

INDIRECT TAX REFORM IN THE PHILIPPINES: A COMPLEMENTARY MEASURE TO THE TARIFF REFORM PROGRAM, 1979-1985

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1. Introduction

A restructuring of the domestic tax system is viewed by many sectors as a necessary complement to the ongoing programs of tariff reform and import liberalization. This perception is based on (1) the protective nature of internal indirect taxes in the Philippines, i.e., the indirect tax system has been one of the instruments used to protect domestic industries; (2) a concern that the reduction of peak tariff rates on nonessential consumption goods may induce greater consumption/importation of the same and, consequently, adversely affect the trade account; and (3) the possibility that the tariff reform program may result in lower tax revenues at least in the short run, and therefore a strong revenue performance of domestic taxes might be called especially during the initial phase of the restructuring.

The primary objective of this study is to analyze how domestic indirect taxes interact with the tariff system to affect the market for particular goods and, consequently, their effective protection rates. The revenue and equity implications of alternative indirect tax schemes will also be examined.

2. The Protective Nature of Domestic Indirect Taxes in the Philippines

The purpose of this section is to describe the main features of the indirect tax system so that the protective effect of these taxes can be identified. There are two major types of internal commodity taxes in the Philippines: the specific and the sales tax. The specific tax is a tax assessed as a given amount per unit of product. It applies

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to selected articles notably tobacco, alcoholic and petroleum products. The sales tax is a tax assessed on an ad valorem basis, i.e., as a percentage of the price of the product. It applies to most products not subject to the specific tax. The sales tax may be differentiated in terms of origin of the product on which it is levied. The local sales tax applies to domestically produced goods. The advance sales tax applies to imported goods that are subjected to further processing and/or those that are resold. The compensating tax applies to imported goods for personal use which do not form part of other goods for sale, e.g., imported capital equipment. The specific tax on domestically-produced goods and the local sales tax are paid by the manufacturer, while the advance sales tax and the compensating tax are paid by the importer.

The protective effect of the Philippine indirect tax system is due to one, or a combination of some, of the following features of the system:

- (1) timing of tax payments for imported and domestically-produced goods;
- (2) different tax rates for imported and domestically-produced goods;
- (3) the valuation of the tax base of imported and domestically-produced good;
- (4) the mark up that applies to the tax base of imported goods; and
- (5) the extent to which tax credits can be availed of.

The local sales tax is payable within 20 days after the end of each quarter while the advance sales tax and the compensating tax, i.e., the sales tax on imported goods, are payable upon release from customs custody. The specific tax on domestic products is payable upon the removal of the product from its place of production while the specific tax on imported articles is payable before the release of said articles from the customs warehouse. Thus, the timing of the payments of the domestic indirect taxes induces additional cost (specifically interest cost) to be borne by the importer/traders and eventually by the users/consumers of imported goods. Payments of taxes on domestically-produced goods become due after these goods have been sold and presumably after the same have been paid for (price plus tax). For imported goods, the advance sales, compensating or specific tax are paid before these goods are sold.

Sales tax rates vary according to the "essentiality" of the commodities on which they are levied. Non-essential and semi-essential articles are taxed at 50 and 30 percent, respectively. So-called ordinary commodities are subject to a 20 percent sales tax rate while essentials are taxed at 10 percent.¹ Agricultural products are levied a 0 percent tax. Locally-manufactured automobiles are taxed at 15-45 percent depending on price while imported automobiles are taxed at 100-200 percent.

Prior to October 1985 when Presidential Decree (PD) 1991 was promulgated, the multi-pronged rate structure described above was further complicated by the imposition of lower sales tax rates on locally-manufactured versions of certain goods relative to their imported counterparts. For instance, imports of certain semi-essential and essential articles such as pens, ballpens, chairs, sofas, beds, show-cases, bookcases, watches, clocks, electric fans and exhaust fans, electric, gas, and oil stoves and ranges, phonographs and tape recorders, televisions, refrigerators and freezers, agricultural products, processed meat, milk, fish, wheat flour, manufactured medicines, soap and detergents, writing pads, notebooks, etc., were subjected to higher sales tax rates than the domestically-produced articles. Similarly, for products subject to specific tax, the unit tax on the imported article was higher than that on the locally-manufactured version. Other things being equal, a higher tax rate on imported goods relative to those equivalent goods produced domestically has the same protective effect as a tariff on the said goods.

However, various tax measures were introduced since 1983 which were aimed at unifying the specific and the sales tax rates on imported and domestic goods. Executive Order 924 (November 1983) unified specific taxes on imported and locally-manufactured cigarettes in the highest bracket. Executive Order 928 (December 1983) unified specific taxes on imported and domestically-produced fermented liquors. Executive Order 947 (June 1984) unified specific taxes on imported and locally-produced distilled spirits and wines. Presidential Decree (PD) 1991 (October 1985) unified the sales tax rates on semi-essential and essential articles. Thus, at present the sales tax rates on all imported and domestic goods are equal, with the

1. Between 1969 and 1977, non-essential, semi-essential, ordinary and essential goods were taxed respectively at 70, 40, 7 and 5 percent. From 1978 to 1985, the rate structure was 50, 25, 10 and 5 percent based on "essentiality."

sole exception of those on automobiles.

The base of the local sales tax is gross selling price while that of the advance sales tax is the tariff inclusive of landed cost (i.e., home consumption value (HCV) plus 10 percent of HCV plus postage commission and other charges except freight and insurance) plus a markup and that of the compensating tax is the tariff inclusive of landed cost only. The markup for advance sales tax purposes is uniformly set at 25 percent.² The present valuation practice to the tax base would have no protective effect if the importer-middlemen and the factory gate were comparable stages in the distribution process and if the legal markup represents an accurate estimate of the importer-middlemen's profit margin. The assumption here is that, most buyers (final as well as intermediate consumers) do not import directly but instead get their import requirements through middlemen, while the same buyers purchase domestically-manufactured goods directly from factories. This would then justify the addition of the markup in the sales tax base of imported goods, since, if no markup were applied, the ratio of the advance sales tax to the value of the imported product paid to the importer (i.e., tariff inclusive of landed cost plus trader's margin) would be lower than the tax rate applying to the gross value of the locally-produced good. If this argument holds, then the compensating tax which does not include the markup in its base would result in a lower effective tax rate than the local sales tax.

At this point, it is not at all clear that the importer-middlemen and the factory are, in fact, the competing sources of supply. One could just as easily argue that most buyers do not purchase their goods directly from the factory but rather indirectly through traders. If this is true, then the markup provision does not appear to be justified as it introduces some element of protection for goods subject to the advance sales tax but not for those subject to compensating tax.

Percentage and specific taxes paid on inputs into locally-manufactured goods subject to the sales tax may be credited against the sales tax liability. Goods subject to specific taxes may not avail of the tax credit provision on taxes on inputs. However, materials used

2. Before Executive Order 883 (March 1983) the markup was 25, 50 and 100 percent, respectively, for ordinary/essential, semi-essential and non-essential articles.

in the manufacture of articles subject to specific tax and imported by the manufacturer are not subject to either the advanced sales tax or the compensating tax. In cases where tax credit for taxes on inputs is possible/available (i.e., goods subject to sales tax), the protective effect of the indirect tax system would result from the rate and markup provision and the additional interest cost arising from the time lag between purchase of input and the availment of tax credits as well as the timing of the payments of the advance sales tax on the output. In cases where no tax credit provision applies (i.e., goods subject to specific taxes), the protective effect results from the differential rate provisions, the capital holding costs due to early payment of taxes on imports of the output, and the uneven treatment of imported and locally-manufactured inputs with regard to the applicability of the sales tax.

3. Theoretical Framework

In this section, a theoretical framework and methodology that may be used to quantify the protective effect of indirect taxes is presented. The usual partial equilibrium assumptions of protection theory as laid out in the works of Corden (1966), Balassa (1965) and others are made, namely: (1) infinitely elastic foreign supplies of importables; (2) infinitely elastic foreign demand for the country's exports; (3) zero elasticity of substitution among inputs; (4) constant returns to scale in production; (5) zero transportation costs; and (6) pure competition.

