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## Assessment of Tariff Reform in the 1990s

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## Assessment of Tariff Reform in the 1990s

*Rosario G. Manasan and Rosario G. Querubin*

DISCUSSION PAPER SERIES NO. 97-10

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## EXECUTIVE SUMMARY

Trade policy reform has proceeded at a rapid pace in the 1990s. The first wave started with the phased realignment of tariff rates under Executive Order 470 (issued in 1991). In 1992, EO 8 provided for the tariffication of QRs. Concomitant with this, good progress was achieved when the importation of some 286 items was de-regulated in that year. However, these gains were quickly reversed in 1993 with the re-imposition of QRs on 93 items as a result of the passage of the Magna Carta for Small Farmers.

Even before the final year of tariff reductions scheduled in EO 470 was reached, another wave of tariff restructuring came with the issuance in 1995 of EO 264 which affected some 4,142 HS lines in the manufacturing sector. In 1996, EO 288 directed tariff reductions on non-sensitive agricultural products. Finally, EO 313 (issued in 1996) provided for the tariffication of QRs on sensitive agricultural products and paved the way for the elimination of said QRs.

The present study assessed progress of trade reform in the 1990s in terms of the extent to which it has (i) achieved tariff simplification and (ii) improved international competitiveness. Tariff simplification was evaluated by looking at the frequency distribution of tariff rates across HS lines. On the other hand, improvement in international competitiveness was judged based on the mean, standard deviation and coefficient of variation of tariff rates and EPRs and on the movement of the  $(1+EPR)$  index.

The results suggest that considerable progress has been achieved in tariff simplification. Tariff reform in the 1990s has resulted in a shift from what is essentially a five-pronged rate schedule clustered around the 10-50 percent range in 1990 (under EO 404) to what is essentially a three-pronged rate schedule that is clustered around the 3-20 percent range in 2000 (under EO264/EO288/EO313). Moreover, the number of HS lines was reduced from 6,197 in 1990 to 5,725 in 2000. The reduction in the number of HS lines as well as in the number of tariff tiers streamline customs administration and minimize the incentives for evasion.

Likewise, singular gains have been made in fostering international competitiveness. Significant reductions in the overall average nominal/implicit tariff rates and EPRs have been achieved during the period 1990-2000. First, the overall average nominal tariff rate is reduced significantly from 33.3 percent in 1990 to 19.5 percent in 2000. This represents a decrease of over 40 percent. The reduction in nominal tariff rates came in two stages: a cut of some 19 percent on the average in 1990-1995 (as mandated by EO 470 and EO 8) and another one equal to over 25 percent in 1996-2000 (as provided under EO 264, EO 288 and EO 313). Second, the overall average implicit tariff rate based on price comparisons was trimmed down substantially from 28.6 percent in 1990 to 16.8 in 2000, equivalent to a cut of 35 percent. Half of this decline occurred in the first half of the decade while the remaining half is scheduled in the last half. Third, this has led to hefty reduction in the overall average price-comparison EPRs during the period under study. The overall average EPR based on price comparisons decreased

by some 39 percent from 29.4 percent in 1990 to 18.0 percent in 2000. Over two thirds of this reduction is scheduled in the last half of the nineties. Fourth, the overall average price-comparison EPRs corrected for tariff redundancy (which is perhaps the most realistic estimate of the overall level of protection) declined from 29.4 percent in 1994 to 16.7 percent in 2000. The proportional reduction here is slightly higher than that indicated by the simple price-comparison EPR.

Sectorwise, the cutbacks in tariff rates and EPRs were more pronounced for the manufacturing group than for the primary products group, particularly the agriculture sub-group. Thus, one of the more notable developments in the 1990s is the switch-over in the relative protection received by the agriculture and manufacturing sub-groups. While the manufacturing group received greater protection than the agriculture sub-group in 1990-1994, the opposite is true in 1995-2000. Moreover, the relative protection given to agriculture has been increasing from 1995 to 2000. The present situation is in sharp contrast to that in previous decades when the agriculture sub-group was penalized heavily relative to manufacturing.

In contrast, it is not quite so clear that the trade reform program of the 1990s will result in a more uniform and even pattern of protection across sectors. First, there is no clear reduction in the standard deviation of nominal/implicit tariff rates and book-rate EPRs during the period under study. The standard deviation of nominal tariff rates across all sectors in 2000 is even higher than that in 1990. This finding holds true for the standard deviation of book-rate implicit tariff rates as well as the standard deviation of book-rate EPRs across all sectors. Consequently, the estimates of the coefficient of variation for these various indicators rose over the period of analysis. Second, while the standard deviation in the price-comparison EPRs (both simple and the one adjusted for tariff redundancy) decreased by some 15 percent, their coefficients of variation increased in 1990-2000.

These results appear to be counter-intuitive at first glance. The conventional wisdom is that the general compression of the range of nominal tariff rates leading to the clustering of tariff rates at a lower and narrower range should reduce not only the mean but also the standard deviation of tariff rates and EPRs. However, the closer scrutiny suggests that while the tariff rates on the majority of HS lines, particularly those that were already lower than average to start with, were cut at an aggressive pace, the reduction in the rates applicable to the newly deregulated items and related products (agriculture and food processing products) was rather sticky, owing to the sensitive nature of affected products. Consequently, the improvement in the absolute dispersion of nominal tariff rates came rather slowly after each tariffication episode and the coefficient of variation tended to rise in 1990-2000.

It should be emphasized that the lackluster performance of book-rate EPRs with respect to the various measures of dispersion is largely driven by the downward stickiness of tariff adjustments in two major sub-groups: agriculture and food processing. In other words, the problem with dispersion is rather confined and the dispersion estimates may mask some of the clear improvements that has been achieved to date. For instance, price-comparison EPRs (corrected for tariff redundancy) of the major industry sub-groups cluster around the 3-13 percent range in 2000. The EPRs of 11 out of 15 major sub-industry groups fall in this

category. This is certainly a more compact distribution than that obtainable in 1990 when 7 industry sub-groups had EPRs in the 20-30 percent range, 4 industry sub-groups in the 31-55 percent range, 3 in the 11-20 percent range and 1 in the 0-10 percent range.

