rather than foreign demand. The lower income elasticity figure for imports of SITC 8 compared to exports of SITC 8 probably reflects the advance in the industrialization process which makes it less necessary to import manufactured articles (SITC 8), even though demand for manufactured articles increases with increase in income.

Manufactured Importables

In the case of imports of manufactures, the protective effect due to changes in income has been positive for all the years from 1967 to 1980 and this indicates the positive incentive effect of increased domestic demand (because of increased domestic purchasing power) on imports. The actual net protective effect has been mainly negative for the years since 1976, and this negative effect has been due mostly to exogenous factors. In the case of SITC 6 and 8, domestic policies have also contributed to this negative effect. This is not surprising. With the advances in industrialization, less protection is required for SITC 6 and 8 whereas protection is still needed for machinery and transport equipment, since these are intermediate and investment goods which Malaysia is not yet quite adept at producing.

The decomposition of the net protective rates into a component resulting from domestic policies and a second component re-

sulting from changes in income is based on the assumption that $\hat{P}_m^* - \hat{P}_x^*$ was stable over time. In order to reduce the effects of randomness, the averages were calculated for two time periods: 1967-73 (for the import-substitution phase) and 1973-80 (for the export promotion phase) and the results are presented in Table 5 for exportables and Table 6 for importables. These two tables support the statements made in the analyses based on Tables 3 and 4. Table 5 shows clearly that: (a) the incentive effect of income has generally either doubled or trebled in the second period; and (b) except for SITC 8, the incentive effect of domestic policies has been higher in the second period, reflecting the change in policy towards export promotion.

Table 6 shows clearly that: (a) the actual average net protective rate has been lower in the second period; (b) the incentive effect of income has generally doubled in the second period; and (c) the incentive effect of income has been greater than that of domestic policies except for SITC 6 and 8 for the period 1967-73⁺. This is because the period 1967-73⁺ was the import-substitution phase and domestic policies were important in encouraging production of light consumer goods, namely those classified under SITC 6 and 8.

The resource-allocation effect of the various policies may be seen in Table 7 which shows the structure of manufacturing value-added by industry group for selected years from 1958 to 1979; a considerable degree of diversification has obviously occurred within the manufacturing sector. The table shows that the "heavy" manufacturing industries have become increasingly important over the years. In 1958 they were only 26 per cent of total manufacturing value added but by 1979 they had increased to 40 per cent of total manufacturing value-added. This suggests Malaysia has progressed from the early phase of import-substitution concentrating on the production of light consumer goods to the more advanced stage of producing relatively more intermediate and investment goods. Positive net protective rates for exports of manufactures especially since 1974 indicate that exports of manufactures had been encouraged by the incentive package. However, the net protective rates for imports of manufactures have been mainly negative since the mid-seventies. The positive net protective rates for manufactured exports, together with negative net protective rates for manufactured imports, suggest that the incentive-package had been successful, and that the manufacturing sector has grown in maturity, so that less protection is required. Consequently protection has been reduced in recent years.

Table 5 — Average Net Protective Rate for Exports of Manufactures for Peninsular Malaysia (in per cent)