In contrast to the nominal protection rate which measures in relative terms the excess of the domestic price of a product over its border price, the effective protection rate (EPR) is defined as the percentage excess of domestic value added over free trade value added of a given activity resulting from the imposition of tariffs and other protective measures. Using the input-output relationship that would prevail under free trade conditions and assuming that protection arises from tariffs alone, the following may be derived:

$$(1) \text{ EPR}_j = \frac{(1 + t_j) - \sum_i a_{ij} (1 + t'_i)}{1 - \sum_i a_{ij}} - 1$$

or more simply,

$$(2) \text{EPR}_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}}$$

where:

- j refers to the output,
- i refers to the typical input,
- a_{ij} is the free-trade value of input i used to produce a unit value of output j ; and
- t is the tariff rate on commodity i .

Under a system of tariffs and sales taxes where the sales tax rate on imported good i is sm_i and the sales tax rate on domestic good i is sd_i , the effective protection rate for commodity j is:

$$(3) \text{EPR}_j = \frac{\frac{(1+t_j)(1+sm_j)}{(1+sd_j)} - \sum_i a_{ij}(1+t_i)(1+sm_i)}{1 - \sum_i a_{ij}} - 1$$

If the sales tax rate on imported good k and that on domestically-produced good i is uniform, i.e., if $sm_k = sd_k = s_k$, then (3) reduces to:

$$(4) \text{EPR}_j = \frac{(1+t_j) - \sum_i a_{ij}(1+t_i)(1+s_i)}{1 - \sum_i a_{ij}} - 1$$

The difference between (3) and (1) measures the degree of protection arising from the sales tax while the difference between (3) and (4) reflects the additional protection arising from the discriminatory provisions of the sales tax system, i.e., the protection due to the dif-

ferential sales tax rates that apply on imported and domestically-produced goods.

Under a value added tax system that operates up to the manufacturer's level (such as the one currently being enforced in the Philippines) where sales and specific taxes actually paid on intermediate inputs used are allowed as tax credits against sales tax due on the end product, EPR estimation should take account of the said tax credit on inputs. Without the tax credit provision, and under the usual assumptions, the following relationship holds:

$$(5) \quad Pd_i = (1+t_i) (1+sm_i) Pb_i$$

where:

Pb_i is the border price of good i ,

Pd_i is the domestic price of good i inclusive of the domestic sales tax or gross domestic price.

This implies that the gross domestic price is just equal to the price of importing a similar good which is equal to the border price inflated by the tariff and the sales tax on imports. If tax credits for taxes paid on both domestic and imported purchases are allowed and if the said credit is obtained immediately and costlessly, then the net domestic price of intermediate products to the intermediate user should just equal the price of importing a similar good net of the tax credit, i.e.,

$$(6) \quad \frac{Pd_i}{1 + sd_i} = (1 + t_i) Pb_i \quad 3/$$

3. Note that the gross price of the imported input is $Pb (1 + t_i) (1 + sm_i)$ and the tax credit on imported inputs is $sm (1 + t_i) Pb_i$. Thus, the price net of the tax credit, i.e., the effective price to the intermediate user, is:

$$(1+t_i) (1+sm_i) Pb_i - sm_i (1+t_i) Pb_i = (1+t_i) Pb_i$$

Similarly, the gross price of the domestic input is Pd while the tax credit is

domestic inputs is $sd_i \frac{Pd_i}{1 + sd_i}$. Hence, the price of the domestic input net of the tax credit is $Pd_i - sd_i \frac{Pd_i}{1 + sd_i} = \frac{Pd_i}{1 + sd_i}$

Thus, the net price to the buyer of either the domestic or the imported input must be equal to $Pb_j (1 + t_j)$. This means that the gross domestic price of the input, Pd_j , is equal to $Pb_j (1 + t_j) (1 + sd_j)$. Thus, the sales tax on imports, sm_j , has no influence on the domestic price of inputs. The highest price which the seller of the domestic good can charge is the net price to the buyer plus the domestic sales tax which the buyer/user of the input can take as a credit. The gross price of the imported input is $Pb_j (1 + t_j) (1 + sm_j)$ which is not equal to the gross domestic price of $sm_j \neq sd_j$.

Accounting for the tax credit for inputs as provided in the value added system, the effective protection formula for final goods is modified as follows:

$$(7a) \text{EPR}_j = \frac{\frac{(1+t_j)(1+sm_j)}{(1+sd_j)} - \sum_i a_{ij}(1+t_j)}{1 - \sum_i a_{ij}}} - 1$$

On the other hand, the effective protection rate of intermediate goods is reduced to:

$$(7b) \text{EPR}_j = \frac{(1+t_j) - \sum_i a_{ij}(1+t_j)}{1 - \sum_i a_{ij}}} - 1$$

If it is now assumed that a uniform or nondiscriminatory value added tax system exists, i.e., a scheme where $sm_j = sd_j$ and credits for taxes on inputs are allowed, then the effective protection rate for intermediate and final goods may be represented by equation (7b) above.

Equations (1) and (7b) are identical. This implies that a non-discriminatory value added tax system has no protective effect on both intermediate and final goods under the full tax credit system

where tax credit is obtained immediately and costlessly. Furthermore, a discriminatory value added tax system has no protective effect in the case of intermediate goods.

Equations (7a) and (7b) above abstract from the additional capital holding costs arising from the advanced payment of the sales tax on imported inputs. It was pointed out earlier that the sales tax liability for domestically-produced goods is incurred twenty days after the end of the quarter in which the sale has taken place (sales receipt usually occurs within this period also) while sales taxes on imported inputs must be paid before their release from customs. This practice has resulted in an increase in working capital requirements. Taking the interest costs of this additional working capital into consideration, the effective protection rate formula for final goods becomes:

$$(8a) \text{ EPR}_j = \frac{\frac{(1+t_j) [1+sm_j (1+r)]}{(1+sd_j)} - \sum_i a_{ij} (1+t_i) [1+r (sm_i)]}{1 - \sum_i a_{ij}} - 1$$

where r is the relevant interest rate needed to take account of the timing difference, e.g., if the annual market interest rate is 20 percent and the maximum timing difference is 3 months, then r should be 5 percent.^{4/} On the other hand, the effective protection rate of intermediate goods is given by the following:

4. If capital holding cost is not ignored, then the net domestic price of intermediate goods should just equal the price of importing a similar good inclusive of the capital costs but net of the tax credit, i.e.,

$$\frac{Pd_j}{1+sd_j} = (1+t_j) [1+r (sm_j)] Pb_j$$

Note that the gross price of the imported input with capital costs into account is $Pb_j (1+t_j) [1+sm_j (1+r)]$ and the tax credit is $sm_j (1+t_j) Pb_j$. This yields a price net of the credit equal to:

$$(1+t_j) [1+sm_j (1+r)] Pb_j - sm_j (1+t_j) Pb_j = (1+t_j) [1+r (sm_j)] Pb_j = \frac{Pd_j}{1+sd_j}$$

$$(8b) \text{EPR}_j = \frac{(1+t_j) [1+r (sm_j)] - \sum_i a_{ij} (1+t_i) [1+r (sm_i)]}{1 - \sum_i a_{ij}} - 1$$

Now, if a nondiscriminatory value added tax system is assumed, then (8a) is revised as follows:

$$(9) \text{EPR}_j = \frac{\frac{(1+t_j) [1+s (1+r)]}{(1+s)} - \sum_i a_{ij} (1+t_i) (1+rs_i)}{1 - \sum_i a_{ij}} - 1$$

However, (8b) remains unchanged.

The analysis shows that (1) a value added tax system that treats imports and locally-produced goods uniformly has no protective effect if one abstracts from capital holding costs; (2) in the case of intermediate goods, a discriminatory value added tax system has no protective effect regardless of the inclusion or noninclusion of capital holding costs; (3) in the case of final goods, a discriminatory value added tax scheme may have some of the inclusion of capital holding costs.

In summary, to evaluate the protective effect of the discriminatory elements of the indirect tax system one may proceed in three stages, namely: (1) estimate EPRs taking into account both tariffs and domestic indirect taxes with one and/or a combination of its various discriminatory elements; (2) estimate EPRs taking into account both tariffs and domestic indirect taxes under the assumption that $sm_i = sd_i$ for all i 's; and (3) take the difference between the said estimates.

4. Methodology and Data

Three sets of effective protection rates (EPRs) were estimated: (1) EPR using tariff and specific/sales tax rates for 1979; (2) EPRs using tariff rates for 1985 and sales/specific tax rates for 1985 prior to the implementation of PD 1991; and (3) EPRs using tariff rates for 1985 and sales/specific tax rates for 1985 as revised by PD 1991. The tariff rates were obtained from the Tariff and Customs Code. The specific/sales tax rates were taken from the National Internal Revenue Code. The input-output relationship used to compute the

EPRs are based on the 79 x 79 input-output (I-O) tables for 1979 from the National Census and Statistics Office (NCSO).