Moreover, closer examination of the "problematic" sectors (like food processing and agriculture) in 2000 suggests that the unevenness in the pattern of protection is likewise limited to relatively few sub-sectors. For instance, while the average price-comparison EPR of food processing is a high 32.2 percent in 2000. Only 7 of the 25 I-O sectors belonging to this sub-group have EPRs higher than 20 percent. The EPRs of the other I-O sectors in this sub-group cluster in the 0-10 percent range.

This is not to deny that a problem exists. But this discussion does tend to clarify and delineate its breadth and scope.

Prospectively, the government proposes, as part of TRP-III, to move closer towards a uniform level of protection across all sectors by reducing the level and spread of tariff rates. The thrust is to move a two-tiered rate schedule comprising 3 percent for raw materials and intermediate goods and 10 percent of finished products in 2003 and to a uniform tariff rate of 5 percent in 2004. The findings of the present paper, however, indicates unambiguously the need for more focused restructuring in the agriculture and food processing sub-groups if 2004 target is to be attained. They also point to the possibility that moving to a scenario where all imports, with the exception of sensitive agricultural products, are assessed duty at a uniform rate of 5 percent may not be a desirable move as that might likely lead to a wider dispersion in EPRs. However, political economy considerations suggest that this is going to be a difficult task.

The various multilateral initiatives will not provide additional pressure for the government to further rationalize its tariff structure. This stems from the fact that the country's unilateral efforts in trade liberalization to date are in fact more accelerated relative to the schedule of attaining the specific targets set forth in the multilateral agreements. For instance, while the Bogor goal is free trade in 2020, the Philippine IAP under the APEC proposes a uniform 5 percent tariff rate on all imports with the exception of agriculture.

This implies that the motivation for real reform will have to be generated from within the country itself. It has to come first from a realization that high and increasing protection of agriculture and food processing will be injurious to the economy's overall efficiency and prospects for sustained growth. With a more liberalized investment environment, significant increases in the inflow of foreign capital has been noted. If the structure of protection is not in line with the country's comparative advantage, large flows of resources may go to relatively inefficient activities, dimming the prospects for future reform some more as the constituency for the status quo increases.

Arresting the trend towards high protection for agriculture is politically difficult. It will require a strong political will. But more than that, it requires a recognition from policy makers that price intervention is not the solution to the sector's problems. The government has to focus instead on the real issues plaguing the agriculture sector: low productivity and poor market infrastructure, among others.

## 1. INTRODUCTION

The Philippines has had a long history of trade policy reform. In 1962, the government dismantled import and foreign exchange restrictions. In 1965, the peso was officially devalued with the peso-dollar exchange rate moving from P2 to P3.9 per US dollar. Because of a persistent imbalance in the balance-of-payments, exchange controls were re-imposed in 1967 and the peso was devalued once more in 1970 (from P3.90 to P6.40 per US dollar).

In 1973, the Tariff Code was overhauled for the purpose of simplifying it. The new Tariff Code reduced the number of tariff rates to six. On the other hand, the use of non-tariff measures or QRs was intensified in the 1970s. The Central Bank prohibited the importation of consumer goods that were classified as non-essential, unclassified or semi-classified. Also, taxes on major traditional exports were imposed.

Trade policy reform came in fits and bursts in the 1980s. In 1980, the government launched a major program of trade policy reform. This initiative had three components: the 1981-1985 Tariff Reform Program (TRP), the Import Liberalization Program (ILP), and a complimentary realignment of the indirect taxes. Under the TRP, the peak tariff rate was reduced from 100 percent to 50 percent while the floor tariff rate was raised from 0 to 10 percent. Indirect taxes were modified in 1983-1985 such that sales tax rates imposed on imports and their locally manufactured counterparts were equalized. Also, the mark-up applied on the value of imports (for purposes of computing the sales tax on the same) was reduced and eventually eliminated. However, the implementation of the import liberalization program (which would have lifted quantitative restrictions on imports) was suspended as a result of the 1983 balance-of-payments crisis. Moreover, some items which were deregulated earlier were re-regulated.

When the Aquino administration came to power, it abolished the export tax on all products with the exception of logs. It also revived the moribund import liberalization program. Thus, the number of regulated items was reduced from 1,802 in 1985 to 609 in 1988 (De Dios 1995). Based on the number of line items liberalized across sectors, there appears to have been a greater liberalization in agriculture as compared with manufacturing (Medalla 1990).

Trade reform faltered for a while in the late 1980s and all throughout the whole of 1990. Then, in 1991, the government once again embarked on a major reform of the tariff system with the issuance of Executive Order (EO) 470. This is sometimes referred to as TRP-II. EO 470 provided for the phased realignment of tariff rates over a five-year period. Under EO 470, the number of commodity lines with high tariffs was reduced while the number of commodity lines with low tariff rates was increased. It was aimed at the clustering of commodity lines at the 10-30 percent rate range by 1995. However, close to 10 percent of the total number of commodity lines were expected to continue to be subjected to 0-5 percent and 50 percent tariff rates by the end of 1995.



In 1992, EO 8 provided for the tariffication of QRs (i.e., interim increased protection) on 153 commodities and for tariff realignment for another 48 commodities. In general, EO 8 raised the tariff rates applicable to the relevant commodities by 100 percent of their pre-EO 8 levels (Tan 1994). However, EO 8 likewise provided for a five-year phase-down of the tariffed rates.

