

Cororaton, Caesar B.

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Philippine Institute for Development Studies

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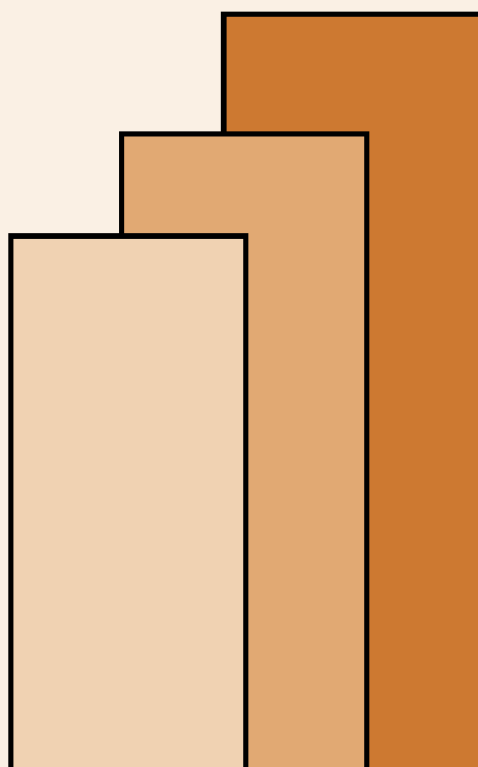
Caesar B. Cororaton

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The Research Information Staff, Philippine Institute for Development Studies
3rd Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: 8924059 and 8935705; Fax No: 8939589; E-mail: publications@pidsnet.pids.gov.ph
Or visit our website at <http://www.pids.gov.ph>

The Philippine Tariff Structure: An Analysis of Changes, Effects and Impacts¹

Caesar B. Cororaton²
(First Draft, October 1998)

I. Introduction

One of the most highly controversial reforms implemented in the Philippines in recent years is the trade reform. The trade reform program consisted of (a) the “tariffication” of quantitative restrictions; (b) the simplification of the tariff rate structure to a narrower rate range, and (c) the reduction in the tariff protection. The overriding objective of the reform program is to promote production efficiency, and therefore promote international competitiveness of the local products. The paper discusses the effects of the program on (i) the structure of tariff; and (ii) the effects and impacts on resource allocation, income distribution, and on households in terms of food availability. The analysis in the paper is based on a survey of related literature as well as on a set of model simulations using an economy-wide model of the Philippine economy.

The reforms in the trade sector intensified beginning 1992. From that year on to the mid-1997, the economy registered a robust economic growth in terms of gross domestic product (see the table below). Interestingly, during the same period, poverty incidence consistently dropped from 44.2 percent in 1985 to 35.5 percent in 1994 to 32.1 percent in 1997. There was a significant drop in the poverty incidence in the National Capital Region (NCR) from 23.1 percent in 1985 to 8.0 percent in 1994 and further down to 7.1 percent in 1997. Although poverty incidence in areas outside NCR also dropped over the same period the drop was considerably lesser than NCR’s. In 1997, poverty incidence in these areas is still very high at 36.2 percent. Furthermore, in a much poorer region, the CAR, poverty incidence in 1997 is still above 40 percent. Clearly, there was a deterioration in the gap between the urban and the rural areas. In fact, this is clearly reflected in the rise of the Gini Ratio from 0.451 in 1994 to 0.496 in 1997. Indeed, this widening gap is a major concern at present. While this could be a

¹ A paper written under the Philippine-MIMAP project and presented during the MIMAP conference in Katmandu, Nepal, November 1998.

² Research Fellow, Philippine Institute for Development Studies

result of a host of factors that transpired during the period, certainly, it is worth looking at whether the trade reform process contributed to this.

Philippine Economy

	1985	1991	1994	1997
Real GDP growth (%)	-7.2	-0.6	4.4	5.2
Gini Ratio	0.446	0.468	0.451	0.496
Poverty Incidence				
Philippines	44.2		35.5	32.1
NCR	23.0		8.0	7.1
Outside NCR	47.5		39.9	36.2
CAR			51.0	42.3

Where NCR is National Capital region, CAR is Cordillera Autonomous Region.

II. Trade Reforms³

II.A Before 1990s.

The major turning points in trade policy reforms in the Philippines before the 1990s took place during the following years:

- (i) 1962 when the government dismantled the import and foreign exchange restrictions.
- (i) 1965 when the Philippine peso was officially devalued from P2 to P3.9 per US dollars.
- (i) However, because of persistent BOP imbalance, the foreign exchange controls were re-imposed in 1967 and the exchange rate was further devalued from P3.9 to P6.4 to US dollar.

³ Based on the paper of Manasan and Querubin (1997).

(i) In the 1973, a major tariff reform program was put in place. The purpose of the program was to simplify the tariff rate structure to a system of six tariff rates. However, during the same period non-tariff measures such as quantitative restrictions (QRs) were intensified. For example, the Central Bank prohibited the importation of consumer goods which are classified as non-essential, unclassified or semi-classified. Also, about the same period taxes were imposed on major traditional exports.

(v) A major trade reform program was launched in 1980. This program has three major components: the 1981-1985 Tariff Reform Program (TRP); the Import Liberalization Program (ILP); and the complimentary realignment of the indirect taxes. In TRP, there was a narrowing of the tariff rate structure from a range of 100 – 0 percent to 50 – 10 percent. During the period 1983-1985 sales taxes on imports and locally produced goods were equalized. Also, the mark-up applied on the value of imports (for sales tax valuation) was reduced and eventually eliminated. Lastly, because of the balance of payments crisis during the mid-1980s the import liberalization program was postponed. In fact, some of the items which were deregulated earlier were re-regulated.

(vi) When the Aquino government took over in 1986, the trade reform program of the early 1980s was resumed. In fact, the number of regulated items was reduced from 1,802 in 1985 to 609 in 1988. Furthermore, export taxes on all products except logs were abolished.

II.B. Within 1990s

Table (1) summarizes the trade reform program during the 1990s. The government launched a major reform program in 1991 with the issuance of the Executive Order (EO) 470 (also called the TRP-II, an extension of the previous trade reform program). Under this program, tariff rates were realigned over a five-year period. The realignment involved the narrowing of the tariff rate range through a series of reduction of the number of commodity lines with high tariffs and an increase in the commodity lines with low tariffs. In particular, the program was aimed at clustering the commodities with tariffs within the 10 – 30 tariff rate range by 1995. Despite the programmed narrowing of the tariff range,

about 10 percent of the total number of commodity lines were still subjected to 0 - 5 percent tariff and 50 percent tariff rates by the end of the program in 1995.

“Tariffication” of QRs started in 1992 with the implementation of EO 8. There were 153 commodities whose QRs were converted into tariff equivalent rates. Also, under the same EO, tariff rates on 48 commodities were further re-aligned. EO 8 raised the tariff rates applicable to the relevant commodities by 100 percent of their pre-EO 8 levels. In effect, the tariff rates imposed were higher than the tariff equivalent rates in a number of cases, especially during the initial years of the conversion. However, EO 8 has a built-in program for a five-year phase-down of the “tariffied” rates.

Under the import liberalization program, de-regulation continued on 286 items. By the end of 1992, only 164 commodities were covered under the QRs. However, the implementation of the Memorandum Order (MO) 95 in 1993 reversed the de-regulation process. In fact, QRs were re-imposed on 93 items, bringing up the number of regulated items under the QR to 257. This re-regulation came largely as the result of the Magna Carta for Small Farmers in 1991.

Major reforms were implemented under the TRP-III. The program embodied in the following EOs: (i) EO 189 implemented in January 1, 1994 which provided reduced tariff rates on capital equipment and machinery; (ii) EO 204 in September 30, 1994 which mandated tariff reduction in textiles, garments, and chemical inputs; (iii) EO 264 in July 22, 1995 which reduced tariffs on 4,142 harmonized lines (HS) in the manufacturing sector; and (iv) EO 288 in January 1, 1996 which reduced tariffs on “non-sensitive” components of the agricultural sector. The restructuring of tariff under these EOs refers to a reduction in the number of tariff tiers and the maximum tariff rates. In particular, the program was aimed at establishing a four-tier tariff schedule: 3 percent for raw materials and capital equipment which are not available locally; 10 percent for raw materials and capital equipment that are available from local sources; 20 percent for intermediate goods; and 30 percent for finished goods.

Another major tariff program which is in the pipeline and is likely to be implemented starting 2004 is the uniform tariff rate. At the moment, debate is

still ongoing on as to the possible effects of this tariff program and at what rate will the tariff be made uniform across sectors. Suggestion of five percent has been put forward.

It should be emphasized at this point that analyses concerning the impact of tariff changes generated mixed results. Some simulation results would point to an output-augmenting tariff changes, while others would not. There are also differentiated effects at the sectoral level. While some simulations show favorable effects on agriculture relative to industry, and others do not. This differentiated effects lead to differentiated effects on income distribution. In cases where agriculture is favorable affect, households in the lower income brackets are favorable affected as well. This is because these household groups heavily depend on agriculture.

III. Review of Impact Studies Concerning Tariff Changes

III.A. Impact On Tariff Simplification and International Competitiveness

In a recent paper, Manasan and Querubin (1997) analyzed the impact of the different trade and tariff reform programs which took effect in the 1990s on tariff simplification and international competitiveness. Their analysis of tariff simplification was based on the frequency distribution of tariff rates across HS (harmonized system) lines, while their international competitiveness analysis was based on mean, standard deviation, and coefficient of variation of tariff rates and effective rates of protection (EPRs) and on the movement of the index $(1+EPR)$.

There is an extensive system of incentive provisions and exemptions in the economy. Thus to account for these factors, they adjusted the nominal tariff, as well as the implicit rates for duty exemptions (see Section V for further discussion). Furthermore, they have two indicators for implicit tariff rates: one, involving book rates, and, another price comparison. Price comparison implicit tariff rates were computed using domestic prices and border prices, where border prices were indicated by Hong Kong price and FAO prices on selected agricultural products.

The study found that as a result of all these trade and tariff reform programs, there have been significant achievements in the area of tariff simplification. The programs transformed the tariff system from a five-level rate schedule to a three-level rate schedule. In fact, most of the commodities cluster around the 3-20 percent range. Moreover, the HS lines is programmed to reduce from 6,197 in 1990 to 5,725 in 2000. This is a significant development as it streamlines customs administration and minimizes incentives for evasion.

Based on the results of the computation, they claim that there are some gains in terms of the reduction in the average nominal and implicit tariff rates, as well as in the EPRs over the 1990-2000 period. Overall, the average nominal tariff rate shall have been reduced from 33.3 percent to 19.5 percent in 2000. Likewise, the average implicit rate based on price comparison shall have been reduced from 28.6 percent in 1990 to 16.8 percent in 2000. In addition, the overall EPR based on price comparison shall have been reduced from 29.4 percent to 18.0 at the turn of the century.

It should be emphasized that their results indicate that the decline in the EPRs is more pronounced for the manufacturing group than for the primary group, particularly the agriculture sub-group. This means that there is a switch-over in the relative protection in agriculture and manufacturing sectors. Relative protection is found to be increasing from 1995 to 2000, in sharp contrast to the previous decades when the agricultural sector was penalized heavily relative to the manufacturing sector. During the period 1990-1994, the manufacturing group enjoyed relatively higher protection than agriculture. There is a major switch during the period 1995-2000 in favor of agriculture.

III.B. Macro and Industrial Effects

There are a number of simulations results derived using different models analyzing some of the developments and reforms that had taken place in the trade sector, particularly the foreign trade. This section summarizes a few of the simulations conducted on tariff changes using different types of economic models on the Philippines economy. Some of the tariff rate changes analyzed were actual changes, while some are “analytical” changes. The former attempts

to understand the actual effects of the actual changes, while the latter tries to understand the likely effects of some of the tariff changes programmed to be implemented in the future. These studies are included here so as to situate, as well as put the set of simulation results obtained in the present paper in context.