The 1979 I-O tables yield domestic value coefficients that were converted to free trade coefficients by tariff estimates for the same year as computed by Quintos (1986). Two alternative values of the advance sales tax rate were used in the estimation of EPR. The first one excludes the markup while the second includes the markup which is equal to 25 percent of the tariff-inclusive landed cost of the product in 1985 and equal to 25, 50 and 100 percent in 1979 depending on the tax rate applicable. The implicit assumption in the latter is that the markup provision is a source of additional protection.

Four different EPR estimates were computed for each set of EPRs. First, EPR was computed on the basis of equations (8a) and (8b) for final and intermediate goods, respectively. This is referred to as EPR1 and it takes into account the differential rate provisions, if any, the tax credit provision, as well as the additional capital holding costs arising from advance payments of sales tax on imports.⁵ Second, EPR was computed based on equations (7a) and (7b). This estimate is called EPR2 and it includes the protective effect of the differential rate provisions, if any, and the tax credit provision but it assumes that the tax credit for taxes on inputs is obtained immediately and costlessly and ignores the additional interest cost of advance payment of the sales tax on imports on the output side. Third, EPR was computed on equation (7b) for both final and intermediate goods. This is called EPR3. This estimate assumes a nondiscriminatory value added tax system, i.e., $sm_j = sd_j$ and abstracts from the additional capital holding costs. Finally, EPR as defined in equation (3) was computed and referred to as EPR4. This estimate assumes a hypothetical situation where the relevant tariff and specific/sales tax rates are operative but no tax credit is allowed for taxes on inputs.

In all cases, nontradable inputs were treated as part of value added of the industry using them. Ideally, nontradable inputs should be decomposed into value added, cost tradable inputs and cost of nontradable inputs. Tan (1979) compared the results from these two alternative procedures and found that the deviations were "slight."

5. The interest rate was assumed to be 20 percent per annum for 1979 and 1985 after Presidential Decree (PD) 1991 and 30 percent annually for 1985 before Presidential Decree (PD) 1991.

In view of this, the former approach, which is computationally simpler, was adopted.

The difference between $EPR1$ and $EPR2$ indicates the degree of protection attributable to the capital holding costs. The difference between $EPR2$ and $EPR3$ reflects the amount of protection due to the discriminatory internal indirect tax rates applicable on imports and on locally-produced goods. The difference between $EPR2$ and $EPR4$ measures the protection/disprotection arising from the adoption of the tax credit system. The difference between $EPR1$ (or $EPR2$ or $EPR3$ or $EPR4$) estimates using the two alternative advance sales tax rates (i.e., sm with or without the markup) reflects the amount of protection attributable to the markup provision.

5. Analysis

Tables 1-6 present the EPR estimates for 1979, 1985 before Presidential Decree (PD) 1991, and for 1985 after Presidential Decree (PD) 1991. For each year two sets of estimates were computed: the sm' estimates were based on the assumption that the markup provision in the advance sales tax is not a source of protection while the sm'' estimates were based on the assumption that the markup provision yields additional protection.

For all years considered, $EPR1$ is greater than $EPR2$ in most sectors. This implies that, for most goods, the difference in the timing of the tax payments for imported and domestically-produced goods is an additional source of protection. For final goods, the proportional difference between $EPR1$ and $EPR2$ centered around 3.47 percent (3.01 percent) in 1979, 3.09 percent (3.39 percent) in 1985 before Presidential Decree (PD) 1991 and 3.62 percent (4.0 percent) in 1985 after Presidential Decree (PD) 1991 based on sm' estimates (sm'' estimates). The estimates of the difference between $EPR1$ and $EPR2$ for intermediate goods are not very different from those of final goods.

The difference between $EPR2$ and $EPR3$ is a measure of the amount of protection attributable to the discriminatory sales tax rates applicable on imports and on locally-manufactured goods. This difference is equal to zero in the case of intermediate goods. However, in the case of final goods those $sm \neq sd$, this difference in percentage terms averaged 117 percent in 1979, 47 percent in 1985 before Presidential Decree (PD) 1991 and 0 percent in 1985

TABLE 1
EFFECTIVE PROTECTION RATES FOR SELECTED I-O SECTORS, 1979 – (*sm'*)

Sector No.	Description	<i>ti</i>	<i>sm'</i>	<i>sd</i>	E P R 1 <i>ism' aj</i>	E P R 2 <i>Fsm' bj</i>	E P R 3 <i>ism' EPR3</i>	EPR4 <i>sm'</i>
3	Corn	-.11	.1	.01	-.143529	-.030604	-.060390	-.1478536
4	Coconut incl. copra in farms	-.17	.1	.01	-.196444	-.085329	-.114939	-.2010002
6	Banana	-.14	.1	.01	-.178802	-.060106	-.091462	-.1833952
7	Other crops incl. agricultural services	.58	.1	.01	.6128682	.8204952	.7656811	.60486849
12	Commercial fishing	-.10	.1	.01	-.153423	-.032720	-.064131	-.1576190
13	Fishponds and other fishery activities	-.10	.1	.01	-.123307	-.009970	-.039814	-.1275971
14	Forestry and logging	-.28	.1	.01	-.305623	-.213944	-.238143	-.3091512
15	Copper ore	.00	0	0	-.033267	-.033267	-.032066	-.0320664
16	Gold and silver ore	.00	0	0	-.025935	-.025935	-.025051	-.0250507
17	Chromium	.00	0	0	-.034384	-.034384	-.033222	-.0332223
18	Nickel	.00	0	0	-.038363	-.038363	-.036877	-.0368772
19	Other metallic ores	.00	0	0	-.026276	-.026276	-.025445	-.0254445
22	Rice and corn	-.11	.1	.01	-.132276	-.008753	-.041737	-.1374090
23	Sugar	-.06	.02	.02	-.067150	-.067169	-.067850	-.0678500
24	Milk and other dairy products	.52	.1	.05	.8191967	1.094667	.9901116	.80888089
25	Coconut oil	-.04	.02	.02	.0086321	.0085733	.0074574	.00745735
26	Cooking oil*	.50	.1	.1	-5.14838	-5.48234	-5.08969	-5.089695
27	Meat and meat products	.99	.1	.05	1.025433	1.179826	1.117017	1.0154433
28	Flour and other grain mill products	.29	.05	.05	.0521448	.0836011	.0531270	.05312705
29	Animal feeds	.48	.05	.05	2.563486	2.686070	2.550450	2.5504504
30	Other processed food	.43	.1	.05	.9548691	1.241368	1.130939	.94245306
		.43	.1	.1	.9548691	1.047527	.9424531	.94245309

*Negative free trade value added.

Table 1 (Continued)

Sector No.	Description				E P R 1		E P R 2	Ism'	EPR4
		<i>ti</i>	<i>sm'</i>	<i>sd</i>	<i>ism' a/</i>	<i>Fsm' b/</i>	<i>Fsm'</i>	EPR3	<i>sm'</i>
32	Tobacco manufactures	.92	.0882	.0882	1.139904	1.138428	1.131120	1.1311200	.9424235
33	Textiles and goods excluding wearing apparel	.64	.1	.1	.7957775	.8802147	.7870224	.78702242	.5964081
		.64	.25	.25	.8228312	1.192551	.7870234	.78702337	.5964091
34	Wearing apparel and footwear	-.02	.1	.1	-.191242	-.157730	-.194883	-.1948829	-.265231
		-.02	.25	.25	-.180505	-.033768	-.194883	-.1948829	-.265231
35	Lumber	.00	.01	.01	.4872249	.4977082	.4881593	.48815933	.4290579
36	Other wood	.00	.01	.01	.0740869	.0800165	.0746060	.07460596	.0413647
37	Furniture and fixtures	-.11	.1	.1	-.306495	-.307394	-.314278	-.314278	-.356456
		-.11	.25	.25					.356456
		-.11	.25	.1	-.291657	-.024118	-.044492	-.314278	-.086669
38	Paper and paper products	.44	.1	.05	.5388068	.6803488	.6738350	.5315817	.5196059
		.44	.1	.1	.5388068	.5374489	.5315817	.5315817	.3773525
40	Leather and leather products	-.27	.25	.25	-.514744	-.517372	-.523956	-.523956	-.602592
41	Rubber and plastic products	.47	.1	.1	.5021777	.5006531	.4949353	.4949353	.3043793
42	Drugs and pharmaceuticals	.18	.1	.05	.1689354	.2621183	.2567561	.1631049	.1767002
		.18	.1	.1	.1689354	.1680415	.1631049	.1631049	.0830491
		.18	.5	.5	.2082685	.1918796	.1631046	.1631046	.0830487
43	Industrial chemicals	.11	.1	.1	.1060658	.1052883	.1000401	.1000401	.0495013
44	Fertilizer	.17	.1	.1	.2094247	.2084638	.2033333	.2033333	.1137729
45	Other chemical products	.72	.1	.05	1.569248	1.784880	1.771133	1.554417	1.612641
		.72	.1	.1	1.569248	1.567179	1.554417	1.554417	1.395926