Concomitant with this, good progress was achieved in the ILP when importation of 286 items was de-regulated such that by the end of the year the remaining QRs covered 164 commodities only. However, these achievements were quickly reversed by the re-imposition of QRs on 93 items under Memorandum Order (MO) 95 in 1993, increasing the number of regulated commodities to 257. (This came about largely as a result of the Magna Carta for Small Farmers (RA 7606) in 1991.)

Even before the final year of tariff reductions scheduled in EO 470 was reached, the government promulgated new executive orders that were directed at further rationalization of the tariff structure (TRP-III). TRP-III is embodied in the following executive orders: EO 189, issued in January 1, 1994 (providing reduced tariffs on capital equipment and machinery), EO 204, issued in September 30, 1994 (mandating tariff reduction on textiles, garments, and chemical inputs thereto), E.O. 227, issued in March 4, 1995 (calling for changes on tariff rates applicable to cement), E.O. 264, issued in July 22, 1995 (affecting some 4,142 HS lines in the manufacturing sector), and EO 288, issued in January 1, 1996 (directing tariff reductions on "non-sensitive" components of the agricultural sector). The tariff restructuring indicated by these EOs refers to a reduction in the number of tariff tiers as well as a reduction in the maximum tariff rates. In principle, these EOs called for a four-tier tariff schedule: 3 percent for raw materials and capital equipment that 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.

Finally, EO 313 (issued in April 1996) provided for the tariffication of the QRS on sensitive agricultural products and paved the way for the elimination of these QRs. Note that as part of its commitment in ratifying the World Trade Organization (WTO), the government has pledged to withdraw said import restrictions, except that on rice. These import restrictions were lifted by Republic Act 8178 effective July 10, 1996. Tariff rates in excess of the 30 percent ceiling were allowed for some of these products.

**Table 1** summarizes the various EOs issued in the 1990s amending the Tariff and Customs Code.

It is evident that trade policy reform has proceeded at a rather rapid pace in recent years. Thus, a mid-stream assessment at this point is but appropriate. Specifically, this study proposes to evaluate the trade reform measures put in place in the 1990s in terms of (i) their impact on tariff simplification and (ii) their contribution to improvements in international competitiveness of local industries. In this regard, the frequency distribution of commodity lines across tariff tiers will be used to judge the progress of reform in the sense of (i) above. On the other hand,

the mean and standard deviation of nominal/implicit tariff rates and effective protection rates will be utilized to evaluate the second policy objective.

While EPRs pertaining to the 1991 tariff reform embodied under EO 470 have already been calculated, these estimates were done using the old methodology and the 1983 Input-Output tables. Thus, it is not only important to come up with EPR estimates that describe and summarize the post-EO 470 tariff adjustment measures but it is also necessary to recalculate baseline average overall and sectoral EPRs estimates using the 1988 I-O tables and the revised EPR methodology. Note that the new EPR methodology indicates changes in the previous characterizations of the country's protection structure not so much in terms of the overall average but more in terms of relative sectoral averages.

## **2. REVIEW OF LITERATURE**

### **2.1. Key Concepts**

Earlier episodes of trade and industrial policy reform in the country have received considerable attention in the local literature. Central to most of these studies is the use of the average nominal/implicit tariff rates and effective protection rates as the principal tools of analysis.

The gains from trade liberalization (operating either through a reduction in tariff rates or through the removal of a quota) is well enunciated in the trade theoretic literature. By altering prices faced by consumers and producers, tariffs and quotas result in market distortions that, in turn, lead to inefficiencies in resource allocation. Conversely, the lowering of tariffs and the lifting of QRs are expected to result in improved allocative and technical efficiency, greater access to cheaper-priced, better-quality inputs and superior technologies, greater domestic competition through a more rational market structure (Tecson 1994).

By making imports more expensive, tariffs suppress the demand for imports. That way, they artificially cheapen foreign exchange. This then penalizes the country's exports even as it protects domestic producers of import substitutes. At the same time, forward linkages are discouraged as a tariff on an intermediate product raise its price and discourage further processing. On the other hand, because the tariff structure tends to follow a cascading pattern (whereby tariffs on raw materials and capital inputs are generally lower than those on more processed products or those which are nearer the final production stage), finished products are favored relative to raw materials and intermediate goods. Consequently, tariffs and quotas diminish the competitiveness of domestic industries in the local and international markets and, in general, discourage the allocation of resources to sectors where the country's comparative advantage truly lies.

The higher the tariff, the greater is the distortion in prices that is induced. The overall average tariff rate (EPR) is indicative of the amount of protection the trade policy regime

provides to the import substituting activity relative to the export activity. At the same time, it is well to remember that protection is a relative concept. The more uneven and dispersed the pattern of distribution of tariffs and EPRs across sectors, the more distorted the structure of market incentives becomes and the less competitive industrial structure becomes, causing resources to flow to areas where one's comparative advantage is low. It is within this context that the mean and standard deviation of nominal/implicit tariffs and EPRs have been used in assessing the effects of trade reform. As supplementary measure, Medalla (1990) also computed the (1+EPR) index with agriculture's EPR taken as the numeraire. This index is one way of summarizing the relative protection received by different sectors.

The nominal tariff rate is the rate of duty that is levied on imports of specified commodities. In contrast, the implicit tariff rate (or the nominal protection rate) measures the extent to which the domestic price of a commodity exceeds its world (or border) price as result of tariff and other protective instruments. As such, it basically measures the effect of the tariff on the consumption decisions of users of said good (regardless of whether they are final consumers or intermediate consumers). For pure importables, the implicit tariff rate and the nominal tariff rate are equal to each other if there is no import control (which may imply that realized protection is higher than the legal tariff rate) and if there is no evasion of or exemptions from import duties (which may render the statutory tariff rate redundant). For pure exportables, the rate of duty is irrelevant in measuring the implicit tariff rate. Instead, the implicit tariff on exportables is equal to the negative of the export tax. If one is looking at the implicit tariff rate of a typical I-O sector then the implicit tariff rate would refer to a weighted average implicit tariff rates on the importable and exportable parts of the sector (Medalla and Power 1979).