In one of the MIMAP papers Jap (1997) simulated the changes in tariff from 1993 to 1996 using the PIDS macroeconometric model. His results showed that total the overall output of the economy increased as a result of the decline in the average tariff rate. In terms of the sectoral output effects, all major sectors showed output improvement. However, there are differentiated effects across major sectors, with Industry benefiting the most, while agriculture the least during the simulation period.

In another paper Jap (1997) conducted another set of simulations concerning across-the-board uniform tariff of five percent using a smaller macroeconometric model based on a three-gap framework. In particular, the average tariff rate is programmed to decline toward five percent by the year 2004. The results indicate a greater demand for imports which leads to worsening of the trade deficit. This effect in turn puts pressure on the exchange rate. However, the increase in the volume of imports does not compensate for the reduction in the tariff level, and as such, leads to a deterioration in the fiscal balance. In general, the implication of the analysis is that tariff reduction makes macroeconomic constraints more restrictive, which leads to an unambiguous fall in investment and, consequently, in a lower growth rate.

However, using a partial equilibrium, trade model based on input-output framework, Tan (1997) found that the five percent uniform tariff has favorable effects. Output can increase from the trade reform and from the five percent uniform tariff as resource allocation improves within the tradable sector due to changes in relative prices. Further simulations show that a much lower uniform tariff (say three percent) translates to a potentially higher growth in output and income. The growth rate for the manufacturing sector is highest, while the decrease in output is least for agriculture. Additional insights from the simulation results indicate that a much higher uniform tariff rate results in a greater rate by which the output of agriculture will fall.

Cororaton (1995) conducted few simulations concerning changes in the sectoral nominal and implicit tariff rates from 1988 to 1992 using the APEX (1992) model, which is a computable general equilibrium model of the Philippine economy. The implicit tariff rates used in the simulation exercises were computed with the following adjustments: duty exemption, BOI incentives, duty drawback, VAT exemptions and discriminatory excise tax.

The average annual effect on real GDP using nominal tariff rate change is 0.47 percent increase. There is a marginal increase in inflation of 0.04 percent. However, the increase in GDP is accompanied by a 0.11 percent increase in the current account deficit, as the increase in exports surpasses the increase in imports. However, when the exchange rate was adjusted to bring back the external sector in balance, the annual average growth of GDP is reduced to 0.44 percent. This is the effect of a much higher impact on prices as a result of the adjustment in the exchange rate.

In another paper, Cororaton (1997) conducted another round of simulations concerning tariff changes within two different exchange rate regimes, fixed and flexible exchange rates, using a financial computable general equilibrium (FCGE) model of the Philippine economy constructed by Jemio and Vos (1993). One of the major results indicate that changes in tariff within a flexible exchange rate would have the biggest effect in terms of GDP growth. That is, a tariff reduction program implemented within a flexible exchange rate regime has the biggest positive effect on output. However, the effect on income is marginal, particularly income distribution. This is probably due to the less elaborated treatment of income in the model.

III.C. Income Distribution Effects

There are few simulation results analyzing the income distribution effects of trade reform program in the Philippines except for two papers: Jap (1997), and Cororaton (1995). This section summarizes the results of these papers.

Jap (1997) extended his paper to capture the income distribution effects of the tariff change from 1993 to 1996 by extending his macroeconomic

model with an income distribution sub-model. The income sub-model is driven by the sectoral gross value added results of the main macro model. The income distribution effects as indicated by the Gini Ratio shows a deterioration in income distribution. One possible reason for this type of effect can be observed if one links this results with his sectoral output. As discussed above, the industrial sector registered the biggest positive increase in output. Although the output of the agricultural sector increased as well, its rate of increase was far below the industrial sector. Since households in the lower income brackets in the Philippines heavily depend on the agricultural sector, the relatively slower growth in agriculture naturally generates unfavorable income distribution effects.

Cororaton (1995) generated some income distribution simulation results concerning tariff changes from 1988 and 1992 using the same APEX model cited above. The results would indicate some progressivity in the tariff change during the period, i.e., households in the lowest income group enjoyed the highest increase in income compared to the highest income group. The progressivity in the tariff change was more pronounced in the results on households labor income. These results hold for both fixed and flexible exchange rates.

Furthermore, the progressiveness of the tariff change could be explained by the results on prices of unskilled labor, skilled labor, and the price of variable capital. For both fixed and flexible exchange rate regimes, unskilled labor gets the highest increase in wages. Unskilled labor usually belongs to the poorest segment of the population. Furthermore, the price of capital increases a lot faster than the general price of labor. Since substitution between labor and capital is allowed in the model, the higher increase in the price of capital relative to the price of labor resulted in some kind of a substitution effect in favor of labor. This effect partly explained the favorable income distribution effects.

III.D. Household Effects

There is only one paper available which looked at the household effects of the tariff change. Using a linking matrix, which links the results of a CGE model on sectoral prices and household incomes with household model on nutrition outcome (discussed in more detail in the next section), Orbeta and Alba

(1996) quantified the calorie and protein availability effects in different household types as a result of the tariff changes between 1988 and 1992. In particular, they utilized the results of the APEX model simulations on sectoral prices and household incomes concerning the said tariff change between these two years. They arrived at a set of results which indicate that except for beverages, prices decline as a result of the tariff program between 1988 and 1992. The income change shows that the same tariff program has progressive effects as lower income households received higher income increase compared to the higher income households.

Through the use of the linking matrix which they developed, they were able to compute for the change in the demand for food resulting from the price and income changes. As a result of the decline in prices, household increase their demand for most of the food items except for the highest income quintile where only the demand for cereal, fish and other food increase. Furthermore, they translated these effects into changes in calorie and protein availability in households. The set of results they arrived would indicate that the 1988-1992 tariff reform program was not only progressive in terms of income, but also equally progressive in terms of macro nutrient availability in households. In particular, lower income households are shown to have greater increase in both calorie and protein availability.

IV. Brief Description of the Model

IV.A. Economy-Wide Model of the Philippines

The results of the simulation presented in this paper were derived using the 34-sector economy-wide developed by Cororaton (1997). Appendix 1 discusses the basic structure of the model. It is important to emphasize here that the model is still in a development stage at the moment. Although the model can be used to analyze policy changes as such tariff changes, it does not capture at the moment some of the institutional rigidities in the actual economy. For example, both factor and product markets are price-clearing, making the model very neoclassical in spirit. In the labor market, for example, there is no unemployment. Both wages and labor adjust to clear the market for any shock introduced into the system. Therefore, the issue of unemployment as a result of

changes in policies, such as tariff reforms, although very important concern in MIMAP, is not yet captured in the model. However, efforts are currently undertaken to modify the specification of them model to be able to capture these nuances. Furthermore, the model is a one-period model. As such it cannot capture the “dynamic” effects of a policy shock. Because of these, the results of the simulations are preliminary in nature. Further simulation runs will be conducted after some of these modifications are incorporated into the model. Results will then be compared with the results obtained here.

IV.B. Linking Matrix

Orbeta (1994) developed a framework⁴ for simulating the effects of food policies in which three types of policy instruments were identified: supply shifters, demand shifters, and price wedges. From an estimated demand curves for food (q_i), the percentage change in quantities demand can be expressed as:

$$(1) \quad \dot{q}_i = \sum_j^n e_{ij} \dot{p}_j^d + \gamma_i \dot{y} \quad i = 1, \dots, n$$

where the dots (\bullet) indicate percentage changes, e_{ij} direct and cross-price elasticities of demand; p_j^d demand price; γ_i income elasticity of demand; and y income. On the other hand, supply changes can be represented as

$$(2) \quad \dot{q}_i = \sum_j^n s_{ij} \dot{p}_j^s + \delta_i \quad i = 1, \dots, n$$

where s_{ij} are the supply elasticities, p_j^s supply price and δ_i supply shift variable.

Moreover, to allow for price subsidies, the equilibrium relationship can be written as

$$(3) \quad \dot{p}_i^s = \dot{p}_i^d + \beta_i \quad i = 1, \dots, n$$

⁴The framework was originally developed by Quisumbing (1985).

where β_i is the size of subsidy wedge for commodity i .

In matrix form these three sets of n equations can be expressed as

$$(4) \quad \begin{bmatrix} -H & 0 & I & \dot{P}^d \\ 0 & -S & I & \dot{P}^s \\ -I & I & 0 & \dot{Q} \end{bmatrix} = \begin{bmatrix} \dot{\Gamma}y \\ \dot{\Delta} \\ \dot{B} \end{bmatrix}$$

where

H : $n \times n$ matrix of demand elasticities, e_{ij}

S : $n \times n$ matrix of supply elasticities, s_{ij}

\dot{P}^d : $n \times 1$ vector of demand prices, \dot{p}_i^d

\dot{P}^s : $n \times 1$ vector of supply prices, \dot{p}_i^s

\dot{Q} : $n \times 1$ vector of quantities, \dot{q}_i

$\dot{\Gamma}$: $n \times 1$ vector of income elasticities of demand, $\dot{\gamma}_i$

$\dot{\Delta}$: $n \times 1$ vector of supply shifts, $\dot{\delta}_i$

\dot{B} : $n \times 1$ vector of price subsidies, $\dot{\beta}_i$

The solution for the changes in equilibrium prices and quantities as a function of the policy variables can be expressed as

$$(5) \quad \begin{bmatrix} \dot{P}^d \\ \dot{P}^s \\ \dot{Q} \end{bmatrix} = \begin{bmatrix} (S-H)^{-1}(\dot{\Gamma}y - \dot{\Delta} - \dot{S}B) \\ (S-H)^{-1}(\dot{\Gamma}y - \dot{\Delta} - \dot{H}B) \\ H(S-H)^{-1}(\dot{S}H^{-1}\dot{\Gamma}y - \dot{\Delta} - \dot{S}B) \end{bmatrix}$$

Thus, given the changes in the equilibrium consumption of commodities, the percentage change in the equilibrium level of nutrient consumption is

$$(6) \quad \dot{N} = K \dot{Q} = K \{ H(S-H)^{-1}(\dot{S}H^{-1}\dot{\Gamma}y - \dot{\Delta} - \dot{S}B) \}$$

where K is an $1 \times n$ vector of K_i , the fraction of initial total nutrient consumption provided by commodity i . This equation serves as the linking equation, while Q as the linking matrix.

This framework would allow one to compute for the changes in calorie and protein consumption under policy changes affecting the market for food. The parameters of the matrix are derived from the household models estimated by Orbeta and Alba (1996).

V. Empirical Results

The objective of the paper is to analyze the income distribution and resource allocation effects of implicit tariff changes from 1990 to 2000. To date a number of tariff programs have been put in place. As discussed above, a number of Executive and Memorandum Orders have been put into effect since 1991. While Manasan and Querubin (1997) analyzed the impact of these programs both on implicit tariff rate and effective rate of protection in their paper, they did not look into the effects on income distribution and resource allocation. Tariff changes lead to changes in relative output and factor prices. Because of these changes resources would move across sectors and would in turn lead to changes in resource allocation. Furthermore, changes in relative factor prices affect income of institutions and therefore income distribution. The paper will attempt to understand the effects of these changes using a 34-sector economy-wide model of the Philippine economy

The simulations were conducted using 1988 implicit tariff rates in the base run. The effects of the tariff change from 1990 to 2000 were compared with the base run using percentage difference. It should be emphasized that the model is not dynamic, but a one-year, static model. Thus, the annual results were derived from independent simulation runs of the model using the annual implicit tariff rates from 1990 to 2000 discussed below.

V.A. Computation of Implicit Tariff Rates

The analysis starts with the implicit tariff rates computed by Manasan and Querubin (1997). The sectoral Implicit tariff rates were computed

using price comparison wherein domestic prices are compared with border prices. In particular, the formula used to compute for the implicit tariff rate for commodity/product j is given by

$$(7) \quad T_j = P_d / P_b - 1$$

where P_d is domestic wholesale price obtained from the National Statistics Office and the Bureau of Agricultural Statistics, and P_b is data on border prices from Hongkong Trade Statistics and FAO.

The implicit tariff rate derived using the above formula were adjusted for duty exemption. The formula for adjustment is given by

$$(8) \quad T_j^{adj} = (T_j M_j - D_j) / M_j$$

where T_j^{adj} is the duty exempted implicit tariff rate of commodity/product j; T_j is the computed implicit tariff rate; M_j total imports of sector j for a given year; D_j is the value of revenue foregone from duty exemptions of imports of sector j.