46	Gasoline	.23	.3	.3	.2498831	.2455637	.2312536	.2312536	.2294982
47	Diesel oil	.18	.1036	.1036	.1836810	.1831051	.1775812	.1775812	.1768932
48	Fuel oil	.17	.1558	.1558	.1816744	.1804341	.1725202	.1725202	.1715722
49	Avturbo/gasoline	.26	.12435	.12435	.2712272	.2703523	.2633613	.2633613	.2624511
50	LPG and others	.15	.0535	.0535	.1511060	.1509496	.1480418	.1480418	.1477489
51	Cement	-.01	.05	.05	-.120644	-.120821	-.120020	-.120020	-.206955
52	Other nonmetallic mineral products	.35	.1	.1	.3950287	.3941530	.4136721	.4136721	.3611039
53	Basic metals	.22	.1	.1	.2924623	.2909436	.2848676	.2848676	.1026541
54	Fabricated metal products	.56	.1	.1	1.264145	1.261923	1.253262	1.253262	.9821405
55	Machinery except electrical	.25	.1	.1	.2637413	.2627513	.2577675	.2577675	.1594491
56	Electrical machinery and appliances	.18	.25	.1	.1358366	.4550238	.4379420	.1160733	.2431163
		.18	.5	.1	.1653416	1.018296	.9743925	.1160736	.7795660
		.18	.25	.25	.1358366	.1299356	.1160733	.1160733	-.078753
		.18	.5	.25	.1653416	.6256151	.5881490	.1160736	.3933225
		.18	.5	.5	.1653416	.1456718	.1160736	.1160736	-.078753
57	Transport equipment	.66	.1	.1	.7873975	.7860712	.7786902	.7786902	.6610496
58	Miscellaneous manufactures	.15	.1	.1	-.047224	-.048057	-.051915	-.051915	-.141500
		.15	.25	.1	-.033467	.2145560	.1981929	-.051914	.1086079
		.15	.25	.25	-.033467	-.038052	-.051914	-.051914	-.141499
		.15	.5	.5	-.010541	-.025825	-.051914	-.051914	-.141499

a/ Intermediate good.

b/ Final good.

TABLE 2
EFFECTIVE PROTECTION RATES FOR SELECTED 1-0 SECTORS, 1979 - (smⁿ)

Sector No.	Description	ti	sm ⁿ	sd	E P R 1		EPR2 Fsm ⁿ	EPR2-ism ⁿ EPR3	EPR4
					ism ⁿ a/	Fsm ⁿ b/			
3	Corn	-.11	.125	.01	-.142443	-.030745	-.0360948	-.1478536	-.050577
4	Coconut incl. copra in farms	-.17	.125	.01	-.195301	-.085393	-.0910325	-.2010002	-.097781
6	Banana	-.14	.125	.01	-.177643	-.060236	-.0659245	-.1833952	-.079841
7	Other crops incl. agricultural services	.58	.125	.01	.6148792	.8202503	.81035127	.60486849	.7849816
12	Commercial fishing	-.10	.125	.01	-.152176	-.032784	-.0381624	-.1576190	-.060437
13	Fishponds and other fishery activities	-.10	.125	.01	-.122193	-.010087	-.0154298	-.1275971	-.030494
14	Forestry and logging	-.28	.125	.01	-.304659	-.213976	-.2184190	-.3091512	-.228182
15	Copper ore	-.00	0	0	-.033377	-.033377	-.0320664	-.0320664	-.058273
16	Gold and silver ore	.00	0	0	-.025051	-.025051	-.0250507	-.0250507	-.026030
17	Chromium	.00	0	0	-.033222	-.033222	-.0332223	-.0332223	-.034539
18	Nickel	.00	0	0	-.038232	-.038232	-.0368772	-.0368772	-.070601
19	Other metallic ores	.00	0	0	-.026360	-.026360	-.0254445	-.0254445	-.043748
22	Rice and corn	-.11	.125	.01	-.130967	-.008786	-.0151619	-.1374090	-.020528
23	Sugar	-.06	.02	.02	-.067163	-.067182	-.0678500	-.0678500	-.073648
24	Milk and other dairy products	.52	.125	.05	.8219464	1.092660	1.0807270	.80888089	.8664761
25	Coconut oil	-.04	.02	.02	.0083013	.0082426	.00745735	.00745735	-.035559
26	Cooking oil*	.50	.125	.1	-5.16384	-5.47996	-5.413923	-5.089695	-5.11361
27	Meat and meat products	.99	.125	.05	1.027988	1.179714	1.1678040	1.0154433	1.152061
28	Flour and other grain mill products	.29	.0625	.05	.0520013	.0818697	.08337350	.05312705	-.097934
29	Animal feeds	.48	.0625	.05	2.567471	2.683867	2.6683194	2.5504504	2.389913
30	Other processed food	.43	.125	.05	.9581603	1.239711	1.2251821	.94245306	1.044546
		.43	.125	.1	.9581603	1.045871	1.0324123	.94245309	.8517767
32	Tobacco manufactures	.92	.0882	.0882	1.139054	1.137577	1.1311200	1.1311200	.9254193
33	Textiles and goods excluding wearing apparel	.64	.125	.1	.7979664	.8778948	.86900027	.78702242	.6370026
		.64	.375	.25	.8430552	1.190231	1.1477260	.78702337	.9157284
34	Wearing apparel and footwear	-.02	.125	.1	-.190290	-.158568	-.1623470	-.1948829	-.249444
		-.02	.375	.25	-.172396	-.034606	-.0517247	-.1948829	-.138821
35	Lumber	.00	.0125	.01	.4872750	.4972532	.49816255	.48815933	.4299638
36	Other wood	.00	.0125	.01	.0740516	.0796955	.08026399	.07460596	.0406060
37	Furnitures and fixtures	-.11	.125	.1	-.304526	-.260685	-.269314	-.314278	-.321571
		-.11	.375	.25	-.279795	-.089371	-.116435	-.314278	-.168692
		-.11	.375	.1	-.279795	.2114407	.1803302	-.314278	.1280730