On the other hand, the EPR measures the extent to which the protection system increases an industry's domestic value added (DVA) above its free trade value (FVA). That is,

$$EPR_j = \frac{DVA_j - FVA_j}{FVA_j} \times 100 \quad (1)$$

As such, the EPR takes the perspective of domestic producers and measures the net effect of nominal tariffs on their output and inputs on a firm's profitability. To the extent that a tariff on his output permits the domestic producer to raise the price he charges his consumers, then said duty inflates his domestic value added. On the other hand, to the extent that tariffs on his inputs increase his cost, then said duties diminish his domestic value added.

Corden (1975), among others, have cautioned that the EPR is only indicative measures of the potential gains from resource allocation that trade liberalization engenders. Whether resources actually flow in the direction suggested by EPRs estimates is an empirical question. However, the Medalla et al. (1995) provides compelling evidence that the Philippine trade liberalization experience in the early 1980s has indeed had positive effects on market structure, efficiency, competitiveness and resource allocation. In particular, it was shown that (i) the domestic-resource-cost-to-shadow-exchange-rate ratio of the manufacturing sector taken as a

whole declined from 1983 to 1988, indicating the improvements in its competitiveness. Moreover, the relatively inefficient industries shrank in relative terms after the trade reform implying an improvement in resource flows toward the more efficient sectors.

## 2.2. Analysis of Earlier Liberalization Episodes

Tan (1979), using the 1974 Input-Output table, demonstrated that the rationalization of the tariff system undertaken in 1973 did not significantly alter the structure of effective protection that was characteristic of the earlier period although there was a slight decline in the average (book rate) EPR for the manufacturing sector from 51 percent to 44 percent. Thus, the bias in favor of consumption goods over intermediate and capital goods persisted (Table 2). Moreover, the 1974 EPR structure showed a bias in favor of manufacturing over other sectors and a bias against the export sector (Bautista and Power 1979).

On the other hand, the Tariff Reform Program of 1980 led to a reduction in the overall average (book rate) EPR, from 19 percent in 1979 to 9 percent in 1985 (Medalla 1986).<sup>1</sup> Likewise, the average EPR for the manufacturing sector went down from 35 percent to 20 percent while that for agriculture slid from 0 to -2 percent. At the same time, the variation in sectoral EPR estimates declined. Thus, while primary agriculture and exportables continued to be penalized relative to manufacturing and importables, respectively, the bias against the said sectors was cut down (Table 3).

There was little change in the tariff schedule in the second half of the 1980s. However, the overall average (price comparison) EPR declined markedly from 49 percent in 1985 to 36 percent in 1988 as a result of the resumption of the import liberalization program in 1986-1989 and the abolition of export taxes (Medalla 1990).<sup>2</sup> Once again, the gap between the EPRs of agriculture and manufacturing and that between the EPRs of exportables and importables were narrowed by this particular liberalization episode, with the latter movement being more pronounced than the former.<sup>3</sup> Nonetheless, manufactured importables continued to be the most favored sector (Table 4).

A third wave of tariff adjustments came in 1991-1995 with the implementation of EO 470 and EO 8. EO 470 reduced the lines with high tariffs and increased the number of lines with low tariffs. Thus, while some 6 percent of the total number of commodity lines were levied duty at rates below 10 percent and some 30 percent were levied duty at 40/45 percent, the bulk of the total number of commodity lines had duty at rates between 10 percent and 30 percent in

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<sup>1</sup>These estimates were obtained using the 1979 I-O tables.

<sup>2</sup>These EPR estimates were computed using the 1983 I-O tables and are, thus, not directly comparable with earlier estimates.

<sup>3</sup>The gap between manufacturing EPR and agriculture EPR widened between 1986 and 1988 when EPRs based on book rates are used.

1991 (Tan 1994).<sup>4</sup> On the other hand, EO 8 levied tariff rates that twice as high as those mandated under EO 470 on erstwhile regulated products that were scheduled for liberalization. Consequently, in 1992, some 167 commodity lines were subjected to duty at rates between 60 percent and 100 percent, well in excess of the 50 percent ceiling rate set under TRP-I. However, because EO 8 also provided for the gradual reduction in the tariffed rates within a 5-year period, there is very little difference between the rate structure of EO 470 and EO 8 by 1995 (Tan 1994).

EO 470 resulted in a decline in the overall average (price comparison) EPR from 32 percent in 1990 to 29 percent in 1995 (Table 4). Thus, the momentum towards a more uniform protection structure was sustained, with the bias in favor of manufactures and importables reduced somewhat. Nevertheless, the relative penalty on exportables and primary agriculture persisted.

It should be noted that while the methodology used to estimate EPR in the various studies cited above have remained basically unchanged, the input-output tables used have been updated over time. Thus, the results of these different studies are not directly comparable.

### 3. OBJECTIVE AND SCOPE OF WORK

The objective of the present study is to assess the extent at which trade reform in the 1990s is contributing to the achievement of the twin goals of the present round of trade liberalization in the Philippines: tariff simplification and increased international competitiveness. Specifically, this study will estimate three indicators: frequency distribution of HS lines by tariff rates; mean and dispersion of nominal tariff rates and effective protection rates, and estimates of  $(1 + \text{EPR})$  index of major industry sub-groups for each year in 1990-2000. The first indicator (the frequency distribution of tariff rates) provides a good summary measure of the extent of tariff simplification that has been achieved. On the other hand, the second set of indicators [mean, standard deviation and coefficient of variation of nominal/implicit tariff rates and EPRs and estimates of the  $(1 + \text{EPR})$  index] yields a gauge of the improvement/deterioration in international competitiveness of domestic industries.