Data used to compute for the price comparison estimates were available for the years 1990-1995 only. To smoothen out year-to-year fluctuations, the average price relatives in the three-year period ending in the current year was used in estimating implicit tariff rates. For example, the average price ratios for 1991, 1992 and 1993 were used to estimate the implicit tariff rate for 1993. Moreover, the relative price estimates obtained for 1995 were assumed to hold in 1995-2000 for the remaining regulated items in estimating the “price comparison” implicit tariff rates.

Manasan and Querubin estimated the implicit tariff rates with adjustments for 169 sectors. To make sectors consistent with the sectors of the model, further aggregation was made here to 34 sectors. The aggregation used import-plus-output as weights. This system of weighting overcomes the biases associated with output weights or import weights alone. To facilitate the analysis, the rates were further aggregated into 5 major sectors: total agriculture; mining; total manufacturing, food manufacturing and other manufacturing.

The implicit tariff rates for the 5 major sectors are shown in Figure 1. One can observe that there is a general decline in the implicit tariff rates in all major sectors starting 1995. Food manufacturing still has the highest implicit tariff rate level, while mining has the lowest. In 1992, the implicit tariff rate of agriculture crossed the declining rate of other manufactures. It increased up to 1994 and started to decline in 1995. From 1996 to 2000, its implicit tariff rate is above other manufactures but below total manufactures

V.B. Simulation Results

Table 2 shows the effects of changes in implicit tariff on income distribution. The results presented in the table are percent difference in the share of household income between the scenarios (implicit tariff rates from 1990 to 2000) and the base. To facilitate the analysis, focus on the period totals. From 1990 to 1994, changes in the implicit tariff rates were generally progressive, i.e., households under group 1 (first decile) up to household group 7 (seventh decile) enjoyed a positive total increase in their share of the income pie. The last three household groups, 8 to 10, suffered a decline in the share. Note that the last three groups are the richest income groups.

However, during the period 1995 and 1996, the change in the implicit tariff rates were highly regressive. The poor income groups suffered a decline in the share in the income pie, while the rich enjoyed an increase. Looking back at Figure 1, one can observe that it was during these years when the implicit tariff rates on agriculture registered the biggest drop.

From 1996 to 2000, the effects reversed to favor the poor household groups. The first group up to the seventh registered an increase in their respective income share, while the eighth to the tenth household group suffered a decline. The share of the second group increased the most among the household groups which enjoyed an increase in the share. However, the lowest increase is seen in the seventh, followed by the first household group.

On the whole, the change in the implicit tariff rates can be generally considered progressive, except for the first decile, the poorest among the poor. For the entire period, 1990 to 2000, the last three income groups suffered a

decline in their income share, while the second to the seventh income groups enjoyed an increase. Unfortunately, unfavorable effects are observed in the first decile. Its income share declined by -1.7 percent over the entire period.

Table 3 shows the absolute change in the income of households from the base. The progressivity of the tariff change is more pronounced in the period 1990-1994 with the first five income groups enjoying above two percent increase in income from the base. The increase in income for the last two groups from the base is less than 1 percent. An opposite picture is seen in 1995 and 1996. The tariff change during the period is highly regressive. The poor income groups (first to fourth) suffered a decline in their respective absolute income from the base, while the rich ones (eighth to tenth) enjoyed a positive increase. Favorable effects are observed in the period 1996-2000.

Over the entire period, 1990-2000, all income groups enjoyed an increase in their absolute income from the base as a result of the tariff change. However, the lowest increase is seen in the poorest household, the first group. Thus, while its share to the total income pie declined relative to the other income groups, the fact that its absolute income increased relative to the base would indicate that the tariff reform programs, especially in the second half of the 1990s, is generally favorable.

Table 4 presents the percent change in consumption of the different household groups relative to the base. Almost the same pattern is observed as in the previous table, except that the rich groups show higher increase in consumption than the poor groups over the entire period.

The results on factor prices presented in Table 5 will help explain the pattern of income distribution effects seen above. Presented in the table are results on agricultural wages (WAAG); non-agricultural wages (WANAG); price of mixed factor (RENTMX); and price of capital (RENTKAP). Again focus on the period totals. In the period 1994, one of the things that triggered the progressive effects is the relatively high increase in WAAG. During the period it increased by 9.7 percent, which is a lot higher than the other three factor prices. One should note that lower income groups heavily depend on agricultural labor, thus an increase in agricultural wage will naturally benefit them.

In the succeeding two years, 1995 and 1996, the effect on WAAG is negative. In fact it declined by a big -14.7 percent. Furthermore, the price of mixed factor declined by -5.3 percent. The major suppliers of these two factors of production are households in the lower groups. Thus, the decline in income both in terms of absolute and of distribution share of these groups during the period can largely be attributed to the decline in the prices of these factors.

In the next period ,1996-2000, all factor prices increased. However, the price of capital showed the highest increase of 18.3 percent. The reason why the lower income groups were favorably affected during the period is the 12.9 percent increase in the price of mixed factor. Over the entire period, 1990-2000, the increase WANAG and RENTKAP, were far greater than the increase in WAAG and RENTMX.

Table 6 shows the resource allocation effects of the tariff change. The numbers in the table are percent difference in the sectoral share of output and factor inputs between the results of the annual implicit tariff runs and the base run. There is a general pattern of resource movement that can be observed from the results. It involves a general resource movement from agriculture and construction to manufacturing and utilities. This is reflected in the negative numbers for agriculture and construction and positive for the rest of the sectors, particularly manufacturing, for almost all periods considered. In particular, for the entire period, 1990-2000, the share of agriculture to the total output declined by -31 percent, while construction dropped by -22.7 percent. The share of total manufacturing increased by 10.6 percent over the same period. Specifically, the share of other manufacture increased by 15.2 percent, while the share of utilities increased by a big 38.8 percent.

Factor inputs moved generally in the same manner, i.e., labor, mixed factor, and capital moved from agriculture and construction to manufacturing and utilities. Among the three factor inputs, it was mixed factor of agriculture which registered the biggest drop.

Table 7 presents the absolute change in sectoral output and factor inputs from the base value. Similar pattern holds as in the previous table, i.e., a

resource movement from agriculture and construction to manufacturing and utilities. The resource movement, particularly from agriculture, is one of the major factors behind the declining income share of the first household to the total income pie. This group heavily depends on both agriculture labor and mixed income. The effect was more pronounced in 1995 and 1996 when both income share and absolute income of the poor household groups (first to the fifth) dropped.

V.C. Household Effects: Calorie and Protein Availability

The results of economy-wide model simulations concerning tariff changes were translated into changes in food availability in households through the use of the linking matrix discussed in the previous section. In particular, results on output prices and income of households were translated into protein and calorie availability in households. However, few preliminary steps were done to translate the changes into nutrition effects:

(1) The nutrition model estimated by Orbeta and Alba (1997) (upon which the parameters of the linking matrix were based), has the following food and non-food items in the specification: cereals; fruits; meat; dairy and eggs; beverage; other food, and non-food items. To link these with the sectors in the economy-wide model the following sector conversion was made (note: the sectors in the economy-wide were aggregated to sectors in the household model using value of sectoral output in the base run)

Sectors in Nutrition Model	Sectors in Economy-Wide Model
Cereals	Palay and Corn
	Rice and Corn Milling
Fruits	Fruits
Meat	Meat Manufacturing
Dairy and Eggs	Livestock and Poultry
Fish	Fishery
	Fish Manufacturing
Beverage	Beverage and Tobacco
Other Foods	Coconut and Sugar
	Sugar Milling
	Other Food
Non-Food	Rest of the Sectors in the Model

(2) Household groups in the nutrition model were classified in quintile. However, in the economy-wide model households were grouped in decile. To link the model groups the following conversion was made

Households in Nutrition Model	Households in Economy-wide Model
First Quintile	First and Second Decile
Second Quintile	Third and Fourth Decile
Third Quintile	Fifth and Sixth Decile
Fourth Quintile	Seventh and Eighth Decile
Fifth Quintile	Ninth and Tenth Decile

The nutrition effects of the tariff change are shown in Table 8. The results are absolute changes from the base (not percent difference). Again focus on the period totals. One can observe that for the period 1990-1994, the results are all positive for all five households in terms of protein and calorie availability. However, looking closely at the magnitude of the change per household, the impact is regressive, i.e., the fifth quintile benefited the most in terms of both protein and calorie availability. This set of results is opposite to what was found in Table 2, the effect on income distribution where it was observed that for the period 1990-1994, lower income groups enjoyed increases in their income share. These two sets of results would indicate that the positive effect on income for the lower income group was not enough to offset the change in food prices as a result of the tariff change. Indeed, in Table 9 prices of food manufactures increased by 14.5 percent from the base, higher than other sectors except services. It would also be interesting to note at this point that although all implicit tariff rates registered a general decline during the period, the implicit tariff rate on food manufacturing is still the highest among all major groups.

The effect on the lower income groups during the period 1995-1996 was worst: not only it was regressive in terms of income distribution, it was also regressive in terms of protein and calorie availability. Lower income groups witnessed an absolute decline in income as well as in food availability.

In the period 1996-2000, all household registered negative change in calorie availability. However, the decline in the first household was lower than

in the second to the fifth household. However, over the same period, the effect on protein availability is clearly regressive, as the lower income groups suffered a decline, while the higher income groups enjoyed an increase.

Over the entire period, the impact on both protein and calorie availability, based on the methodology adopted in the paper, was highly regressive. Some of the lower income groups suffered a decline both in terms of protein and calorie availability. However, over the same period, the effect on income distribution was progressive, as observed above, except for the poorest of the poor, the first household group. This implies that the generally favorable income effects could not offset the unfavorable price effects on food.

VI. Summary of Results

One of the major policy reforms (often times highly controversial) implemented in the Philippines in recent periods concerns reforms in the trade sectors. The reforms consisted of “tariffication” of quantitative restrictions, simplification of tariff structure from a wide rate range to a limited rate range, and reduction in the overall tariff rate. The idea behind the reform process is (i) to promote production efficiency; (ii) to achieve better and efficient allocation of resources through market mechanisms; (iii) and to increase the competitiveness of the local products. A number of papers have analyzed the impact of changes in the trade reforms. In fact, part of the present paper is a review of the simulation results available in the literature which attempted to explain the impact and effect of trade reforms.

Based on the review it was observed that while the series of trade reform programs pursued by the government led to a general decline both in the tariff rate and the effective rate of protection as well as to a much simpler tariff rate structure with a narrower rate range, the impact on output, income distribution, resource allocation and households are mixed. Some results have found that the trade reforms are progressive, while others regressive. Some have indicated that the trade reform programs are output-augmenting, while others are not.

The simulation results presented in the paper using the 34-sector economy-wide model concerning the change in implicit tariff over the period 1990-2000 showed that the impact on income distribution is generally progressive, except on the first decile, the lowest income group. The income share of the second to the seventh income groups increased, while the share of the eighth to the tenth declined during the entire period. The income share of the first decile declined.

However, there are differences within sub-periods. During the sub-period 1990-1994, the tariff change was progressive. Households within the lower income brackets enjoyed higher income shares, while those within the higher incomes suffered a decline. During 1995 and 1996, years when implicit tariff on agriculture dropped significantly, the impact on income distribution was highly regressive. Lower income groups witnessed not only a sharp drop in their income share but also in their absolute income level relative to the base level. This effect, however, was reversed during 1996-2000 to favor the lower income groups.

The differentiated effects on income distribution across households and within different sub-periods can be explained by changes in factor prices and movement of resources across sectors. Based on the results, periods within which the impact of the tariff change is progressive, it was observed that the effect on agricultural wage and rent on mixed income is favorable. This is evident during 1990-1994 and 1996-2000. Conversely, during periods when the impact on these factor prices are unfavorable, the effect on the poor is also observed to be unfavorable. This impact is pronounced during 1995 and 1996. Incidentally, it was also during these years when the agricultural sector witnessed the biggest drop in implicit tariff rate relative to other sectors.