38	Paper and paper products	.44	.125	.05	.5410494	.7535403	.7449617	.5315817	5608966
		.44	.125	.1	.5410494	.6072457	.5994753	.5315817	4154102
40	Leather and leather products	-.27	.375	.25	-.509096	-.407888	-.418804	-.523956	-.515933
41	Rubber and plastic products	.47	.125	.1	.5041663	.5784897	.5711645	.4949353	3365214
42	Drugs and pharmaceuticals	.18	.125	.05	.1704663	.3103577	.3035816	.1631049	.2049560
		.18	.125	.1	.1704663	.2140460	.2078021	.1631049	.1091764
		.18	.1	.5	.2565079	.8792878	.8186623	.1631046	.7200367
43	Industrial chemicals	.11	.125	.1	.1077005	.1456036	.1389150	.1000401	0783085
44	Fertilizer	.17	.125	.1	.2111757	.2580173	.2513759	.2033333	.1439924
45	Other chemical products	.72	.125	.05	1.573151	1.896870	1.879491	1.554417	1.685295
		.72	.125	.1	1.573151	1.673998	1.657849	1.554417	1.463654
46	Gasoline	.23	.3	.3	.2498666	.2455472	.2312536	.2312536	.2291671
47	Diesel oil	.18	.1036	.1036	.1836739	.1830980	.1775812	.1775812	.1767503
48	Fuel oil	.17	.1558	.1558	.1816683	.1804279	.1725202	.1725202	.1714483
49	Avturbo/gasoline	.26	.12435	.12435	.2712727	.2703978	.2633613	.2633613	.2622246
50	LPG and others	.15	.0535	.0535	.1511023	.1509460	.1480418	.1490418	1476756
51	Cement	-.01	.0625	.05	-.119886	-.102376	-.102289	-.120020	-.192682
52	Other nonmetallic mineral products	.35	.125	.1	.4226860	.4653785	.4574592	.4136721	.3969107
53	Basic metals	.22	.125	.1	.2946394	.3686751	.3608017	.2848676	1.386005
54	Fabricated metal products	.56	.125	.1	1.267083	1.375390	1.364347	1.253262	1.029789
55	Machinery except electrical	.25	.125	.1	.2653354	.3135976	.3072671	.2577675	.1863794
56	Electrical machinery and appliances	.18	.375	.1	.1482914	.7343622	.7061674	.1160733	.4653867
		.18	.1	.1	.2220536	2.142542	2.047291	.1160736	1.806510
		.18	.375	.25	.1482914	.3754776	.3521109	.1160733	.1113302
		.18	.1	.25	.2220536	1.614676	1.532300	.1160736	1.291519
		.18	.1	.5	.2220536	.9695062	.9028659	.1160736	.6620852
57	Transport equipment	.66	.125	.1	.7896590	.8543166	.8450058	.7786902	.6996454
58	Miscellaneous manufactures	.15	.125	.1	.0040367	.0446791	-.010230	-.051915	-.121140
		.15	.375	.1	.0269637	.4823676	.4066157	-.051914	.2957057
		.15	.375	.25	.0269637	.2034979	.1314976	-.051914	.0205876
		.15	.1	.5	.0842800	.6650849	.5594591	-.051914	.4485490

*Negative free trade value added.

a/ Intermediate good

b/ Final good

TABLE 3
EFFECTIVE PROTECTION RATES FOR SELECTED I-O SECTORS, 1985 - (sm²)

Sector No.	ti	sm ²	sd	E P R 1		E P R 2	EPR2-ism ²	EPR4	
				ism ² a/	Fsm ² b/	Fsm ²	EPR3	sm ²	
3	Corn	-.01	.01	.01	-.032566	-.032575	-.032555	-.0325550	-.043614
4	Coconut incl. copra in farms	-.15	.01	.01	-.178548	-.178555	-.178902	-.1789023	-.184048
6	Banana	-.02	.01	.01	-.042397	-.042406	-.042453	-.0424526	-.053410
7	Other crops incl. agricultural services	.43	.01	.01	.4541230	.4541109	.4542651	.45426508	.4360597
12	Commercial fishing	.00	.01	.01	-.046881	-.046890	-.046131	-.0461313	-.067791
13	Fishponds and other fishery activities	.00	.01	.01	-.014659	-.014667	-.014541	-.0145408	-.027057
14	Forestry and logging	-.20	.01	.01	-.222096	-.222102	-.222050	-.2220497	-.231515
15	Copper ore	.00	0	0	-.034962	-.034962	-.033137	-.0331366	-.057475
16	Gold and silver ore	.00	0	0	-.025407	-.025407	-.024079	-.0240787	-.041793
17	Chromium	.00	0	0	-.030657	-.030657	-.028935	-.0289355	-.051896
18	Nickel	.00	0	0	-.036980	-.036980	-.034752	-.0347515	-.064465
19	Other metallic ores	.00	0	0	-.025614	-.025614	-.024363	-.0243630	-.041039
22	Rice and corn	-.01	.01	.01	-.018185	-.018194	-.018720	-.0187204	-.023510
23	Sugar	.00	.02	.02	-.006948	-.006979	-.008075	-.0080752	-.013806
24	Milk and other dairy products	.26	.1	.05	.3511890	.5005560	.4896370	.33914124	.3342299
25	Coconut oil	-.09	.02	.02	.0020576	.0019740	.0004315	.00043155	-.034724
26	Cooking oil*	.40	.1	.1	-4.76602	-4.75695	-4.68472	-4.684719	-4.43919
27	Meat and meat products	.49	.1	.05	.5125218	.5881308	.5775787	.50139832	.5659138
28	Flour and other grain mill products	.29	.05	.05	.2962866	.2958329	.2959526	.29595260	1.733701
29	Animal feeds	.24	.05	.05	1.280733	1.279247	1.265552	1.2655521	1.051739
30	Other processed food	.21	.1	.05	.4275839	.5856078	.5722216	.41300363	.4322671
		.21	.1	.1	.4275839	.4253042	.4130036	.41300364	2730491
32	Tobacco manufactures	.42	.0882	.0882	.4751445	.4735124	.4663068	.46630680	.3156544
33	Textiles and goods excluding wearing apparel	.40	.1	.1	.5160570	.5139452	.5054442	.50544422	.3372145
		.40	.25	.25	.5509010	.5392860	.5054432	.50544322	.3372135
34	Wearing apparel and footwear	-.02	.1	.1	-.123823	-.124799	-.129768	-.1297678	-.193666
		-.02	.25	.25	-.107718	-.113086	-.129768	-.1297677	-.193666
35	Lumber	-.04	.01	.01	.3280309	.3280021	.3295923	.32959229	.2699614
36	Other wood	-.04	.01	.01	.0143769	.0143606	.0151511	.01515107	-.017126
37	Furnitures and fixtures	-.24	.1	.1	-.517134	-.518290	-.526976	-.526976	-.565328
		-.24	.25	.25	-.498056	-.504415	-.526976	-.526976	-.565328
		-.24	.25	.1	-.498056	-.269701	-.295731	-.526976	-.334082

38	Paper and paper products	.41	.1	.05	.5150711	.6536430	.6441014	.5044824	.4920843
		.41	.1	.1	.5150711	.5130720	.5044824	.5044824	.3524653
40	Leather and leather products	-.24	.25	.25	-.381632	-.385762	-.396959	-.396959	-.467995
41	Rubber and plastic products	.28	.1	.1	.3121930	.3101972	.3027888	.3027888	.1354580
42	Drugs and pharmaceuticals	.18	.1	.05	.1839965	.2769452	.2688136	.1751625	.1899339
		.18	.1	.1	.1839965	.1826556	.1751625	.1751625	.0962828
		.18	.5	.5	.2429963	.2184129	.1751621	.1751621	.0962824
43	Industrial chemicals	.08	.1	.1	.0906295	.0894912	.0817845	.0817845	.0327725
44	Fertilizer	.17	.1	.1	.2278230	.2263817	.2185901	.2185901	.1303089
45	Other chemical products	.40	.1	.05	.8671168	1.041185	1.025716	.8503327	.8812036
		.40	.1	.1	.8671168	.8646056	.8503327	.8503327	.7058202
46	Gasoline	.32	.3	.3	.3472210	.3402964	.3173443	.3173443	.3156150
47	Diesel oil	.29	.1036	.1036	.2971104	.2961669	.2871097	.2871097	.2864427
48	Fuel oil	.23	.1558	.1558	.2428297	.2408810	.2284450	.2284450	.2274925
49	Avturbo/gasoline	.40	.12435	.12435	.4112041	.4097530	.3981487	.3981487	.3972764
50	LPG and others	.13	.0535	.0535	.1337385	.1335079	.1292170	.1292170	.1289443
51	Cement	-.01	.05	.05	-.142294	-.142560	-.141051	-.141051	-.232106
52	Other nonmetallic mineral products	.22	.1	.1	.2488177	.2476338	.2396421	.2396421	.1883343
53	Basic metals	.15	.1	.1	-.495301	-.497446	-.500774	-.500774	-.742400
54	Fabricated metal products	.42	.1	.1	.9996085	.9965616	.9852931	.9852931	.7292897
55	Machinery except electrical	.16	.1	.1	.1682118	.1668321	.1599642	.1599642	.0675792
56	Electrical machinery and appliances	.14	.25	.1	.1421529	.4484139	.4232230	.1130853	.2422042
		.14	.25	.25	.1421529	.1336242	.1130853	.1130853	-.067933
		.14	.35	.25	.1592105	.3292176	.2950328	.1130853	.1140140
		.14	.5	.5	.1847969	.1563676	.1130853	.1130853	-.067933
57	Transport equipment	.51	.1	.1	.6210707	.6192621	.6092939	.6092939	.5010544
58	Miscellaneous manufactures	.08	.1	.1	-.022297	-.023479	-.029493	-.029493	-.107002
		.08	.25	.1	-.002783	.2307956	.2070418	-.029494	.1295328
		.08	.25	.25	-.002783	-.009288	-.029494	-.029494	-.107003
		.08	.5	.5	.0297404	.0080580	-.029494	-.029494	-.107003