The mean nominal/implicit tariff rates or EPRs measures the overall level of protection that the system of tariffs and QRs gives to domestic consumers and producers, respectively. The average nominal/implicit tariff rate measures the proportional difference the domestic price and the border price of tradable goods. As such, it captures the distortionary effect of tariffs and/or non-tariff measures (NTMs) on consumption decisions.

Meanwhile, the average EPR takes into account the net effect on an activity's profitability of (i) the higher price it can charge on its output either because a tariff is levied on it or its

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<sup>4</sup>"Commodity lines" refer to items in the Harmonized System.

importation is regulated; and (ii) the higher prices it has to pay on its inputs because of the same reasons. In this way, the average EPR measures the distortionary effects of tariffs and non-tariffs and NTMs on production decisions.

Finally, the study will review related government actions and/or policy thrusts that may either substantially and directly negate the effectiveness of trade reform. It will also evaluate the existence of external factors that may prevent the achievement of the overall reform objectives.

#### **4. APPROACH AND METHODOLOGY**

The present study follows the conventional approach of using the mean and standard deviation of nominal/implicit tariff rates and EPRs in assessing the impact of the trade policy regime on the international competitiveness of the domestic industry.<sup>5</sup> It is recognized that the effective protection rate simply provides an indicative measure of the potential gains from the more efficient reallocation of resources that trade liberalization will bring about. As such, the EPR is an intermediate indicator. A more direct way of measuring the impact of trade liberalization would focus at policy outcomes. However, because this study presents a mid-stream assessment of the trade policy regime in the nineties, it is constrained to limit itself to the use of EPR in its analysis. Note that it takes time before one can observe specific outcomes of policy, and even more time before data describing such outcomes become available.

In this regard, the results of Medalla et al. (1995) are worth noting. Their study showed that resources actually shifted in the direction predicted by EPR estimates for the Philippine trade liberalization experience in the early 1980s. That is, domestic industries became more competitive after the policy change.

##### **4.1 Use of the 1988 Input-Output Table**

The present exercise estimated the overall and sectoral average nominal/implicit tariff rates and EPRs based on the 1988 Input-Output table. The 1988 I-O table comprises 230 production sectors. Of these, 169 are non-service sectors. A listing of these sectors is found in **Annex Table 1**.

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<sup>5</sup>In addition to the standard deviation of tariff rates and EPRs, this study also looked at the coefficient of variation as an alternative measure of the dispersion. The coefficient of variation is defined as the ratio of the standard deviation to the mean. The coefficient of variation has the nice property of adjusting the standard deviation for the size of the mean. This may be important when one is analyzing distributions that have different means. For instance, when the various items being averaged are decreased in the same proportion, then both the mean and the standard deviation will decline by the given proportion but the coefficient of variation will be constant. However, it should be noted that the coefficient of variation has the disadvantage of being very sensitive to very low means. That is, when the mean takes on a very low values the coefficient of variation becomes volatile.

In addition to estimates of average tariff rates and EPRs for each of the tradable non-service I-O sectors, this study also computed for the mean and standard deviation of tariff rates and EPRs for each of the following industry sub-groups: (1) agriculture - sectors 1-24; (2) fishing - sectors 25-26; (3) logging and other forestry activities - sector 27; (4) mining - sectors 28-37; (5) food processing - sectors 38-62; (6) beverages and tobacco -sectors 63-68; (7) textile, garments and footwear - sectors 69-81, 84; (8) wood and wood products - sectors 85-92; (9) furniture and fixtures - sectors 93-95; (10) paper, rubber, leather and plastic products - sectors 82-83, 96-101, 113-116; (11) chemicals and chemical products - sectors 102-110; (12) non-metallic mineral products - sectors 111-112, 117-124; (13) basic metals and metal products - sectors 125-134; (14) machinery including electrical machinery and transport equipment - sectors 135-157; and (15) miscellaneous manufactures -sectors 158-169. Mean and standard deviation of tariff rates and EPRs for each of the major industry group (namely, agriculture, fishery and forestry - industry sub-groups 1-3; mining - industry sub-group 4; and manufacturing -industry sub-groups 5-15) were also estimated.

### Estimation of Average Nominal Tariff Rates

The tariff rates corresponding to the different HS lines within an I-O sector were averaged using the sum of domestic output and import values (Q+M) as weights. The use of (Q+M) as weights tends to overcome the biases associated with using either output weights or import weights singly. Note that the use of import weights tends to result in some downward bias since low tariffs which are usually associated with high levels of imports are given larger weights while high tariff rates that tend to restrict imports are assigned small weights and prohibitive duties that give rise to zero imports are allotted zero weights. In contrast, the use of domestic production levels as weights tends to result in some upward bias. Higher levels of domestic production tends to be associated with higher tariff rates as domestic output substitutes for imports with a rise in the rate of import duty while the opposite is true for low tariff rates.

In this paper, average tariff rates based on the book rates were calculated for each year in the period 1990-2000. In addition, average tariff rates adjusted for duty exemptions were also computed for each year in the period 1990-1995. The average tariff rate for sector j adjusted for duty exemption,  $t_{aj}^{adj}$ , is defined as:

$$t_{aj}^{adj} = \frac{t_{aj} M_j - D_j}{M_j} \quad (2)$$

where  $t_{aj}$  = average tariff rate for sector j;  
 $M_j$  = total imports of sector j for given year;  
 $D_j$  = value of revenue foregone from duty exemptions of imports of sector

### EPR Estimation Procedure

The revised EPR estimation methodology and the computerized estimation model recently adopted by the Tariff Commission is used in this study (AYC, Inc. 1995). The revised EPR

estimation methodology is discussed in some detail in **Appendix 1**. The more important features of the revised EPR methodology are as follows:

The 169 non-service sectors in the 1988 I-O table were classified as tradable or non-tradable depending on whether said sectors are actually traded or not. The tradable sectors were then classified as either homogenous or heterogenous. The latter are automatically classified as mixed sectors based on the differentiated products argument. The former were classified as either purely exportable or purely importable depending on how their domestic prices compare with their world prices. The previous estimation methodology classifies tradable sectors as importable, exportable or mixed depending on the relative magnitude of actual import and export levels, i.e., sectors with relatively high imports (exports) were categorized as importable (exportable);

Instead of taking the average of the 5 highest tariffs and the 5 lowest tariff rates, the new procedure takes the average of all the tariff rates assigned to each HS line within an I-O sector using the sum of import and domestic output values as weights;

In estimating implicit tariff rates, outputs and inputs are treated symmetrically under the new EPR methodology. It moves away from the assumption made in the old methodology that only the lowest tariff rates apply on the products that are used as inputs to other sectors. In the new approach, the implicit tariff rate applicable on any given sector's output is the same regardless of whether said output is intended for final consumption or as in input into another sector.