During the entire simulation period, 1990-2000, there was a resource movement from agriculture and construction to industry (particularly manufacturing) and service sectors. Output of the former dropped, while output of the latter increased. The drop in the former could, in turn, be explained by the drop in mixed factor input, and to a limited extent, to the slight drop in labor. Since households in the lower income groups (particularly, the first decile) heavily depend on income from these factors, this type of resource movement,

together with the impact on factor prices, translates into unfavorable income distribution effects. Again, this is quite evident during 1995 and 1996. Furthermore, one of the major reasons behind the unfavorable effect on the first decile in terms of income distribution is the movement of resources away from agriculture to industry.

An attempt was made to translate this set of effects on households, particularly on food availability in households in terms of protein and calorie availability through use of a linking matrix whose parameters were derived from the nutrition model estimated by Orbeta and Alba. On the whole the results indicate a great deal of regressivity in food availability. Over the entire period, the first to the third quintile suffered an absolute decline in protein availability, while the fourth and fifth enjoyed an improvement. In terms of calorie availability, only the first quintile suffered a absolute decline. This is the effect despite the increase in the absolute income of all households from the base run. The dampening effect on food availability in household came from the increase in food prices as well as from the increase in food-related agricultural commodities. It may probably be worth mentioning at this point that while almost all sectors have declining implicit tariff rates, the food sector still has the highest rates even up to the turn of the century.

Caveat. The paper does not attempt to calculate the impact of the trade reform program. It only attempts to understand the mechanisms, the channels, and the direction of change through which the trade reform affects resource allocation, income distribution, and food availability in households. It was observed that while the results available in the literature are quite mixed, the results of obtained here are generally progressive in terms of income distribution (except for the first decile) and highly regressive in terms of food availability in households. These results were obtained from a model which is quite disaggregated in terms of sectoral breakdown, but still limited in terms of model specification. The important MIMAP issue of unemployment, for example, is not yet incorporated in the model, although efforts are underway to incorporate this. Thus, at this point the results are still preliminary. Further simulations will be conducted after the modifications on the model specification are incorporated.

Appendix 1

Economy-Wide Model of the Philippine Economy

The economy-wide model has 34 production sectors. It has 10 household types (decile). The other institutions in the model are un-incorporated enterprises, private sector, and government. The model was calibrated using the official 1990 social accounting matrix (SAM) of the Philippine economy. However, in the simulations, the 1988 implicit tariff rates were used in the base run. Adjustments were made to the world price of imports so that when the 1988 implicit tariff rates were introduced, the resulting prices are all unity. This in turn means that the values of the variables in the base run are all the same as the values in the 1990 SAM.

Model Specification

Import Sector. It is standard practise in CGE modelling to impose an armington assumption in the import sector in which imports (IMP_i) and domestically produced goods ($DOMSS_i$) are imperfect substitutes. Thus, if domestic consumers are assumed to have a CES utility function over the two types of goods, then this assumption leads to the following equation

$$(A1) \quad X_i = A_i^c \{ \delta_i IMP_i^{-\rho_i} + (1-\delta_i) DOMSS_i^{-\rho_i} \}^{-1/\rho_i}$$

where X_i is called the "composite" good and greek letters in this equation and in the rest of the equations in this section are parameters.

Minimizing the total cost

$$(A2) \quad P_i^* X_i = PD_i^* DOMSS_i + PM_i^* IMP_i$$

subject to (1) yields the first order conditions

$$(A3) \quad IMP_i / DOMSS_i = \{ (PD_i / PM_i) \times (\delta_i / (1-\delta_i)) \}^{\sigma_i}$$

where $\sigma_i = 1/(1+\rho_i)$ is the trade substitution elasticity.

From (A3) the consumers will choose a combination of IMP_i and $DOMSS_i$ depending upon their relative prices; domestic price, PM_i , and domestic price of imports, PM_i .

The domestic price of imports is linked with the world price of imports (PWM_i) through the following relationship

$$(A4) \quad PM_i = PWM_i * (1 + TM_i) * ER$$

where ER is the exchange rate and TM_i is the import tariff rate. In the system of equations, Equations (A1) to (A3) are all expressed explicitly.

Export Sector. The model assumes that Philippine exports (EXP_i) face a constant elasticity demand function.

$$(A5) \quad EXP_i = E_0 * (A_i / PE_i)^{\eta_i}$$

where E_0 is constant, A_i is world price of i , and PE_i is the domestic price of exports. There is a divergence between the export price and the domestic price of the goods through the following equation

$$(A6) \quad PE_i = PWE_i * ER / (1 + TE_i)$$

where PWE_i is the world price of export, and TE_i is export tax.

Domestic Production. Domestic production of good i is described by a Cobb-Douglas production function with 3 types of factor inputs: labor (LB_i), mixed factor, (MX_i), and capital, KAP_i .

$$(A7) \quad DOMSS_i = A_i * LB_i^{\alpha_i} * MX_i^{\beta_i} * KAP_i^{(1-\alpha_i-\beta_i)}$$

Demand for Factor Inputs. Assuming perfect competition, profit maximization requires that each of the factor price should equal to the value of the marginal product. Thus, for the labor factor we have

$$(A8) \quad WA * LB_i = XD_i * PVA_i$$

where WA is the average wage rate and PVA_i is the net value added price which is defined as

$$(A9) \quad PVA_i = PX_i - E_j IO_{ij} * PX_j - (ITAX_i + DEPXD_i + IMPXD_i)$$

where IO_{ij} in the input-output technical coefficient matrix, ITAX_i indirect tax rate, DEPXD_i ratio between depreciation and output, and IMPXD_i ratio between imports and total output.

For the mixed factor we have

$$(A10) \quad RENTMX * MX_i = XD_i * PVA_i$$

where RENTMX is the average mixed factor rent. Lastly, for capital we have

$$(A11) \quad RENTKAP * LB_i = XD_i * PVA_i$$

where RENTKAP is the average capital rent

The supply of each of these factors are assumed fixed. Therefore, each of the factors is cleared through changes in each of the respective factor prices. If the demand for a given factor decreases, given fixed supply, the factor price would have to adjust to clear the market. Changes in factor prices are relevant to issues on income distribution. Furthermore, the market for agricultural labor is separated from the market for non-agricultural labor. This means that there are two separate average market clearing wages; one for the agricultural sector and another for non-agricultural.⁵ Again, this is relevant to the income distribution analysis.

Further refinements of the model may have to be done. For example, the labor market may have to be modified to account for some wage rigidity mechanisms. Instead of a market clearing wage, a partial adjustment

⁵Note that in the future extension of the model, these two labor markets may be linked and augmented to account for labor migration from the agricultural sector to industry and service sectors. This is also relevant to the analysis on adjustment policies and income distribution.

mechanism may be imposed so that wages may not clear the labor market instantaneously. Thus, quantity adjustments through unemployment changes need to be invoked to somehow clear the market within a period. This specification will therefore allow for unemployment analysis, which is relevant to the issue on income distribution. Furthermore, if a Phillips curve equation is attached to unemployment, the delayed response in wage adjustment can be linked to changes in macroeconomic policies such as monetary policy. This is one channel whereby the link between the real and the financial sectors of the model can be strengthened. In CGE literature, this is equivalent to imposing non-homogeneity condition in the system.

Income of Institutions. The incomes of the institutions, except government, have the same specification. The equation is simply the sum of all sources of incomes: (1) factor incomes, which is the product of the market clearing factor prices and the factor endowments of each of the institutions (which are fixed within a given period); (2) secondary incomes, which is the product of a fixed coefficient matrix derived from the SAM and the incomes of the institutions, net of direct taxes (note that in the original SAM some of these incomes are dividends and equities incomes); (3) remittances of workers working abroad; (4) foreign transfers; and (5) other fixed incomes which are derived using fixed coefficient from the SAM.

Income of the government is derived from the following sources: (1) tariff revenue; (2) export tax revenue (if positive) or export subsidy (if negative); (3) indirect tax; (4) income from its capital endowment; (5) secondary income, derived similarly as in the other institutions; (6) foreign transfers; and (7) other fixed incomes which are derived using fixed coefficient similar to the other institutions.

Consumption of Institutions. The consumption (CC_{inst}) is uniformly specified for all institutions, except government. It is given by

$$(A12) \quad CC_{inst,i} = CLES_{inst} * APCDOM_{inst} * Y_{inst} (1 - DTAX_{inst}) / PX_i$$

where $CLES_{inst}$ consumption share (derived from the SAM); $APCDOM_{inst}$ average propensity to consume (derived from the SAM); Y_{inst} income of institutions; and $DTAX_{inst}$ direct tax rate.

Savings and Other Sources Funds. Savings of the institutions are derived as residuals between income and consumption. Institutional savings, together with institutional domestic borrowings from the "capital" market and from capital transfers from the rest of the world to the capital institutions, are the major sources of investable funds in the model, which in turn are placed in 4 types of assets: inventory of commodities, physical assets, money assets, and other financial assets. In the present specification of the model, the level of these assets are determined as fixed proportions using data from the SAM. Ideally, asset allocations by institutions have to be modeled behaviorally using portfolio choice, i.e., investable funds of the institutions will be invested in an asset placement with the highest rate of return. In the context of the model, investable funds of the institutions can move across physical assets, money assets, and other financial assets depending upon their respective rate of return. Rate of return of an asset may be related to interest rate, which in turn is affected by changes in the monetary policy. This has not been done yet at present.

Therefore, using fixed proportions physical assets of the institutions are derived. Together with depreciation (or capital consumption allowance, which is derived as fixed proportion of industry output), these physical assets of the institutions determine the level of industry investments or capital expenditure of industries using fixed proportions also.

Money assets and other financial assets, together with foreign borrowings, are placed in the "lending" sector, which provides funds for domestic borrowing activities. At present, the two major sectors in the capital market, domestic borrowing and lending, have not been modeled, but expressed instead as a set of accounting identities. The modeling of these two sectors would have to be done later.

Closure Condition. The model is flexible in terms of closure rule. At present the model is closed in the balance of payments equation with the exchange rate as the clearing variable. Foreign capital inflows is therefore

exogenous. Net foreign capital inflows (i.e., net of current account financing) go into the investable fund equation.

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Table 1
LIST OF EXECUTIVE ORDERS AND LEGISLATION AMENDING THE TARIFF CODE

Executive Order No. 470 (dated July 1991)

- ◆ increases number of commodity line with high tariffs
- ◆ reduces number of commodity line with low tariffs

Executive Order No. 478 (dated August 23, 1991)

- ◆ imposes special duties of P0.95 per liter of P151.05 per barrel on imported crude oil falling under Hdg. No. 27.09 and P1.00 per liter on imported oil products.

Executive Order No. 1 (dated June 30, 1992)

- ◆ reduces rates of import duty on electric generating sets to 0% until June 30, 1995.
- ◆ intended to provide partial remedy to the energy crisis.

Executive Order No. 2 (dated July 1, 1992)

- ◆ extends the affectivity of the zero rate of duty on cement and cement clinker up to June 30, 1995 (under e.o. No. 470, these articles will be subjected to rates of duty of 20% and 10%, respectively, beginning July 1, 1992)
- ◆ intended to stop possible shortage of local supply if zero duty will be lifted

Executive Order No. 5 (dated July 14, 1992)

- ◆ shortens the operation of the zero rate of import duty on cement and cement clinker from June 30, 1995 (as provided in E.O. No. 2) to June 30, 1993.

Executive Order No. 8 (dated July 24, 1992)

- ◆ provided for interim increased tariff protection in lieu of import restrictions
- ◆ items covered include livestock, meat, fish, crustaceans, mollusks, sausages and other prepared meat, cane or beet sugar, maize, cereal grains, air or vacuum pumps, fans, aircon, refrigerators/freezers, centrifuges, washing machines, sewing machines, electric accumulators, thermionic/cold cathode, public transport type passenger motor vehicle and parts.
- ◆ import restrictions lifted on November 1, 1992.