*Negative free trade value added

a/ Intermediate good.

b/ Final good

TABLE 4
EFFECTIVE PROTECTION RATES FOR SELECTED 1-0 SECTORS, 1985 - (sm^{1/2})

Sector No	Description	ti	sm ^{1/2}	sd	E P R 1		E P R 2 - Ism ^{1/2}		EPR4 sm ^{1/2}
					Ism ^{1/2} a/	Fsm ^{1/2} b/	sm ^{1/2}	EPR3	
3	Corn	-.01	.0125	.01	-.032561	-.029872	-.0298555	-.0325550	-.043572
4	Coconut incl. copra in farms	-.15	.0125	.01	-.178454	-.176020	-.1764592	-.1789023	-.182817
6	Banana	-.02	.0125	.01	-.042365	-.039480	-.0395566	-.0424526	-.053017
7	Other crops incl. agricultural services	-.43	.0125	.01	.4541052	.4581273	.45830233	.45426508	.4357825
12	Commercial fishing	.00	.0125	.01	-.046745	-.043869	-.0432446	-.0461313	-.066003
13	Fishponds and other fishery activities	.00	.0125	.01	-.014621	-.011922	-.0118315	-.0145408	-.026589
14	Forestry and logging	-.20	.0125	.01	-.221974	-.219791	-.2198581	-.2220497	-.229921
15	Copper ore	.00	0	0	-.035116	-.035116	-.0331366	-.0331366	-.059528
16	Gold and silver ore	.00	0	0	-.025539	-.025539	-.0240787	-.0240787	-.043548
17	Chromium	.00	0	0	-.028264	-.028264	-.0289355	-.0289355	-.051859
18	Nickel	.00	0	0	-.036801	-.036801	-.0347515	-.0347515	-.068295
19	Other metallic ores	.00	0	0	-.025729	-.025729	-.0243630	-.0243630	-.042580
22	Rice and corn	-.01	.0125	.01	-.018009	-.015067	-.0157676	-.0187204	-.021191
23	Sugar	.00	.02	.02	-.006966	-.006996	-.0080752	-.0080752	-.014044
24	Milk and other dairy products	.26	.125	.05	.3544718	.5788044	.56488482	.33914124	.3742391
25	Coconut oil	-.09	.02	.02	.0011217	.0010381	.00043155	.00043155	-.041415
26	Cooking oil*	.40	.125	.1	-4.78759	-5.07842	-4.986884	-4.684719	-4.69655
27	Meat and meat products	.49	.125	.05	.5153918	.6289482	.61566886	.50139832	.6022738
28	Flour and other grain mill products	.29	.0625	.05	.2965321	.3262114	.32619904	.29595260	.1751320
29	Animal feeds	.24	.0625	.05	1.285682	1.382924	1.3646521	1.2655521	1.112770
30	Other processed food	.21	.125	.05	.4315273	.6688616	.65183062	.41300363	.4808664
		.21	.125	.1	.4315273	.5046681	.48899405	.41300364	.3180298
32	Tobacco manufactures	.42	.0882	.0882	.4740381	.4724060	.46630680	.46630680	.3009025
33	Textiles and goods excluding wearing apparel	.40	.125	.1	.5192046	.5869588	.57583824	.50544422	.3721404
		.40	.3125	.25	.5627598	.7031079	.66031001	.50544322	.4566122
34	Wearing apparel & footwear	-.02	.125	.1	-.122271	-.090955	-.0972318	-.1297678	-.176224
		-.02	.3125	.25	-.102140	-.037271	-.0581887	-.1297677	-.137181
35	Lumber	-.04	.0125	.01	.3280994	.3376704	.33919932	.32959226	.2707751
36	Other wood	-.04	.0125	.01	.0143351	.0197487	.02058502	.01515107	-.017737
37	Furnitures and fixtures	-.24	.125	.1	-.514636	-.477541	-.488435	-.526976	-.535878
		-.24	.3125	.25	-.490789	-.413948	-.442186	-.526976	-.489629
		-.24	.3125	.1	-.490789	-.166805	-.199378	-.526976	-.246821

38	Paper and paper products	.41	.125	.1	.5184066	.5825441	.5711186	.5044824	.3902732
40	Leather and leather products	-.24	.3125	.25	-.377705	-.327769	-.341879	-.396959	-.429413
41	Rubber and plastic products	.28	.125	.1	.3148236	.3788560	.3693160	.3027888	.1638790
42	Drugs and pharmaceuticals	.18	.125	.05	.1863195	.3259182	.3156391	.1751625	.2185660
		.18	.125	.1	.1863195	.2293405	.2198596	.1751625	.1227865
		.18	.625	.5	.2600694	.3932296	.3390515	.1751621	.2419784
43	Industrial chemicals	.08	.125	.1	.0930404	.1295595	.1197264	.0817845	.0611242
44	Fertilizer	.17	.125	.1	.2304878	.2767289	.2666327	.2185901	.1610372
45	Other chemical products	.40	.125	.05	.8716187	1.133050	1.113408	.8503327	.9368400
		.40	.125	.1	.8716187	.9521854	.9340384	.8503327	.7574706
46	Gasoline	.32	.3	.3	.3471971	.3402726	.3173443	.3173443	.3152973
47	Diesel oil	.29	.1036	.1036	.2971002	.2961567	.2871097	.2871097	.2863070
48	Fuel oil	.23	.1558	.1558	.2428208	.2408721	.2284450	.2284450	.2273758
49	Avturbo/gasoline	.40	.12435	.12435	.4111878	.4097367	.3981487	.3981487	.3970594
50	LPG and others	.13	.0535	.0535	.1337334	.1335028	.1292170	.1292170	.1288762
51	Cement	-.01	.0625	.05	-.141097	-.123698	-.123319	-.141051	-.217028
52	Other nonmetallic mineral products	.22	.125	.1	.2515208	.2895068	.2791081	.2396421	.2204286
53	Basic metals	.15	.125	.1	.1916621	.2604809	-.429274	-.500774	.0381313
54	Fabricated metal products	.42	.125	.1	1.003528	1.101282	1.086856	.9852931	.7713916
55	Machinery except electrical	.16	.125	.1	.1710312	.2152956	.2059532	.1599642	.0932477
56	Electrical machinery and appliances	.14	.3125	.1	.1496363	.5841521	.5524470	.1130853	.3290554
		.14	.3125	.25	.1496363	.2526925	.2268025	.1130853	.0034109
		.14	.44	.25	.1713847	.5020742	.4587854	.1130853	.2353938
		.14	.625	.5	.2029412	.3569332	.3026139	.1130853	.0792223
57	Transport equipment	.51	.125	.1	.6274880	.6855142	.6695808	.6092939	.5360980
58	Miscellaneous manufactures	.08	.125	.1	-.020412	.0175319	.0099296	-.029493	-.085820
		.08	.3125	.1	.0039796	.3353757	.3055982	-.029494	.2098485
		.08	.3125	.25	.0039796	.0825784	.0572360	-.029494	-.038514
		.08	.625	.5	.0446342	.1620806	.1150558	-.029494	.0193060

*Negative free trade value added

a/ Intermediate good.

b/ Final good.