For each year in the period 1990-2000, 4 sets of EPR estimates will be calculated: (a) "book rate" EPRs based on tariffs alone, (b) "book rate" EPRs based on tariffs, VAT and duty drawback for exports, (c) "price comparison" EPRs based on tariffs alone, and (d) "price comparison" EPRs based on tariffs, VAT and duty drawback for exports. In addition, "book rate" and "price comparison" EPRs that account for tariffs and duty exemptions combined will be estimated for each year from 1990-199.<sup>6</sup>

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<sup>6</sup>The estimates of the overall average EPR generated by the new methodology are fairly close to that obtained by using the old methodology. However, the EPR estimates for manufacturing yielded by the new methodology are considerably lower while that for agriculture are substantially higher than the corresponding values derived from the old methodology. The difference are largely traceable to the changes in sectoral classification, i.e., importable versus exportable versus mixed. To wit:

	1990 old	1991 old	1990 new	1991 new
Agriculture	13.2	15.0	31.9	33.1
Manufacturing	50.7	51.5	31.9	34.6
All Sectors	32.5	33.9	29.4	31.1

Source: Old methodology estimates from Tan 1994; new methodology estimates from author. The estimates refer to price-comparison EPRs.



#### **4.4. Cut-off Date in Choosing EO to Represent Protection Structure in a Given Year**

Since a number of government issuances revising the tariff rates as well as the QRs are typically made in the course of any single year, it is necessary to decide, albeit arbitrarily, on the cut-off date for the E.O.s and/or M.O.s that will be considered in calculating the EPR estimates for any given year. For purposes of this engagement, the EPR and tariff rate estimates for any given year are made with reference to the set of tariff rates and QRs that are in place as of August 31 of said year.<sup>7</sup>

##### **New Concordance Tables Between PSIC and Revised HS Coding**

Approximately 500-1,000 HS lines were changed yearly in 1990-1995. Thus, updated concordance tables between HS lines and the seven-digit PSIC lines are an important by-product of this exercise. These were then used in making the necessary modifications in the model to accommodate said changes in the commodity classification in the Harmonized System.

##### **Values of Imports and Domestic Production Used as Weights**

Data on import values at the seven-digit PSIC level are available from the Philippine Foreign Trade Statistics yearly for the period 1990-1995. However, because the latest domestic production data available refer to 1988 values, tariff rates were averaged using 1988 output and import values as weights.

##### **Price Comparisons**

Data needed to arrive at price comparison estimates are available only for the years 1990-1995. To smoothen out year-to-year fluctuations, the average price relatives in the three-year period ending in the current year is used in estimating implicit tariff rates. That is, the average price ratio for 1991, 1992 and 1993 is used to estimate the implicit tariff rate for 1993. Moreover, the relative price estimates thus obtained for 1995 are assumed to hold in 1995-2000 for the remaining regulated items in estimating the "price comparison" implicit tariff rates and EPRs for the latter years.

In general, domestic price data were obtained from the National Statistics Office (NSO) or the Bureau of Agricultural Statistics (BAS) while border price data came from the Hongkong Trade Statistics. However, these data sources were supplemented by other sources like the FAO statistics for certain items like rice, corn, sugar, copra, coconut oil, poultry meat and pork.

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<sup>7</sup>In principle, a cut-off that is too close to either the start or the end of the year is not desirable. A mid-year cut-off may be preferable because it will be more representative of the situation obtaining in any given year. Thus, a July 1 cut-off was initially considered. However, two of the major EOs with multi-year phasing were found to have taken effect after July 1. In fact, EO 8 and EO 264 took effect in August 1992 and August 1995, respectively. Thus, the cut-off date was moved to August 30 so that the estimates may capture changes in the tariff structure in the first year of implementation of these multi-year EOs.

## **Treatment of In-Quota and Out-Quota Rates**

EO 313 provides for a two-tiered tariff scheme for each of the deregulated agricultural product covered therein: a lower rate for imports under the minimum access requirement of the WTO and a higher rate for importations in excess of this quota. In cases, where the minimum access volume (MAV) is small relative to domestic demand then the higher rate will be operational.<sup>8</sup> However, when the MAV is high, then the lower rate may be the more relevant one to use in the estimation. Numerous reports (for instance, Business Daily, April 29, 1996; May 2, 1996; May 3, 1996) pointed out that the MAV for poultry meat and pork are rather high because of so-called "technical errors" committed by the Philippine panel during the negotiation of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT). However, a closer examination of the numbers reveal that the MAV rates are not that large to warrant the use of in-quota rates in estimating EPRs.

### **Redundant Tariffs Due to Tariffication of QRs**

The importance of having good baseline information on price comparisons or tariff equivalent of the QRs on sensitive items (like corn, sugar, garlic, onions, potatoes, coffee, poultry meat, pork, and beef) in being able to assess the impact of the tariffication under EO 313 on the structure of protection cannot be over-emphasized. If the tariff rates provided under EO 313 are markedly higher than the nominal protection that would have obtained in the presence of NTMs, then the said higher nominal tariff rates may be redundant and the book rates will tend to over-estimate the realized protection. In this case, a more realistic measure of protection may be obtained by applying the price-comparison implicit tariff rates on the newly liberalized items.