Memorandum Order No. 60 (dated November 5, 1992)

- ◆ held in abeyance until February 28, 1993 the implementation of E.O. No. 8 with respect to maize

Executive Order No. 43 (dated December 29, 1992)

- ◆ modified the rate of import duty on certain imported articles to implement the 1991 and 1992 Phil program submitted to the Third ASEAN summit providing a minimum level of 25% margin of preference.

Executive Order No. 61 (dated February 27, 1993)

- ◆ modified the nomenclature and tariff rates on certain agricultural products; animals fresh chilled or frozen, corn and feedwheat
 - ◆ in line with R.A. No. 7607 (The Magna Carta of Small Farmers)
-

Table 1
LIST OF EXECUTIVE ORDERS AND LEGISLATION AMENDING THE TARIFF CODE

Executive Order No. 94 (dated June 1, 1993)

- ◆ reduced the import duty on cement to 5% and cement clinker to 3% until June 30, 1994 (per E.O. No. 5, the zero duty on these items will only be effective until June 30, 1993 and therefore the rates of 20% on cement and 10% on cement clinker under E.O. No. 470 will be applied thereafter)
- ◆ implemented due to uncertainty in the power supply and therefore possible shortage in the local supply of cement

Executive Order No. 106 (dated July 16, 1993)

- ◆ lifted the suspension of the application of the tariff concessions granted by the Philippines in refractory bricks under the AFTA

Executive Order No. 115 (dated July 24, 1993)

- ◆ increased the special duty of P1.90 per kiter or P302.10 per barrel on imported crude oil and oil products under Hdg. No. 27.09 and P2.00 per liter on imported oil products falling under Hdg. No. 27.10 and 27.11

Executive Order No. 116 (dated July 29, 1993)

- ◆ amended E.O. No. 94 to conform with nomenclature

Executive Order No. 119 (dated July 29, 1993)

- ◆ lifted the suspension of the application of the tariff concessions granted by the Philippines on refractory bricks under the AFTA, amending E.O. 106 to reflect technical modifications

Executive Order No. 145 (dated August 9, 1993)

- ◆ modified rates of duty on certain imported articles under the CEPT-AFTA

Executive Order No. 146 (dated December 27, 1993)

- ◆ amended E.O. 43 and modified the margin of preference and the applicable ASEAN preferential tariffs

Executive Order No. 147 (dated December 27, 1993)

- ◆ modified the rate of import duty on certain imported articles to implement the agreement on the global system of trade preference among developing countries

Executive Order No. 148 (dated December 27, 1993)

- ◆ modified the rate of duty on certain imported articles

Executive Order No. 153 (dated January 25, 1994)

- ◆ modified the rate of duty on certain imported articles to implement the minimum 90% margin of preference included in the NESTLE ASEAN Industrial Joint Ventures
-

Table 1
LIST OF EXECUTIVE ORDERS AND LEGISLATION AMENDING THE TARIFF CODE

Executive Order No. 160 (dated February 23, 1994)

- ◆ reduced the special duties on crude oil products from p1.90 to P0.95 under Hdg. No. 27.09 and from p2.00 to P1.00 on imported oil products falling under Hdg. No. 27.10 and 27.11

Executive Order No. 172 (dated April 24, 1994)

- ◆ increased the minimum tariff rate from 0% to 3%

Executive Order No. 189 (dated July 18, 1994)

- ◆ modifies the nomenclature and rates of duty on capital equipment from 10%-20% to 3%-10% (Note: major changes)

Executive Order No. 204 (dated September 30, 1994)

- ◆ modifies the nomenclature and rates of duty on textile and chemical input thereto (Note: major changes)

Executive Order No. 227 (dated March 4, 1995)

- ◆ reduced the import duty on Portland cement (3%), cement clinker 93%), and Pozzolan Cement (10%); this suspends the implementation of the 20% and 10% under E.O. 470

Executive Order No. 264 (dated July 22, 1995)

- ◆ modified the nomenclature and rates of duty on manufacturing industries in line with the Tariff Reform Program; involves 4142 HS lines (Note: major changes)

Executive Order No. 287 (dated January 1, 1996)

- ◆ modified the rate of duty on certain imported articles to implement the 1996 Philippine schedule of tariff reductions under the new frame of the accelerated CEPT scheme for the AFTA

Executive Order No. 288 (dated December 12, 1995)

- ◆ modified the nomenclature and rates of import duty on certain imported articles, i.e., non-sensitive agricultural products; (Note: major changes)

Executive Order No. 313 (dated March 29, 1996)

- ◆ modified the nomenclature and rates of import duty on certain imported articles, i.e., sensitive agricultural products;
- ◆ implements tariffication after import restrictions were lifted under R.A. 8178
- ◆ IRR only issued on July 1 and effective July 10, 1996
- ◆ Note: major changes

Executive Order No. 328 (dated (April 23, 1996)

- ◆ modified the nomenclature and rates import duty on imported wheat for food

Executive Order No. 365 (dated (April 16, 1996)

- ◆ modified the rates of duty on crude oil (from 10% to 3%) and refined petroleum product from 20% to 7%).
-

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 2. Income distribution effects (percent difference in household income share between scenario and base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HH1	-0.22%	0.37%	-0.61%	0.46%	0.73%	-2.86%	-1.74%	1.18%	-0.80%	0.60%	1.14%
HH2	-0.17%	0.40%	-0.42%	0.55%	0.88%	-2.53%	-1.03%	1.40%	-0.75%	0.81%	1.60%
HH3	-0.15%	0.34%	-0.34%	0.48%	0.77%	-2.12%	-0.82%	1.20%	-0.62%	0.71%	1.42%
HH4	-0.12%	0.30%	-0.28%	0.43%	0.67%	-1.85%	-0.70%	1.12%	-0.48%	0.66%	1.31%
HH5	-0.07%	0.21%	-0.17%	0.29%	0.46%	-1.17%	-0.38%	0.85%	-0.28%	0.51%	0.98%
HH6	-0.03%	0.12%	-0.07%	0.18%	0.25%	-0.73%	-0.27%	0.49%	-0.07%	0.27%	0.60%
HH7	0.02%	-0.03%	0.09%	0.01%	-0.04%	0.16%	0.09%	-0.11%	0.16%	-0.06%	-0.01%
HH8	0.09%	-0.11%	0.16%	-0.10%	-0.24%	0.68%	0.12%	-0.58%	0.49%	-0.39%	-0.55%
HH9	0.06%	-0.17%	0.18%	-0.19%	-0.34%	0.97%	0.39%	-0.70%	0.29%	-0.40%	-0.70%
HH10	0.02%	-0.08%	0.04%	-0.17%	-0.21%	0.58%	0.28%	-0.23%	-0.01%	-0.11%	-0.38%

Period Totals

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000	1990 - 2000
-2.1%	0.7%	-4.6%	0.4%	-1.7%
-1.3%	1.2%	-3.6%	2.0%	0.7%
-1.0%	1.1%	-2.9%	1.9%	0.9%
-0.8%	1.0%	-2.5%	1.9%	1.1%
-0.4%	0.7%	-1.5%	1.7%	1.2%
-0.3%	0.5%	-1.0%	1.0%	0.7%
0.2%	0.1%	0.3%	0.1%	0.3%
0.5%	-0.2%	0.8%	-0.9%	-0.4%
0.5%	-0.5%	1.4%	-1.1%	-0.6%
0.2%	-0.4%	0.9%	-0.4%	-0.3%

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 3. Changes in household income level (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HH1	-0.16%	0.57%	-0.69%	0.94%	1.44%	-2.98%	-0.12%	1.54%	0.22%	2.10%	5.92%
HH2	-0.12%	0.59%	-0.51%	1.03%	1.60%	-2.64%	0.60%	1.76%	0.27%	2.31%	6.40%
HH3	-0.09%	0.53%	-0.43%	0.97%	1.49%	-2.24%	0.81%	1.56%	0.40%	2.21%	6.21%
HH4	-0.06%	0.50%	-0.36%	0.91%	1.39%	-1.96%	0.93%	1.48%	0.54%	2.15%	6.10%
HH5	-0.01%	0.41%	-0.25%	0.77%	1.18%	-1.29%	1.26%	1.21%	0.74%	2.01%	5.76%
HH6	0.03%	0.31%	-0.15%	0.66%	0.97%	-0.85%	1.37%	0.85%	0.95%	1.75%	5.35%
HH7	0.08%	0.16%	0.00%	0.49%	0.67%	0.03%	1.74%	0.24%	1.19%	1.42%	4.71%
HH8	0.15%	0.09%	0.07%	0.38%	0.47%	0.55%	1.76%	-0.23%	1.52%	1.09%	4.15%
HH9	0.12%	0.02%	0.10%	0.29%	0.37%	0.85%	2.04%	-0.35%	1.32%	1.08%	4.00%
HH10	0.07%	0.11%	-0.04%	0.31%	0.50%	0.46%	1.93%	0.13%	1.02%	1.37%	4.33%

Period Totals

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000	1990 - 2000
-0.9%	2.1%	-3.1%	9.6%	8.8%
0.0%	2.6%	-2.0%	11.3%	11.3%
0.2%	2.5%	-1.4%	11.2%	11.4%
0.4%	2.4%	-1.0%	11.2%	11.6%
0.8%	2.1%	0.0%	11.0%	11.8%
1.0%	1.8%	0.5%	10.3%	11.2%
1.4%	1.4%	1.8%	9.3%	10.8%
1.7%	1.2%	2.3%	8.3%	10.0%
1.7%	0.9%	2.9%	8.1%	9.8%
1.4%	0.9%	2.4%	8.8%	10.2%

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 4. Changes in consumption (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HH1	-0.16%	0.57%	-0.69%	0.94%	1.44%	-2.98%	-0.12%	1.54%	0.22%	2.10%	5.92%
HH2	-0.14%	0.68%	-0.38%	0.97%	1.56%	-2.45%	0.96%	1.76%	0.12%	2.33%	6.50%
HH3	-0.09%	0.66%	-0.19%	0.92%	1.55%	-1.85%	1.63%	1.71%	0.18%	2.33%	6.53%
HH4	-0.08%	0.65%	-0.06%	0.84%	1.39%	-1.51%	1.83%	1.69%	0.25%	2.30%	6.46%
HH5	-0.03%	0.58%	0.07%	0.70%	1.21%	-0.76%	2.31%	1.44%	0.43%	2.17%	6.18%
HH6	0.04%	0.49%	0.25%	0.64%	1.06%	-0.21%	2.66%	1.28%	0.63%	2.02%	5.95%
HH7	0.11%	0.32%	0.44%	0.50%	0.80%	0.74%	3.18%	0.82%	0.86%	1.77%	5.44%
HH8	0.21%	0.22%	0.55%	0.46%	0.69%	1.35%	3.41%	0.57%	1.23%	1.56%	5.07%
HH9	0.23%	0.09%	0.60%	0.46%	0.70%	1.70%	3.89%	0.74%	1.07%	1.71%	5.15%
HH10	0.33%	0.03%	0.27%	0.58%	1.19%	1.27%	4.27%	1.58%	0.89%	2.33%	5.96%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000	1990 - 2000
-0.88%	2.10%	-3.10%	9.65%	8.77%
0.24%	2.69%	-1.49%	11.67%	11.91%
1.01%	2.86%	-0.22%	12.38%	13.40%
1.23%	2.75%	0.32%	12.52%	13.76%
1.78%	2.54%	1.55%	12.53%	14.31%
2.26%	2.47%	2.45%	12.54%	14.80%
2.90%	2.17%	3.92%	12.06%	14.97%
3.47%	2.13%	4.76%	11.84%	15.31%
3.78%	2.08%	5.59%	12.56%	16.34%
3.68%	2.41%	5.55%	15.03%	18.71%

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 5. Changes in prices of factors (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
WAAG	-0.70%	1.30%	-0.60%	4.60%	5.10%	-11.00%	-3.70%	-0.30%	0.10%	1.40%	9.50%
WANAG	0.30%	-0.70%	1.70%	0.20%	-0.50%	5.50%	5.60%	-2.60%	3.00%	0.40%	3.50%
RENTMX	-0.40%	0.70%	-1.10%	0.50%	1.20%	-5.00%	-0.30%	4.40%	-1.90%	3.30%	7.40%
RENTKAP	0.60%	0.80%	0.40%	1.00%	2.40%	5.70%	5.70%	-0.30%	4.10%	2.90%	5.90%