	1967-73	1973-80	1967-73+	1973-80*
Actual ($\hat{P}_{mfg} - \hat{P}_h$)	+ 0.43	+ 7.88	+ 0.60	+ 12.17
Estimated ($\hat{P}_{mfg} - \hat{P}_h$)	+ 1.74	+ 6.77	+ 4.03	+ 9.00
a) Due to exogenous factors	- 1.31	+ 1.11	- 3.43	+ 3.16
b) Due to domestic policies	- 1.15	+ 1.15	+ 1.96	+ 3.53
c) Due to income	+ 2.89	+ 5.62	+ 2.07	+ 5.48
Actual ($\hat{P}_{mfg6} - \hat{P}_h$)	+ 0.17	+ 4.39	+ 0.18	+ 7.42
Estimated ($\hat{P}_{mfg6} - \hat{P}_h$)	- 0.66	+ 10.53	+ 1.90	+ 14.52
a) Due to exogenous factors	+ 0.83	- 6.15	- 1.72	- 7.10
b) Due to domestic policies	- 2.65	+ 6.65	+ 0.47	+ 10.74
c) Due to income	+ 1.99	+ 3.88	+ 1.43	+ 3.78
Actual ($\hat{P}_{mfg7} - \hat{P}_h$)	+ 2.64	- 2.23	+ 4.36	- 0.18
Estimated ($\hat{P}_{mfg7} - \hat{P}_h$)	+ 3.49	+ 7.23	+ 1.25	+ 6.63
a) Due to exogenous factors	- 0.85	- 9.46	+ 3.11	- 6.81
b) Due to domestic policies	+ 0.13	+ 0.67	- 1.16	+ 0.24
c) Due to income	+ 3.37	+ 6.56	+ 2.41	+ 6.39
Actual ($\hat{P}_{mfg8} - \hat{P}_h$)	+ 3.73	+ 1.08	+ 4.76	+ 3.83
Estimated ($\hat{P}_{mfg8} - \hat{P}_h$)	+ 3.49	+ 2.13	+ 0.95	- 0.75
a) Due to exogenous factors	- 2.71	- 1.05	- 0.32	+ 4.58
b) Due to domestic policies	+ 10.33	- 6.90	+ 13.70	- 9.54
c) Due to income	+ 4.63	+ 9.03	+ 3.32	+ 8.79

Note: + - excluding special years, namely the racial strife of 1969 and the oil price hike of 1973.

* - excluding special years, namely the oil price hike of 1973 and 1978.

Table 6 — Average Net Protective Rate for Imports of Manufactures for Peninsular Malaysia (in per cent)

	1967-73	1973-80	1967-73+	1973-80*
Actual ($\hat{P}_{mfg}^m - \hat{P}_h$)	+ 4.91	- 0.99	+ 6.38	+ 0.53
Estimated ($\hat{P}_{mfg}^m - \hat{P}_h$)	+ 5.60	+ 7.93	+ 4.29	+ 7.13
Due to exogenous factors	- 0.69	- 8.92	+ 2.09	- 6.00
Due to domestic policies	+ 0.44	- 2.14	+ 0.59	- 2.07
Due to income	+ 5.17	+ 10.07	+ 3.70	+ 9.80
Actual ($\hat{P}_{mfg6}^m - \hat{P}_h$)	+ 4.69	+ 0.56	+ 6.14	+ 2.03
Estimated ($\hat{P}_{mfg6}^m - \hat{P}_h$)	+ 3.75	+ 1.52	+ 4.64	+ 0.63
Due to exogenous factors	+ 0.93	- 0.96	+ 1.50	+ 1.41
Due to domestic policies	+ 1.30	- 3.25	+ 2.89	- 4.03
Due to income	+ 2.45	+ 4.77	+ 1.76	+ 4.66
Actual ($\hat{P}_{mfg7}^m - \hat{P}_h$)	+ 5.36	- 1.76	+ 6.50	- 0.05
Estimated ($\hat{P}_{mfg7}^m - \hat{P}_h$)	+ 3.84	+ 8.83	+ 0.92	+ 8.45
Due to exogenous factors	+ 1.52	- 10.60	+ 5.58	- 8.50
Due to domestic policies	- 0.34	+ 0.71	- 2.07	+ 0.54
Due to income	+ 4.17	+ 8.13	+ 2.99	+ 7.91
Actual ($\hat{P}_{mfg8}^m - \hat{P}_h$)	+ 2.77	- 1.18	+ 6.31	+ 1.10
Estimated ($\hat{P}_{mfg8}^m - \hat{P}_h$)	- 0.01	+ 1.69	+ 1.93	+ 2.18
Due to exogenous factors	+ 2.78	- 2.86	+ 4.38	- 1.08
Due to domestic policies	- 1.08	- 0.39	+ 1.17	+ 0.17
Due to income	+ 1.06	+ 2.07	+ 0.76	+ 2.03

Note: + — excluding special years, namely the racial strife of 1969 and oil price hike of 1973.

* — excluding special years, namely the oil price hike of 1973 and 1978.