## **5. PROGRESS OF TRADE REFORM: ASSESSMENT**

In this section, the progress of trade reform in the 1990s is assessed in terms of the extent to which it has (i) achieved tariff simplification and (ii) improved international competitiveness. As discussed above, tariff simplification will be gauged by the frequency distribution of tariff rates across HS lines. On the other hand, improvement in international competitiveness will be judged based on the mean, standard deviation and coefficient of variation of tariff rates and EPRs and on the movement of the  $(1+EPR)$  index.

The results presented below indicate that much headway has been attained in tariff simplification. Tariff reform in the 1990s has resulted in a shift from what is essentially a five-pronged rate schedule clustered around the 10-50 percent range in 1990 (under EO 404) to what is essentially a three-pronged rate schedule that is clustered around the 3-20 percent range in

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<sup>8</sup>This implies that those who are allowed to import at the in-quota rates (i.e., within the minimum access volume) will be appropriating substantial economic rents.

2000 (under EO264/EO288/EO313). Moreover, the number of HS lines was reduced from 6,197 in 1990 to 5,725 in 2000. The reduction in the number of HS lines as well as in the number of tariff tiers streamline customs administration and minimize the incentives for evasion.

Likewise, singular gains have been made in fostering international competitiveness. Significant reductions in the overall average nominal/implicit tariff rates and EPRs have been achieved during the period 1990-2000. First, the overall average nominal tariff rate is reduced significantly from 33.3 percent in 1990 to 19.5 percent in 2000. This represents a decrease of over 40 percent. The reduction in nominal tariff rates came in two stages: a cut of some 19 percent on the average in 1990-1995 (as mandated by EO 470 and EO 8) and another one equal to over 25 percent in 1996-2000 (as provided under EO 264, EO 288 and EO 313). Second, the overall average implicit tariff rate based on price comparisons was trimmed down substantially from 28.6 percent in 1990 to 16.8 in 2000, equivalent to a cut of 35 percent. Half of this decline occurred in the first half of the decade while the remaining half is scheduled in the last half. Third, this has led to hefty reduction in the overall average price-comparison EPRs during the period under study. The overall average EPR based on price comparisons decreased by some 39 percent from 29.4 percent in 1990 to 18.0 percent in 2000. Over two thirds of this reduction is scheduled in the last half of the nineties. Fourth, the overall average price-comparison EPRs corrected for tariff redundancy (which is perhaps the most realistic estimate of the overall level of protection) declined from 29.4 percent in 1994 to 16.7 percent in 2000. The proportional reduction here is slightly higher than that indicated by the simple price-comparison EPR.

Sectorwise, the cutbacks in tariff rates and EPRs were more pronounced for the manufacturing group than for the primary products group, particularly the agriculture sub-group. Thus, one of the more notable developments in the 1990s is the switch-over in the relative protection received by the agriculture and manufacturing sub-groups. While the manufacturing group received greater protection than the agriculture sub-group in 1990-1994, the opposite is true in 1995-2000. The present situation is in sharp contrast to that in previous decades when the agriculture sub-group was penalized heavily relative to manufacturing.

In contrast, it is not quite so clear that the trade reform program of the 1990s will result in a more uniform and even pattern of protection across sectors. First, there is no clear reduction in the standard deviation of nominal/implicit tariff rates and book-rate EPRs during the period under study. The standard deviation of nominal tariff rates across all sectors in 2000 is even higher than that in 1990. This finding holds true for the standard deviation of book-rate implicit tariff rates as well as the standard deviation of book-rate EPRs across all sectors. Consequently, the estimates of the coefficient of variation for these various indicators rose over the period of analysis. Second, while the standard deviation in the price-comparison EPRs (both simple and the one adjusted for tariff redundancy) decreased by some 15 percent, their coefficients of variation increased in 1990-2000.

The results described above appear to be counter-intuitive at first glance. The conventional wisdom is that the general compression of the range of nominal tariff rates leading to the clustering of tariff rates at a lower and narrower range should reduce not only the mean but also the standard deviation of tariff rates and EPRs. However, the analysis below suggests that while the tariff rates on the majority of HS lines, particularly those that were already lower

than average to start with, were cut at an aggressive pace, the reduction in the rates applicable to the newly deregulated items and related products (agriculture and food processing products) was rather sticky, perhaps owing to the sensitive nature of affected products. Consequently, the improvement in the absolute dispersion of nominal tariff rates comes rather slowly after each tariffication episode and the coefficient of variation tended to rise in 1990-2000.

It should be emphasized that the lackluster performance of book-rate EPRs with respect to the various measures of dispersion is largely driven by the downward stickiness of tariff adjustments in two major sub-groups: agriculture and food processing. In other words, the problem with dispersion is rather confined and the dispersion estimates may mask some of the clear improvements that has been achieved to date. For instance, price-comparison EPRs (corrected for tariff redundancy) of the major industry sub-groups cluster around the 3-13 percent range in 2000. The EPRs of 11 out of 15 major sub-industry groups fall in this category. This is certainly a more compact distribution than that obtainable in 1990 when 7 industry sub-groups had EPRs in the 20-30 percent range, 4 industry sub-groups in the 31-55 percent range, 3 in the 11-20 percent range and 1 in the 0-10 percent range.

Moreover, closer scrutiny of the "problematic" sectors (like food processing and agriculture) in 2000 suggests that the unevenness in the pattern of protection is likewise limited to relatively few sub-sectors. For instance, while the average price-comparison EPR of food processing is a high 32.2 percent in 2000. Only 7 of the 25 I-O sectors belonging to this sub-group have EPRs higher than 20 percent. The EPRs of the other I-O sectors in this sub-group cluster in the 0-10 percent range.

This is not to deny that a problem exists. But this discussion does tend to clarify and delineate its breadth and scope.