Period Totals

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000	1990 - 2000
-1.30%	9.70%	-14.70%	7.00%	5.70%
6.50%	1.00%	11.10%	9.90%	16.40%
-4.10%	0.90%	-5.30%	12.90%	8.80%
10.90%	5.20%	11.40%	18.30%	29.20%

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 6. Resource allocation effects

I. Resource allocation effects (percent difference in sectoral output share between scenario and base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-1.07%	-0.10%	-0.29%	-2.21%	-3.40%	-12.10%	-6.24%	-6.24%	1.19%	-1.24%	0.67%
Mining	0.13%	0.15%	1.99%	0.78%	1.97%	1.57%	-0.09%	-0.09%	0.58%	0.77%	0.02%
Total Mfg	0.36%	0.15%	-0.61%	0.96%	1.54%	-0.08%	2.88%	2.88%	-2.28%	-1.21%	6.05%
Mfg - food	0.71%	-0.01%	-1.98%	0.38%	-2.34%	-0.09%	3.18%	3.18%	-5.12%	-3.46%	9.65%
Mfg - others	0.12%	0.26%	0.34%	1.37%	4.25%	-0.08%	2.66%	2.66%	-0.29%	0.36%	3.54%
Construction	-0.10%	-0.04%	0.49%	-0.64%	-0.39%	3.96%	-2.09%	-2.09%	0.76%	-1.31%	-21.24%
Utilities	0.75%	0.06%	9.60%	5.45%	-6.48%	10.57%	-3.75%	-3.75%	8.47%	9.31%	8.61%
Services	0.01%	-0.02%	-1.12%	-0.30%	0.60%	-0.88%	1.21%	1.21%	-0.84%	-0.23%	4.30%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-19.17%	-7.07%	-18.34%	-11.85%
6.59%	5.02%	1.48%	1.19%
2.32%	2.40%	2.79%	8.32%
-3.33%	-3.24%	3.09%	7.44%
6.27%	6.35%	2.59%	8.94%
3.29%	-0.67%	1.87%	-25.98%
19.95%	9.38%	6.82%	18.90%
-1.71%	-0.83%	0.33%	5.67%

II. Resource allocation effects (percent difference in sectoral labor factor demand share between scenario and base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-0.11%	-0.66%	0.91%	0.19%	0.49%	-2.27%	1.39%	1.39%	-6.38%	-4.02%	5.76%
Mining	0.15%	0.10%	3.07%	1.03%	3.31%	4.18%	2.90%	2.90%	-7.34%	-3.07%	-3.59%
Total Mfg	0.71%	0.56%	-1.54%	2.80%	4.44%	0.55%	6.50%	6.50%	-7.59%	-0.80%	15.56%
Mfg - food	0.78%	1.59%	-0.73%	3.84%	2.37%	4.84%	6.71%	6.71%	-9.61%	-1.83%	20.43%
Mfg - others	0.64%	-0.59%	-2.45%	1.64%	6.75%	-4.23%	6.27%	6.27%	-5.34%	0.34%	10.15%
Construction	-0.05%	-0.07%	0.08%	-0.73%	-0.58%	3.82%	-1.14%	-1.14%	0.23%	-0.97%	-17.25%
Utilities	0.90%	0.05%	9.31%	5.42%	-6.50%	11.72%	-2.19%	-2.19%	7.39%	9.66%	13.98%
Services	-0.15%	0.09%	-1.75%	-0.52%	0.28%	-5.19%	-0.06%	-0.06%	1.82%	0.85%	11.44%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-1.47%	0.80%	-0.88%	-1.86%
11.83%	7.65%	7.08%	-8.19%
7.52%	6.97%	7.05%	20.18%
12.69%	7.85%	11.55%	22.42%
1.76%	5.99%	2.04%	17.69%
2.47%	-1.35%	2.68%	-20.26%
20.91%	9.19%	9.53%	26.65%
-7.24%	-2.05%	-5.25%	14.00%

III. Resource allocation effects (percent difference in sectoral capital factor demand share between scenario and base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-1.14%	0.77%	1.45%	3.30%	4.21%	-12.26%	-9.22%	-9.22%	3.27%	5.88%	5.18%
Mining	0.20%	-0.31%	3.87%	0.69%	2.54%	5.96%	3.23%	3.23%	-7.23%	-3.90%	-8.07%
Total Mfg	0.43%	1.29%	0.60%	2.87%	2.13%	5.75%	6.92%	6.92%	-6.77%	-2.23%	11.73%
Mfg - food	0.34%	1.64%	0.26%	3.40%	1.91%	6.09%	7.66%	7.66%	-9.06%	-3.87%	13.81%
Mfg - others	0.76%	-0.11%	1.94%	0.74%	3.05%	4.37%	3.94%	3.94%	2.37%	4.34%	3.43%
Construction	0.00%	-0.48%	0.86%	-1.06%	-1.32%	5.60%	-0.82%	-0.82%	0.35%	-1.81%	-21.09%
Utilities	0.96%	-0.36%	10.17%	5.07%	-7.19%	13.64%	-1.88%	-1.88%	7.52%	8.73%	8.68%
Services	-0.06%	-0.10%	-1.84%	-1.02%	-0.08%	-3.76%	-0.26%	-0.26%	1.05%	0.23%	5.54%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-3.67%	8.58%	-21.47%	-4.11%
12.95%	6.99%	9.20%	-12.73%
13.06%	7.31%	12.66%	16.57%
13.64%	7.55%	13.75%	16.21%
10.74%	6.37%	8.32%	18.04%
3.60%	-2.00%	4.78%	-24.20%
22.28%	8.64%	11.76%	21.18%
-6.86%	-3.10%	-4.02%	6.29%

IV. Resource allocation effects (percent difference in sectoral mixed factor demand share between scenario and base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-1.22%	0.08%	-0.20%	-1.04%	-1.88%	-14.26%	-9.35%	-9.35%	3.85%	-2.44%	-1.32%
Mining	0.60%	-0.32%	5.93%	1.49%	2.73%	13.11%	5.42%	5.42%	-9.35%	-3.48%	-12.17%
Total Mfg	1.33%	-1.26%	0.24%	1.60%	3.03%	8.09%	6.00%	6.00%	-5.87%	-2.22%	6.56%
Mfg - food	0.60%	-0.82%	0.07%	4.33%	4.80%	10.70%	4.21%	4.21%	-6.21%	-4.16%	7.81%
Mfg - others	2.73%	-2.10%	0.56%	-3.53%	-0.30%	3.18%	9.37%	9.37%	-5.23%	1.44%	4.21%
Construction	0.41%	-0.50%	2.86%	-0.27%	-1.13%	12.72%	1.28%	1.28%	-1.95%	-1.39%	-24.61%
Utilities											
Services	0.23%	0.04%	-0.14%	0.21%	0.40%	2.55%	2.00%	2.00%	-0.60%	0.75%	1.35%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-18.51%	-4.25%	-23.61%	-18.62%
23.54%	10.43%	18.53%	-14.17%
13.04%	4.95%	14.09%	10.47%
19.68%	8.99%	14.91%	5.85%
0.53%	-2.65%	12.55%	19.16%
14.09%	1.37%	14.00%	-25.39%
0.00%	0.00%	0.00%	0.00%
3.30%	0.75%	4.55%	5.51%

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

**Table 7:
Changes in sectoral output (scenario vs base)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-0.92%	-0.06%	-0.83%	-1.65%	-3.17%	-10.19%	-5.30%	2.51%	-3.78%	0.17%	-0.71%
Mining	0.27%	0.19%	1.43%	1.36%	2.21%	3.78%	0.91%	1.89%	2.35%	2.21%	-1.35%
Total Mfg	0.51%	0.19%	-1.16%	1.54%	1.78%	2.09%	3.90%	-1.01%	6.36%	0.21%	4.60%
Mfg - food	0.85%	0.03%	-2.51%	0.95%	-2.11%	2.08%	4.21%	-3.89%	6.32%	-2.07%	8.15%
Mfg - others	0.27%	0.30%	-0.21%	1.95%	4.50%	2.10%	3.69%	1.00%	6.38%	1.80%	2.12%
Construction	0.05%	0.01%	-0.06%	-0.07%	-0.15%	6.23%	-1.11%	2.06%	-4.04%	0.10%	-22.32%
Utilities	0.89%	0.10%	9.00%	6.05%	-6.25%	12.98%	-2.79%	9.88%	12.39%	10.87%	7.12%
Services	0.16%	0.02%	-1.66%	0.27%	0.85%	1.27%	2.22%	0.45%	1.25%	1.20%	2.87%

Period totals

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-16.83%	-6.64%	-15.49%	-7.11%
9.25%	5.47%	4.69%	6.01%
4.96%	2.87%	6.00%	14.06%
-0.70%	-2.78%	6.29%	12.72%
8.91%	6.81%	5.79%	14.99%
6.00%	-0.23%	5.11%	-25.31%
22.77%	9.80%	10.19%	37.48%
0.91%	-0.37%	3.50%	7.99%

Changes in sectoral labor demand (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-0.01%	0.08%	0.04%	1.19%	2.09%	-1.06%	0.78%	-3.18%	0.87%	-1.88%	0.48%
Mining	0.25%	0.86%	2.18%	2.04%	4.95%	5.47%	2.29%	-4.17%	1.56%	-0.90%	-8.41%
Total Mfg	0.82%	1.31%	-2.39%	3.82%	6.11%	1.79%	5.87%	-4.43%	7.78%	1.41%	9.80%
Mfg - food	0.88%	2.35%	-1.58%	4.88%	4.01%	6.14%	6.08%	-6.52%	10.71%	0.37%	14.42%
Mfg - others	0.74%	0.16%	-3.29%	2.65%	8.45%	-3.04%	5.64%	-2.11%	4.51%	2.58%	4.65%
Construction	0.05%	0.68%	-0.79%	0.27%	1.01%	5.10%	-1.73%	3.66%	-4.22%	1.24%	-21.38%
Utilities	1.01%	0.80%	8.37%	6.48%	-5.01%	13.10%	-2.78%	11.07%	12.92%	12.11%	8.29%
Services	-0.04%	0.85%	-2.60%	0.47%	1.88%	-4.02%	-0.65%	5.30%	-1.15%	3.10%	5.88%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
2.32%	3.38%	-0.28%	-2.92%
15.74%	10.28%	7.76%	-9.63%
11.47%	9.67%	7.66%	20.43%
16.67%	10.53%	12.21%	25.05%
5.68%	8.72%	2.59%	15.28%
6.32%	1.22%	3.38%	-22.42%
24.75%	11.65%	10.33%	41.61%
-3.46%	0.56%	-4.67%	12.48%

Changes in sectoral capital factor demand (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-1.33%	0.43%	1.04%	3.79%	3.70%	-12.88%	-10.07%	4.24%	-4.70%	6.60%	2.39%
Mining	0.00%	-0.65%	3.45%	1.17%	2.03%	5.21%	2.26%	-6.36%	0.54%	-3.24%	-10.51%
Total Mfg	0.23%	0.95%	0.19%	3.36%	1.63%	4.99%	5.91%	-5.89%	5.68%	-1.56%	8.77%
Mfg - food	0.15%	1.30%	-0.15%	3.89%	1.40%	5.34%	6.65%	-8.20%	6.28%	-3.22%	10.79%
Mfg - others	0.56%	-0.45%	1.53%	1.22%	2.54%	3.63%	2.97%	3.34%	3.31%	5.05%	0.69%
Construction	-0.19%	-0.82%	0.45%	-0.59%	-1.80%	4.85%	-1.75%	1.29%	-5.18%	-1.15%	-23.18%
Utilities	0.76%	-0.70%	9.73%	5.57%	-7.65%	12.83%	-2.80%	8.53%	11.79%	9.47%	5.80%
Services	-0.25%	-0.44%	-2.23%	-0.55%	-0.57%	-4.45%	-1.20%	2.00%	-1.75%	0.92%	2.74%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-5.26%	7.62%	-22.95%	-1.53%
11.22%	6.01%	7.47%	-17.31%
11.35%	6.36%	10.91%	12.92%
11.93%	6.60%	11.99%	12.31%
9.03%	5.40%	6.60%	15.36%
1.90%	-2.95%	3.10%	-29.97%
20.54%	7.71%	10.03%	32.79%
-8.49%	-4.04%	-5.64%	2.70%