TABLE 5
EFFECTIVE PROTECTION RATES FOR SELECTED I-O SECTORS, 1985 AFTER PD 1991 (SM^a)

Sector No.	Description	ti	sm ^a	sd	lsm ^a a/	E P R 1 Fsm ^b b/	E P R 2 Fsm ^a	E P R 2 lsm ^a EPR 3	EPR4 sm ^a
3	Corn	-.01	.01	.01	-.032483	-.032489	-.032472	-.0324724	-.043598
4	Coconut incl. copra in farms	-.15	.01	.01	-.178617	-.178622	-.178851	-.1788510	-.184038
6	Banana	-.02	.01	.01	-.042244	-.042250	-.042274	-.0422740	-.053375
7	Other crops incl. agricultural services	.43	.01	.01	.4568132	.4568051	.4569172	.45691717	.4385054
12	Commercial fishing	.00	.01	.01	-.047119	-.047125	-.046616	-.0466162	-.068327
13	Fishponds and other fishery activities	.00	.01	.01	-.014221	-.014227	-.014126	-.0141261	-.026974
14	Forestry and logging	-.20	.01	.01	-.222042	-.222046	-.222010	-.2220098	-.231507
15	Copper ore	.00	0	0	-.034024	-.034024	-.032793	-.0327933	-.057407
16	Gold and silver ore	.00	0	0	-.024230	-.024230	-.023314	-.0233136	-.041640
17	Chromium	.00	0	0	-.027463	-.027463	-.026206	-.0262058	-.051351
18	Nickel	.00	0	0	-.034486	-.034486	-.032927	-.0329272	-.064100
19	Other metallic ores	.00	0	0	-.024970	-.024970	-.024127	-.0241267	-.040991
22	Rice and corn	-.01	.01	.01	-.017878	-.017884	-.018215	-.0182145	-.023409
23	Sugar	.00	.02	.02	-.006999	-.007019	-.007737	-.0077367	-.013738
24	Milk and other dairy products	.26	.1	.1	.3482388	.3468022	.3402515	.34025145	.1839564
25	Coconut oil	-.09	.02	.02	.0010585	.0010028	.000022	-.0000217	-.035255
26	Cooking oil*	.40	.1	.1	-4.74036	-4.73431	-4.68622	-4.686217	-4.43949
27	Meat and meat products	.49	.1	.1	.5089363	.5082091	.5015255	.50152550	.4897589
28	Flour and other grain mill products	.22	.1	.1	.1086683	.1075776	.1664614	.16646136	.0037355
29	Animal feeds	.06	.2	.2	.1828543	.1710614	.1271991	.12719909	-.174859
30	Other processed food	.21	.1	.1	.4435017	.4419819	.4346473	.43464735	.2773778
		.21	.2	.2	.4602199	.4546473	.4346477	.43464767	.2773781
32	Tobacco manufactures	.42	.0882	.0882	.4726384	.4715504	.4667649	.46676491	.3157461
33	Textiles and goods excluding wearing apparel	.26	.2	.2	.2899085	.2852625	.2735577	.27355774	.0430505
		.26	.3	.3	.3038465	.2941971	.2735577	.27355773	.0430506
34	Wearing apparel and footwear	-.02	.2	.2	-.083515	-.085901	-.093172	-.0931723	-.186347
		-.02	.3	.3	-.076357	-.081313	-.093172	-.0931723	-.186347
35	Lumber	-.04	.01	.01	.3295029	.3294837	.3305837	.33058371	-.2701594
36	Other wood	-.04	.01	.01	.0169324	.0169215	.0175444	.01754441	-.016648
37	Furniture and fixtures	-.20	.2	.2	-.418633	-.421601	-.434202	-.434202	-.478939
		-.20	.3	.3	-.409730	-.415894	-.434202	-.434202	-.478939

38	Paper and paper products	.41	.1	.1	.5154886	.5141559	.5085939	.5085939	.3532875
		.41	.2	.2	.5301479	.5252612	.5085932	.5085932	.3532869
40	Leather and leather products	-.27	.3	.3	-.432287	-.435927	-.444403	-.444403	-.517542
41	Rubber and plastic products	.15	.2	.2	.0423631	.0379723	.0249811	.0249811	-.154279
42	Drugs and pharmaceuticals	.18	.1	.1	.1826233	.1817294	.1767995	.1767995	.0966102
		.18	.2	.2	.1924530	.1891752	.1767958	.1767958	.0966065
		.18	.5	.5	.2219530	.2055641	.1767958	.1767958	.0966065
43	Industrial chemicals	-.02	.2	.2	-.071781	-.074285	-.084322	-.084322	-.134005
44	Fertilizer	.06	.2	.2	.0225474	.0193766	.0079672	.0079672	-.080926
45	Other chemical products	.40	.1	.1	.8644677	.8627936	.8534052	.8534052	.7064335
		.40	.2	.2	.8828842	.8767458	.8534064	.8534064	.7064347
46	Gasoline	.32	.3	.3	.3373047	.3326884	.3173888	.3173888	.3156237
47	Diesel oil	.29	.1036	.1036	.2938059	.2931769	.2871399	.2871399	.2864487
48	Fuel oil	.23	.1558	.1558	.2380661	.2367670	.2284778	.2284778	.2274991
49	Avturbo/gasoline	.40	.12435	.12435	.4068887	.4059213	.3981866	.3981866	.3972840
50	LPG and others	.13	.0535	.0535	.1322560	.1321022	.1292427	.1292427	.1289494
51	Cement	-.16	.2	.2	-.356251	-.350361	-.364354	-.364354	-.455497
52	Other nonmetallic mineral products	.10	.2	.2	.0843556	.0817508	.0715133	.0715133	.0157880
53	Basic metals	.03	.2	.2	-.116837	-.121556	-.136459	-.136459	-.310300
54	Fabricated metal products	.28	.2	.2	.5693381	.5626350	.5420653	.5420653	.2831421
55	Machinery except electrical	.05	.2	.2	-.026587	-.029623	-.040088	-.040088	-.134312
56	Electrical machinery and appliances	.19	.2	.2	.2647039	.2607238	.2508354	.2508354	.0505905
		.19	.3	.3	.2766442	.2683779	.2508354	.2508354	.0505905
		.19	.5	.5	.3005248	.2806243	.2508354	.2508354	.0505905
57	Transport equipment	.36	.2	.2	.3634803	.3595014	-1.042e7	-1.042e7	.2359980
58	Miscellaneous manufactures	-.02	.2	.2	-.182356	-.184958	-.193723	-.193723	-.278615
		-.02	.3	.3	-.174550	-.179954	-.193723	-.193723	-.278615
		-.02	.5	.5	-.158939	-.171948	-.193723	-.193723	-.278615

*Negative free trade value added

a/ Intermediate good.

b/ Final good.

TABLE 6
EFFECTIVE PROTECTION RATES FOR SELECTED I-O SECTORS, AFTER PD 1991 – (sm^{''})

Sector No.	Description	ti	sm ^{''}	sd	E P R 1		E P R 2 – Ism ^{''}		EPR4 sm ^{''}
					Ism ^{''} a/	Fsm ^{''} b/	Fsm ^{''} EPR3	Fsm ^{''} EPR3	
3	Corn	-.01	.0125	.01	-.032481	-.029788	-.0297729	-.0324724	-.043572
4	Coconut incl. copra in farms	-.15	.0125	.01	-.186965	-.184528	-.1764079	-.1788510	-.182817
6	Banana	-.02	.0125	.01	-.042225	-.039336	-.0393780	-.0422740	-.053017
7	Other crops incl. agricultural services	.43	.0125	.01	.4567991	.4608322	.46096035	.45691717	.4381823
12	Commercial fishing	.00	.0125	.01	-.047029	-.044150	-.0437308	-.0466162	-.066552
13	Fishpond and other fishery activities	.00	.0125	.01	-.014201	-.011498	-.0114168	-.0141261	-.026589
14	Forestry and logging	-.20	.0125	.01	-.221962	-.219775	-.2198182	-.2220098	-.229921
15	Copper ore	.00	0	0	-.034130	-.034130	-.0327933	-.0327933	-.059528
16	Gold and silver ore	.00	0	0	-.024325	-.024325	-.0233136	-.0233136	-.043548
17	Chromium	.00	0	0	-.027634	-.027634	-.0262058	-.0262058	-.054766
18	Nickel	.00	0	0	-.034696	-.034696	-.0329272	-.0329272	-.068295
19	Other metallic ores	.00	0	0	-.025049	-.025049	-.0241267	-.0241267	-.042580
22	Rice and corn	-.01	.0125	.01	.017766	-.014820	-.0124215	-.0182146	-.018351
23	Sugar	.00	.02	.02	-.007015	-.007035	-.0077367	-.0077367	-.014045
24	Milk and dairy products	.26	.125	.1	.3504163	.4204481	.41207896	.34025145	.2203230
25	Coconut oil	-.09	.02	.02	.0007503	.0006946	-.0000217	-.0000217	-.041415
26	Cooking oil*	.40	.125	.1	-4.75472	-5.04933	-4.988382	-4.686217	-4.69655
27	Meat and meat products	.49	.125	.1	.5108482	.5462980	.53788431	.50152550	.5243621
28	Flour and other grain mill products	.22	.125	.1	.1748632	.2280350	.22099662	.16646136	.0890869
29	Animal feeds	.06	.25	.2	.1975371	.4776186	.42202172	.12719909	.0598321
30	Other processed food	.21	.125	.1	.4459142	.5200049	.51063775	.43464735	.3180298
		.21	.25	.2	.4668116	.5991616	.22567373	.43464736	.0330658
32	Tobacco manufactures	.42	.0882	.0882	.4718962	.4708081	.46676491	.46676491	.3009025
33	Textile and goods excluding wearing apparel	.26	.25	.2	.2943255	.4046681	.38970788	.27355774	.1081628
		.26	.375	.3	.3117480	.4605095	.43438099	.27355773	.1528360
34	Wearing apparel and footwear	-.02	.25	.2	-.081325	-.024658	-.0301340	-.0931723	-.145722
		-.02	.375	.3	.072378	.0040192	.11932800	-.0931723	.0037402