Table 7 — Peninsular Malaysia: Structure of Manufacturing Value Added by Industry Groups for Selected Years (per cent distribution)

Industry	1958	1960	1963	1964	1968	1970	1973	1975	1979
31) <i>Food, Beverages & Tobacco Products</i>	17.9	16.9	20.4	21.0	28.0	30.1	23.9	23.7	23.7
311 Food products		11.5	11.9	12.7	17.0	18.1	15.7	17.6	18.7
313 Beverages		2.6	4.1	3.4	4.0	4.6	2.6	2.2	2.4
314 Tobacco products		2.8	4.4	4.9	7.0	7.4	5.6	3.9	2.6
32) <i>Textile, Wearing Apparel & Leather Products</i>	8.7	1.0	1.5	1.5	3.3	3.9	6.1	6.9	7.4
321 Textiles	0.5	0.5	0.7	1.0	2.0	2.7	4.5	5.4	5.8
322 Wearing Apparel	7.9	0.5	0.2	0.3	1.0	0.8	1.3	1.2	1.3
324 Footwear	—	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2
325 Leather, leather products	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
33) <i>Wood & Wood Products</i>	13.7	9.8	8.1	9.0	11.8	13.9	13.9	14.4	10.6
331 Wood products		7.7	6.2	7.2	10.8	13.0	13.1	13.5	9.9
332 Furniture & Fixtures		2.1	1.9	1.8	1.0	0.9	0.8	0.9	0.7

Table 7 (continued)

Industry	1958	1960	1963	1964	1968	1970	1973	1975	1979
34) <i>Paper & paper products; Printing & Publishing</i>	7.0	5.6	5.7	6.0	6.7	7.6	5.7	5.9	4.5
341 Paper & paper products	0.7	0.2	0.4	0.5	0.7	0.8	0.8	0.9	0.9
342 Printing & publishing	6.3	5.4	5.3	5.5	6.0	6.8	4.9	5.0	3.6
35) <i>Chemical, Petroleum, Coal, Rubber & Plastic Products</i>	32.5	50.6	44.4	39.5	28.0	21.0	19.9	21.4	20.7
351 Industrial Chemicals	6.0	10.4	4.1	13.6	2.4	3.1	2.6	2.3	2.1
352 Other chemical products			8.7	6.3	6.3	6.6	4.9	3.3	3.3
353 Petroleum Refineries					1.8	1.8		2.0	
354 Petroleum & Coal products			1.9	3.7	4.7	3.7	0.9	0.1	3.6
355 Rubber products	24.6	40.2	28.6	22.2	13.6	4.6	9.6	12.0	9.8
356 Plastic products	1.9		1.1		1.0	1.2	1.9	1.7	1.9
36) <i>Non-Metallic Mineral Products</i>	3.7	3.5	5.6	5.9	7.0	7.2	5.3	5.1	4.1
37) <i>Basic Metal Industries</i>	1.0	2.4	3.1	3.4	2.4	2.9	3.7	3.1	2.5

Table 7 (Continued)

Industry	1958	1960	1963	1964	1968	1970	1973	1975	1979
38) <i>Fabricated Metal Products, Machinery & Equipment</i>	14.7	8.7	10.3	11.6	12.1	12.8	19.8	19.0	23.6
381 Metal products	14.1		4.2		4.7	4.1	4.9	3.2	3.8
382 Non-electrical machinery			2.9		2.9	2.7	3.7	2.7	3.1
383 Electrical Machinery			0.9		2.4	2.3	8.1	10.1	12.5
384 Transport equipment			2.3		2.1	3.3	2.7	2.5	3.5
385 Professional goods	0.6					0.4	0.4	0.5	0.7
39) <i>Other Manufacturing Industries</i>	0.8	1.4	0.9	2.1	0.6	0.6	0.4	0.4	2.9
TOTAL MANUFACTURING	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Light manufacturing ¹	74.0	74.7	65.9	61.3	64.3	61.2	60.7	64.2	59.9
Heavy manufacturing ²	26.0	25.3	34.1	38.7	35.7	38.8	39.3	35.8	40.1

¹Light manufacturing consists of industry codes 31, 32, 33, 342, 355, 356 and 39.

²Heavy manufacturing consists of industry codes 341, 351, 352, 353, 354, 36, 37 and 38.

Sources: 1) *Industrial Surveys*, Department of Statistics, Kuala Lumpur, various issues.

2) *Malaysia's Manufacturing Sector: Development Issues & Policy Options*, vol. III, World Bank Report No. 3187-MA.

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