Changes in sectoral mixed factor demand (scenario vs base)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	-0.86%	-0.12%	-1.04%	-0.87%	-1.38%	-11.22%	-6.85%	2.48%	-5.22%	-2.60%	-0.88%
Mining	0.97%	-0.53%	5.03%	1.67%	3.26%	17.12%	8.33%	-10.55%	6.62%	-3.64%	-11.78%
Total Mfg	1.70%	-1.47%	-0.61%	1.78%	3.56%	11.93%	8.93%	-7.11%	5.24%	-2.38%	7.04%
Mfg - food	0.96%	-1.02%	-0.78%	4.51%	5.34%	14.63%	7.09%	-7.44%	7.92%	-4.32%	8.30%
Mfg - others	3.10%	-2.30%	-0.29%	-3.36%	0.21%	6.84%	12.39%	-6.48%	0.21%	1.28%	4.68%
Construction	0.77%	-0.70%	1.98%	-0.10%	-0.62%	16.72%	4.08%	-3.24%	0.56%	-1.55%	-24.27%
Utilities											
Services	0.59%	-0.16%	-0.98%	0.38%	0.92%	6.19%	4.83%	-1.91%	3.93%	0.59%	1.81%

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
-15.48%	-4.27%	-18.06%	-13.06%
27.51%	10.39%	25.46%	-11.01%
16.90%	4.97%	20.85%	11.73%
23.64%	9.02%	21.72%	11.54%
4.19%	-2.65%	19.23%	12.08%
18.06%	1.34%	20.80%	-24.42%
0.00%	0.00%	0.00%	0.00%
6.94%	0.75%	11.01%	9.24%

**Table 8: Change in Protein and Calorie Availability in Households
(scenario vs base)**

PROTEIN AVAILABILITY

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HH1	-0.0064	0.0127	-0.0020	0.0025	0.0177	-0.1314	-0.0080	0.0687	-0.0970	0.0271	-0.0187
HH2	-0.0041	0.0111	-0.0008	0.0035	0.0144	-0.0704	-0.0241	0.0648	-0.1004	0.0401	-0.0215
HH3	0.0002	0.0090	-0.0091	0.0173	0.0133	-0.0062	-0.0232	-0.0148	-0.0379	-0.0129	0.0571
HH4	-0.0002	0.0017	-0.0023	0.0587	0.0114	0.0284	-0.0341	-0.0464	-0.0059	-0.0152	0.1027
HH5	0.0006	-0.0024	0.0032	0.0930	0.0190	0.0959	-0.0303	-0.0869	0.0180	0.0289	0.1111

CALORIE AVAILABILITY

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HH1	-0.0042	0.0207	-0.0215	0.0515	0.0219	-0.0631	-0.0484	-0.0126	-0.0539	-0.0697	0.1698
HH2	-0.0006	0.0199	-0.0213	0.0522	0.0289	-0.0038	-0.0663	-0.0247	-0.0534	-0.0583	0.1624
HH3	0.0092	0.0165	-0.0354	0.0582	0.0474	0.0399	-0.0685	-0.1012	0.0092	-0.1354	0.2433
HH4	0.0065	0.0127	-0.0240	0.0834	0.0513	0.0502	-0.0689	-0.1324	0.0351	-0.1162	0.2418
HH5	-0.0029	0.0239	-0.0153	0.0994	0.0408	0.1342	-0.0675	-0.2062	0.0605	-0.0572	0.2307

Period Totals

1990-1995	1990-1994	1995-1996	1996-2000	1990-2000
-0.1067	0.0246	-0.1394	-0.0278	-0.1345
-0.0462	0.0242	-0.0945	-0.0411	-0.0873
0.0245	0.0306	-0.0294	-0.0317	-0.0072
0.0976	0.0693	-0.0057	0.0011	0.0987
0.2092	0.1133	0.0656	0.0407	0.2499

1990-1995	1990-1994	1995-1996	1996-2000	1990-2000
0.0055	0.0685	-0.1114	-0.0147	-0.0093
0.0753	0.0791	-0.0701	-0.0404	0.0349
0.1358	0.0959	-0.0286	-0.0526	0.0832
0.1801	0.1299	-0.0186	-0.0405	0.1396
0.2800	0.1458	0.0668	-0.0397	0.2404

**Summary results of Economy-Wide Model runs involving implicit tariff changes from 1988 to 2000
(base run: 1988)**

Table 9: Output Price Effects, major sectors

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	3.53%	-2.54%	-1.29%	-3.32%	5.22%	17.29%	21.25%	-4.33%	5.17%	5.32%	0.61%
Mining	10.20%	4.00%	0.30%	0.80%	-1.20%	-0.30%	-8.40%	10.80%	8.20%	2.60%	13.70%
Total Mfg	-1.58%	-0.06%	-0.02%	-0.54%	-5.71%	-4.58%	-7.14%	1.42%	-3.29%	0.75%	-4.16%
Mfg - food	-0.57%	0.32%	2.68%	4.99%	7.05%	-4.98%	-0.38%	10.77%	-2.24%	6.35%	4.76%
Mfg - others	-2.13%	-0.27%	-1.51%	-3.58%	-12.71%	-4.37%	-10.84%	-3.72%	-3.86%	-2.33%	-9.05%
Construction	0.20%	-0.20%	-0.50%	0.40%	-0.20%	-6.70%	-2.90%	-2.70%	6.30%	-1.20%	29.20%
Utilities	-3.20%	-0.50%	-25.60%	-17.20%	50.00%	-32.30%	26.10%	-30.30%	-30.00%	-30.00%	-15.30%
Services	0.69%	3.61%	-7.57%	5.42%	15.60%	2.25%	4.52%	1.06%	6.25%	-1.85%	0.76%

Period Totals

1990 - 1995	1990 - 1994	1995 - 1996	1996 - 2000
18.89%	1.60%	38.54%	28.01%
13.80%	14.10%	-8.70%	26.90%
-12.49%	-7.91%	-11.72%	-12.42%
9.49%	14.47%	-5.36%	19.26%
-24.57%	-20.20%	-15.21%	-29.81%
-7.00%	-0.30%	-9.60%	28.70%
-28.80%	3.50%	-6.20%	-79.50%
20.00%	17.75%	6.77%	10.74%

Table 10: Sectoral Output Price Effects (percent difference scenario and base)

	Sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Palay and Corn	-6.4%	-7.2%	-8.6%	-4.1%	-10.4%	-34.2%	32.2%	-28.5%	-30.0%	8.5%	-4.7%
2	Fruits and Vegetables	1.9%	1.7%	-3.1%	-9.1%	-25.3%	46.0%	4.1%	30.0%	6.0%	29.4%	8.0%
3	Coconut & Sugar	16.7%	3.4%	50.0%	40.0%	50.0%	40.1%	-35.0%	30.0%	-30.0%	26.9%	-13.8%
4	Livestock & Poultry	12.8%	-2.6%	-7.4%	-6.1%	33.3%	-7.6%	24.7%	-24.7%	19.9%	-12.7%	-23.4%
5	Fishing	4.0%	-2.1%	-9.3%	1.9%	8.8%	50.0%	35.0%	-12.2%	30.0%	-28.9%	23.7%
6	Other Agriculture	-3.6%	-6.7%	12.0%	-21.6%	6.8%	50.0%	35.0%	30.0%	30.0%	28.6%	28.1%
7	Forestry	7.7%	1.7%	-3.9%	0.9%	-12.2%	40.1%	23.8%	-35.0%	-1.2%	16.2%	-12.4%
8	Mining	10.2%	4.0%	0.3%	0.8%	-1.2%	-0.3%	-8.4%	10.8%	8.2%	2.6%	13.7%
9	Rice & Corn Milling	1.7%	2.6%	8.8%	6.0%	10.1%	19.6%	4.2%	-8.7%	30.0%	13.7%	8.6%
10	Milled Sugar	1.2%	7.9%	4.9%	-2.7%	-4.0%	-45.5%	31.9%	28.9%	-30.0%	-4.7%	0.0%
11	Meat Manufacturing	-5.5%	0.4%	9.3%	35.7%	49.9%	4.6%	3.4%	-4.5%	-16.2%	2.3%	29.7%
12	Fish Manufacturing	0.2%	6.8%	-3.7%	3.4%	-40.0%	-48.9%	35.0%	-0.7%	1.2%	11.7%	29.4%
13	Beverage & Tobacco	2.8%	-16.0%	-11.2%	17.2%	3.8%	-24.3%	-24.5%	30.0%	9.1%	20.8%	29.5%
14	Other Food Manufacturing	0.0%	0.6%	-2.8%	-20.3%	-17.9%	-12.1%	-11.2%	30.0%	-14.9%	1.2%	-25.9%
15	Textile manufacturing	-2.7%	-2.6%	-4.0%	-5.9%	-5.2%	-5.2%	-22.6%	-13.7%	8.4%	-19.4%	-19.0%
16	Garments & Leather	1.5%	1.4%	3.4%	7.0%	7.3%	6.3%	-15.1%	7.0%	8.1%	-12.0%	-16.3%
17	Wood Manufacturing	-28.1%	49.3%	10.2%	40.0%	-23.9%	-32.7%	-33.9%	-11.3%	-15.3%	30.0%	-29.8%
18	Paper & Paper Products	-2.1%	-3.3%	9.7%	-1.1%	-38.9%	-41.0%	13.9%	14.3%	-1.5%	-30.0%	5.9%
19	Chemical Manufacturing	6.4%	2.6%	0.7%	-4.1%	-4.3%	-9.7%	-20.5%	-14.8%	-16.4%	-29.6%	-8.7%
20	Petroleum Refining	-13.9%	-9.5%	-34.6%	-16.5%	-37.6%	-36.9%	0.0%	-34.9%	-25.0%	12.5%	-30.0%
21	Non-metal manufacturing	-6.9%	-8.9%	1.4%	-10.0%	0.7%	40.4%	-2.3%	30.0%	0.9%	-20.8%	29.1%
22	Metal Manufacturing	5.9%	4.5%	3.1%	1.6%	-0.3%	8.1%	-8.3%	-0.9%	30.0%	-9.9%	-3.5%
23	Electrical Equipment Manufacturing	0.9%	-1.0%	13.7%	-22.2%	-35.5%	12.9%	-22.5%	28.3%	-22.9%	27.6%	-14.1%
24	Transport & Other Machinery Manufacturing	0.9%	0.0%	-2.4%	-0.4%	-2.6%	-8.0%	-1.8%	-4.9%	-29.5%	-5.5%	-5.7%
25	Other Manufacturing	-7.5%	-13.1%	-6.1%	3.1%	-15.6%	-12.3%	-0.1%	-31.5%	29.4%	28.9%	2.0%
26	Construction	0.2%	-0.2%	-0.5%	0.4%	-0.2%	-6.7%	-2.9%	-2.7%	6.3%	-1.2%	29.2%
27	Electricity, Gas and Water	-3.2%	-0.5%	-25.6%	-17.2%	50.0%	-32.3%	26.1%	-30.3%	-30.0%	-30.0%	-15.3%
28	Financial Sector	-3.8%	9.1%	-2.4%	39.4%	21.2%	36.1%	30.2%	30.0%	10.9%	-7.1%	26.3%
29	Private Education	-1.2%	28.7%	-40.3%	-2.3%	50.0%	-15.4%	-27.1%	-33.4%	30.0%	30.0%	-29.4%
30	Private Health	14.2%	-19.3%	-5.3%	3.3%	44.5%	9.2%	33.2%	-35.0%	30.0%	-25.9%	27.8%
31	Public Education	-1.0%	-1.1%	-1.8%	-1.3%	-1.2%	5.8%	-4.4%	-0.6%	9.7%	-3.9%	-4.8%
32	Public Health	-1.7%	2.2%	-2.4%	-2.0%	-4.8%	-9.9%	0.8%	24.1%	-17.8%	-5.9%	-5.2%
33	General Government	0.6%	0.1%	1.1%	0.8%	1.2%	-0.7%	2.0%	4.9%	-8.4%	2.6%	-5.2%
34	Other Services	0.0%	0.0%	4.0%	-0.3%	-1.3%	-0.9%	-2.6%	-0.3%	0.7%	-1.2%	-1.9%