35	Lumber	-.04	.0125	.01	.3285478	.3381308	.34019076	.33058371	2707751
36	Other wood	-.04	.0125	.01	.0168807	.0223011	.02297836	.01754441	-.017737
37	Furnitures and fixtures	-.20	.25	.2	-.414716	-.344234	-.360011	-.434202	-.415438
		-.20	.375	.3	-.403587	-.308565	-.331476	-.434202	-.386903
38	Paper and paper products	.41	.125	.1	.5176709	.5826413	.5752303	.5085939	3902732
		.41	.25	.2	.5359951	.6520534	.6307590	.5085932	4458028
40	Leather and leather products	-.27	.375	.3	-.429195	-.373080	-.383738	.444403	-.473900
41	Rubber and Plastic Products	.15	.25	.2	.0468947	.1511761	.1347511	.0249811	-.085598
42	Drugs and Pharmaceuticals	.18	.125	.1	.1841555	.2277352	.2214966	.1767995	1227865
		.18	.25	.2	.1964469	.2742944	.2587438	.1767991	1600337
		.18	.625	.5	.2333220	.3767253	.3486886	.1767991	2419784
43.	Industrial Chemicals	-.02	.25	.2	-.068513	-.009039	-.021718	-.084322	-.081158
44.	Fertilizer	.06	.25	.2	.0264304	.1017373	.0872376	.0079672	-.019123
45	Other Chemical Products	.40	.125	.1	.8674383	.9490514	.9371068	.8534011	.7574706
		.40	.25	.2	.8904586	1.036246	1.006863	.8534023	.8272266
46	Gasoline	.32	.3	.3	.3372883	.3326720	.3173888	.3173888	.3152973
47	Diesel Oil	.29	.1036	.1036	.2937987	.2931697	.2871399	.2871399	.2863070
48	Fuel Oil	.23	.1558	.1558	.2380600	.2367609	.2284778	.2284778	.2273758
49	Avturbo/Gasoline	.40	.12435	.12435	.4068774	.4059100	.3981866	.3981866	.3970594
50	LPG and Others	.13	.0535	.0535	.1322523	.1320986	.1292427	.1292427	.1288762
51	Cement	.00	.25	.2	-.355565	-.305453	-.311604	-.364354	-.405422
52	Other Non-Metallic Mineral Products	.22	.25	.2	.0878390	.1497020	.1366323	.0715133	.0724309
53	Basic Metals	.15	.25	.2	-.101067	.0110095	-.018484	-.136459	-.229994
54	Fabricated Metal Products	.28	.25	.2	.5763829	.7355829	.7096443	.5420653	.3905303
55	Machinery except Electrical	.05	.25	.2	-.023107	.0489812	.0357942	-.040088	-.079879
56	Electrical Machinery and Appliances	.19	.25	.2	.2683152	.3628426	.3503379	.2508354	1.029136
		.19	.375	.3	.2832406	.4106803	.3886081	.2508354	1.1411838
		.19	.625	.5	.3130913	.4872207	.4498404	.2508354	.2024161
57	Transport Equipment	.36	.25	.2	.3681764	.4626760	-.1.042e7	-.1.042e7	.3100222
58	Miscellaneous Manufactures	-.02	.25	.2	-.179457	-.117662	-.128675	-.193723	-.233655
		-.02	.375	.3	-.169700	-.086390	-.103657	-.193723	-.208637
		-.02	.625	.5	-.150186	-.036353	-.063628	-.193723	-.168608

* Negative free trade value added.

a/ Intermediate good.

b/ Final good.

after Presidential Decree (PD) 1991 based on the sm' estimates. Note that differential sales tax rates were more prevalent in 1979 (with differential rates in 20 sectors), diminished in importance in 1985 before Presidential Decree (PD) 1991 (with differential rates in 10 sectors) and were completely eliminated in 1985 after Presidential Decree (PD) 1991.

The amount of protection due to the markup provision, assuming that this provision is in fact discriminatory, averaged 38.69 percent in 1979, 18.60 percent in 1985 before Presidential Decree (PD) 1991, and 27.46 percent in 1985 after Presidential Decree (PD) 1991. The estimates for 1979 were higher because higher markup rates were in effect in that year than in 1985. We note that these figures are higher than the estimates of the amount of protection due to the additional capital holding costs but less than those due to the differential sales tax rates.

6. Summary/Recommendations

The following results are obtained from the analysis: (1) if we abstract from the additional capital holding costs arising from the advanced payment of the sales tax on imported goods and if the indirect tax rate on imported good, sm , is not equal to the indirect tax rate on the domestically-produced equivalent of the same good, sd , i.e., if $sm \neq sd$, then the indirect tax system has a protective effect over and above tariffs on the final goods but not on intermediate goods; (2) if $sm=sd$ and if we ignore capital holding costs, the indirect tax system has no incremental protective effect on both final and intermediate goods; (3) ignoring capital holding costs, the protective effect of a nonunified indirect tax system is significant; (4) capital holding costs are an additional source of protection for both final and intermediate goods; (5) quantitatively, the incremental protective effect of the additional holding costs is slight; (6) the protective effect of the 25 percent markup provision, if in fact it is a source of discrimination, is not negligible but is less than the protective effect of a nonunified indirect tax system.

As things stand now, given the various new tax measures implemented since 1983 culminating in Presidential Decree (PD) 1991 (October 1985) which unifies the sales tax rates on semi-essential and essential articles, $smsd$ for all goods except automobiles. This implies that the protective effect of the indirect tax system now

comes only from additional capital holding costs and the markup provision, except for automobiles which are still protected due to the differential sales tax rates on imports and locally-manufactured items.

While these new tax measures achieve virtual unification of the indirect tax system (which is good from the point of view of the Tariff Reform Program or TRP) they, particularly Presidential Decree (PD) 1991, have resulted in a more regressive indirect tax system. Presidential Decree (PD) 1991 increased sales tax rate on most essentials from 5 to 10 percent; the sales tax rate on other articles from 10 to 20 percent, and the sales tax rate on semi-essentials from 25 to 30 percent. The sales tax rate on nonessentials has not changed. What we observe, therefore, is a doubling of the tax rates on goods in the bottom part of the "essentially" scale (presumably these goods constitute a larger share in the budget of lower income groups), an increase of 20 percent in tax rate on goods in the middle part and no change in the tax rate on goods in the top part or non-essentials (presumably this group of goods accounts for a bigger share of the high income group consumption). Coupled with the reduction in the peak tariff rates on many consumption goods which is part of the TRP, this movement may unduly encourage increased consumption of nonessentials.

From the point of view of improving the progressivity of the indirect tax system, as well as to discourage luxury consumption, the following alternative sales tax rates are proposed: (1) nonessentials — 60 percent; (2) semi-essentials — 30 percent; (3) other articles — 15 percent; and (4) essentials — 5 percent. The National Tax Research Center (NTRC) estimated that this would imply a reduction of ₱3.4 billion in revenues in 1986. If this revenue reduction cannot be compensated from other revenue sources, then the sales tax rate on ordinary and essential articles might have to be set at 20 and 10 percent, respectively.

The appropriateness of the markup provision should be the subject of further empirical study. If it is found to be inappropriate then the markup should be eliminated since it has been shown that it is an additional source of protection and that its effect is not negligible.

The removal of the advance payment of sales tax on imported goods is not recommended since the additional protection arising from this is slight but the administrative inconvenience of collecting the tax at a later point might be considerable.

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