Table 11: Sectoral Output Effects (percent difference between scenario and base)

Sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1 Palay and Corn	-1.2%	-1.4%	-5.8%	-1.7%	-5.1%	-10.3%	-0.8%	6.2%	-13.6%	-7.2%	2.0%
2 Fruits and Vegetables	-1.3%	-1.1%	2.4%	9.4%	27.6%	-23.7%	-1.4%	-18.9%	-2.0%	-16.7%	-0.1%
3 Coconut & Sugar	-0.3%	0.1%	-1.2%	5.8%	6.0%	13.4%	7.0%	-8.3%	12.8%	-1.2%	14.8%
4 Livestock & Poultry	0.1%	0.9%	-2.8%	-12.8%	-26.7%	-0.1%	-7.0%	13.0%	7.8%	4.4%	-0.5%
5 Fishing	-2.8%	1.4%	7.5%	-1.0%	-0.8%	-18.0%	-19.5%	10.5%	-16.1%	30.7%	-12.0%
6 Other Agriculture	0.8%	2.1%	-1.9%	8.7%	0.0%	-3.2%	-1.0%	-8.2%	0.8%	-3.7%	5.2%
7 Forestry	1.1%	-3.2%	0.8%	-2.0%	8.0%	-1.1%	-1.9%	19.4%	2.1%	-5.2%	3.4%
8 Mining	0.3%	0.2%	1.4%	1.4%	2.2%	3.8%	0.9%	1.9%	2.4%	2.2%	-1.4%
9 Rice & Corn Milling	-1.3%	-1.7%	-6.4%	-2.1%	-5.2%	-12.1%	-0.9%	6.7%	-16.3%	-8.2%	0.8%
10 Milled Sugar	0.0%	0.2%	-0.2%	0.6%	3.6%	33.8%	-4.3%	-7.3%	14.7%	-0.1%	1.6%
11 Meat Manufacturing	5.3%	0.0%	-7.9%	-23.3%	-29.7%	-4.0%	-1.6%	4.9%	18.8%	-0.3%	-17.0%
12 Fish Manufacturing	-0.1%	-4.9%	3.0%	-1.8%	55.2%	76.9%	-19.7%	0.7%	0.2%	-7.3%	-14.6%
13 Beverage & Tobacco	-2.0%	15.3%	9.7%	-11.2%	-2.0%	25.3%	27.4%	-17.3%	-5.8%	-12.5%	-14.5%
14 Other Food Manufacturing	0.0%	0.0%	1.7%	17.2%	13.8%	9.7%	9.5%	-14.1%	13.6%	1.4%	28.8%
15 Textile manufacturing	0.3%	0.1%	-0.2%	0.1%	0.6%	0.1%	6.3%	0.0%	-1.3%	4.6%	7.0%
16 Garments & Leather	-0.4%	-0.4%	-1.0%	-1.9%	-1.8%	-2.0%	6.8%	-2.0%	-2.2%	5.2%	8.6%
17 Wood Manufacturing	13.6%	-11.2%	-3.3%	-9.7%	11.2%	18.7%	18.3%	5.5%	6.1%	-7.4%	11.8%
18 Paper & Paper Products	0.4%	0.8%	-0.3%	0.2%	11.3%	13.5%	0.2%	-3.1%	0.5%	7.1%	0.0%
19 Chemical Manufacturing	-1.2%	0.4%	0.0%	1.1%	0.3%	1.6%	4.4%	4.9%	2.2%	7.0%	1.8%
20 Petroleum Refining	0.8%	0.3%	2.7%	1.7%	2.0%	4.5%	0.3%	3.4%	3.3%	3.5%	1.7%
21 Non-metal manufacturing	1.9%	2.7%	-0.5%	3.1%	1.0%	-3.7%	1.9%	-4.7%	-0.6%	6.7%	-11.6%
22 Metal Manufacturing	0.1%	-0.1%	0.1%	1.4%	3.8%	4.4%	1.6%	1.0%	3.1%	0.7%	-4.2%
23 Electrical Equipment Manufacturing	-0.2%	0.4%	-4.0%	9.8%	18.6%	-3.0%	9.3%	-7.2%	11.4%	-6.7%	6.0%
24 Transport & Other Machinery Manufacturing	-0.4%	-0.1%	1.4%	0.8%	2.0%	6.5%	-1.2%	3.5%	32.8%	3.6%	3.4%
25 Other Manufacturing	2.0%	3.2%	1.2%	-0.4%	4.9%	3.6%	0.7%	10.3%	-3.9%	-4.2%	0.2%
26 Construction	0.0%	0.0%	-0.1%	-0.1%	-0.2%	6.2%	-1.1%	2.1%	-4.0%	0.1%	-22.3%
27 Electricity, Gas and Water	0.9%	0.1%	9.0%	6.1%	-6.3%	13.0%	-2.8%	9.9%	12.4%	10.9%	7.1%
28 Financial Sector	0.7%	-0.8%	-0.2%	-3.5%	-1.9%	-1.1%	-1.5%	-2.9%	1.5%	1.1%	-1.3%
29 Private Education	1.3%	-21.9%	66.6%	2.8%	-32.5%	18.0%	39.0%	49.9%	-21.9%	-21.7%	47.5%
30 Private Health	-10.5%	20.3%	5.3%	-2.2%	-26.0%	-6.7%	-19.5%	46.6%	-19.0%	31.2%	-14.7%
31 Public Education	0.3%	0.0%	0.0%	-0.2%	-1.3%	-8.0%	0.9%	-5.6%	-12.4%	-0.2%	-0.8%
32 Public Health	1.0%	-3.3%	0.7%	0.6%	2.5%	8.2%	-4.2%	-24.2%	17.1%	2.1%	-0.2%
33 General Government	-1.3%	-1.3%	-2.8%	-2.3%	-3.7%	-1.9%	-5.6%	-10.6%	4.8%	-6.6%	-0.5%
34 Other Services	0.2%	0.0%	-1.7%	0.3%	1.0%	1.4%	2.4%	0.6%	1.3%	1.3%	2.9%

sectoral output effects	base	simulated
	1988 level	1990 level
Palay and Corn	68,962.500	68,146.500
Fruits and Vegetables	61,389.800	60,587.900
Coconut & Sugar	20,684.500	20,613.100
Livestock & Poultry	72,220.900	72,267.300
Fishing	51,939.600	50,498.100
Other Agriculture	33,638.600	33,892.600
Forestry	13,865.100	14,012.200
Mining	60,146.200	60,310.400
Rice & Corn Milling	93,049.400	91,801.200
Milled Sugar	23,346.500	23,345.200
Meat Manufacturing	89,790.800	94,549.400
Fish Manufacturing	16,183.900	16,159.700
Beverage & Tobacco	32,682.800	32,031.900
Other Food Manufacturing	120,462.900	120,406.800
Textile manufacturing	52,854.800	53,010.200
Garments & Leather	68,411.400	68,129.300
Wood Manufacturing	26,792.200	30,423.100
Paper & Paper Products	25,046.700	25,158.700
Chemical Manufacturing	86,477.500	85,461.200
Petroleum Refining	74,519.400	75,110.700
Non-metal manufacturing	47,108.000	47,990.000
Metal Manufacturing	83,223.600	83,334.200
Electrical Equipment Manufacturing	85,142.900	84,955.100
Transport & Other Machinery Manufacturing	75,590.100	75,299.700
Other Manufacturing	58,775.000	59,954.900
Construction	141,690.500	141,757.500
Electricity, Gas and Water	44,468.300	44,865.100
Financial Sector	62,907.800	63,331.100
Private Education	16,792.300	17,008.400
Private Health	19,493.600	17,445.200
Public Education	28,148.000	28,229.900
Public Health	7,637.200	7,715.600
General Government	73,747.800	72,795.600
Other Services	639,334.300	640,474.100

Table 12: Weighted Implicit Tariff

Sectors		1988	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Palay and Corn	0.540	0.564	0.564	0.597	0.631	0.698	0.661	0.475	0.451	0.451	0.432	0.432
2	Fruits and Vegetables	0.180	0.214	0.216	0.212	0.208	0.205	0.201	0.131	0.106	0.088	0.088	0.064
3	Coconut & Sugar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	Livestock & Poultry	0.030	0.048	0.040	0.036	0.045	0.029	0.026	0.033	0.030	0.027	0.023	0.023
5	Fishing	0.180	0.167	0.172	0.270	0.228	0.192	0.139	0.101	0.100	0.061	0.060	0.060
6	Other Agriculture	0.090	0.113	0.116	0.125	0.119	0.111	0.092	0.226	0.184	0.181	0.144	0.144
7	Forestry	0.180	0.179	0.120	0.119	0.120	0.118	0.108	0.048	0.034	0.034	0.034	0.034
8	Mining	0.050	0.138	0.089	0.086	0.070	0.079	0.075	0.042	0.042	0.033	0.033	0.033
9	Rice & Corn Milling	0.390	0.390	0.426	0.497	0.497	0.497	0.497	0.508	0.474	0.467	0.441	0.441
10	Milled Sugar	0.500	0.443	0.544	0.472	0.448	0.421	0.392	0.337	0.302	0.254	0.228	0.226
11	Meat Manufacturing	0.410	0.107	0.104	0.153	0.130	0.119	0.086	0.096	0.089	0.075	0.062	0.061
12	Fish Manufacturing	0.170	0.172	0.177	0.258	0.236	0.185	0.112	0.105	0.099	0.067	0.067	0.063
13	Beverage & Tobacco	0.490	0.378	0.395	0.392	0.388	0.384	0.380	0.237	0.195	0.158	0.150	0.145
14	Other Food Manufacturing	0.250	0.243	0.233	0.225	0.207	0.195	0.178	0.179	0.155	0.125	0.119	0.104
15	Textile manufacturing	0.280	0.249	0.247	0.230	0.218	0.212	0.120	0.121	0.091	0.079	0.078	0.057
16	Garments & Leather	0.250	0.270	0.269	0.268	0.267	0.266	0.160	0.160	0.153	0.106	0.106	0.100
17	Wood Manufacturing	0.200	0.181	0.204	0.190	0.173	0.158	0.140	0.140	0.140	0.091	0.091	0.091
18	Paper & Paper Products	0.240	0.272	0.268	0.236	0.207	0.199	0.166	0.170	0.170	0.112	0.112	0.112
19	Chemical Manufacturing	0.250	0.304	0.273	0.258	0.252	0.252	0.181	0.157	0.141	0.101	0.100	0.097
20	Petroleum Refining	0.260	0.110	0.096	0.121	0.120	0.129	0.112	0.025	0.023	0.022	0.022	0.022
21	Non-metal manufacturing	0.370	0.283	0.275	0.264	0.248	0.245	0.186	0.170	0.150	0.134	0.134	0.083
22	Metal Manufacturing	0.210	0.272	0.262	0.253	0.244	0.233	0.218	0.209	0.205	0.147	0.133	0.129
23	Electrical Equipment Manufacturing	0.290	0.229	0.223	0.195	0.177	0.139	0.098	0.087	0.087	0.230	0.230	0.230
24	Transport & Other Machinery Manufacturing	0.240	0.248	0.243	0.279	0.269	0.223	0.146	0.142	0.132	0.120	0.120	0.090
25	Other Manufacturing	0.230	0.179	0.149	0.143	0.132	0.121	0.086	0.087	0.077	0.056	0.054	0.047
26	Construction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	Electricity, Gas and Water	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	Financial Sector	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	Private Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	Private Health	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	Public Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
32	Public Health	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
33	General Government	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
34	Other Services	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figure 1: Implicit Tariff
Major Sectors