### **5.1. Frequency Distribution of HS Lines by Tariff Rate**

The implementation of the various amendments to the Tariff Code that were put in place in the 1990s resulted in (i) a reduction in the number of HS lines, (ii) a movement towards lower tariff rates and (iii) a reduction in the number of tiers. These developments substantially streamline customs administration and minimize incentives to evasion.

The 1990s will see a shift from what is essentially a five-pronged rate schedule clustered around the 10-50 percent range in 1990 to what is essentially a three-pronged rate schedule that is clustered around the 3-20 percent range in 2000. Also, the number of HS lines is reduced from 6,197 in 1990 to 5,725 lines in 2000. This came about as HS lines that would eventually have the same rates of duty were combined in a single line (PHILEXPORT 1996).

**Table 5** shows that the tariff structure in 1990 consists essentially of five tiers: 10, 20, 30, 40 and 50 percent. These five rates combined accounted for 98.6 percent of total number of HS lines during that year. While there are a few items (84 out of 6,197 HS lines or 1.4 percent) with tariffs rates of 0, 5, 35 and 45 percent, none have rates higher than 50 percent.

Starting with EO 470 in 1991, more and more HS lines started to migrate to tariff rates in the 0-5 percent range. With the implementation of EO 8 and the implied tariffication of some

QRs that were then in place, the 50 percent ceiling on the tariff rate schedule was breached in 1992. This occurred as the tariffed rates were set at twice the prevailing rates. A total of 167 HS lines (or 3.1 percent of total number of HS lines) were levied tariff rates greater than 50 percent. Eighty of these were levied rates of 60 percent while 68 had rates of 100 percent. However, EO 8 provided for the phased reduction of the overall rate structure, particularly those that referred to tariffication, in 1992-1995. Consequently, by 1995, no HS lines had tariff rates greater than 50 percent.

Also, with the implementation of EO 172 in 1994, the floor rate was raised from 0 to 3 percent. At the same time, EO 189 reduced the duty on capital equipment from 10-20 percent to 3-10 percent. Thus, the period 1992-1995 also saw the emergence of what is essentially a 3-10-20-30 rate schedule although a number of HS lines continued to have tariff rates outside this schedule. In 1995, the plurality of HS lines fall in either the 3 percent tier (35.0 percent) or in the 30 percent tier (28.2 percent). In that year, only 151 HS lines (or 2.5 percent) were not in line with the 3-10-20-30 rate schedule.

On the other hand, the period 1996-2000 will witness the evolution of a three-tier rate schedule: 3-10-20 percent. This occurs as most HS lines with rates greater than or equal to 30 percent are shifted to lower tariff tiers. Moreover, the 3 percent tier progressively gains dominance in the period. By year 2000, the 3 percent tier will account for 51.3 percent of the total number of HS lines. However, some 213 lines (or 3.5 percent of total number of lines) persist to have rates of duty in the 25-65 percent range in 2000.

Despite these positive developments, it is noteworthy that the tariffication of QRs on sensitive agricultural products in 1996 under EO 313 caused the 50 percent ceiling to be violated once more. In that year, 128 HS lines (or 2.2 percent of the total number of HS lines) had rates equal to or higher than 50 percent. By year 2000, this figure declines to 76 (or 1.3 percent of the total number of HS lines).

## **5.2. Nominal Tariff Rates**

### ***Book Rates***

The tariffication of QRs which occurred under EO 8 in 1992 and then again under EO 313 in 1996 caused increases in both the mean and standard deviation of nominal tariff rates in those years. As discussed above, the QRs were generally replaced by tariff rates that were considerably higher than their pre-deregulation levels. Moreover, EO 313 instituted higher tariff rates on the intermediate users of the newly liberalized products. For instance, tariff rates on livestock, poultry and meat products were increased because of the very high rates levied on corn and other inputs to animal feeds. This then tended to pull up both the mean and the dispersion of nominal tariff rates. The increase in the standard deviation arose because higher nominal tariff rates were applied to the liberalized products even as the tariff rates on other products, particularly those that had lower than average rates, were reduced. However, the phased reduction of tariffed rates for the newly liberalized sectors coupled with the overall cutbacks in the tariff schedule led both the mean and standard deviation of nominal tariff rates to drop in the years following 1992 and 1996.

It is important to note that the mean tended to decline at a faster rate than the standard deviation. This occurs because the decline in the mean is brought about by a non-proportionate decline in the tariff rates applicable to different HS lines and is largely driven by substantial reductions in the tariff rates on HS lines that had lower than average rates to start with. On the other hand, the tariff rates applicable to HS lines that had higher than average tariff rates (like those on some agricultural products and food processing products) did not decline as fast. In fact, while the tariff rates on the "sensitive" agricultural and food processing products were scheduled to decrease over a 10-year period (1995-2004) the reductions are not steep such that their 2000 levels will at best approximate the applied rates in 1995. In many cases, they will even be higher the 1995 rates.

Thus, while the tariff rates on the majority of HS lines were incessantly cut at an aggressive pace, the reduction in the rates applicable to the newly deregulated items and other so-called sensitive items was rather sticky, perhaps owing to the sensitive nature of affected products. Consequently, the improvement in the absolute dispersion of nominal tariff rates comes rather slowly after each tariffication episode and the coefficient of variation tended to rise in 1990-2000.<sup>9</sup>

The weighted average nominal tariff rate ( $t_a$ ) for all sectors generally showed a declining trend in 1990-2000 despite some fluctuations during the period (**Figure 1**). This also holds true for the average nominal tariff rates for all major (1-digit PSIC) industry groups.

The overall average nominal tariff rate rose from 33.2 percent in 1990 to 38.9 percent in 1992. From its peak level in that year, it went down to 26.8 percent in 1995 before increasing once again to 28.1 percent in 1996. From then on, it declined monotonically to 19.5 percent in the year 2000.

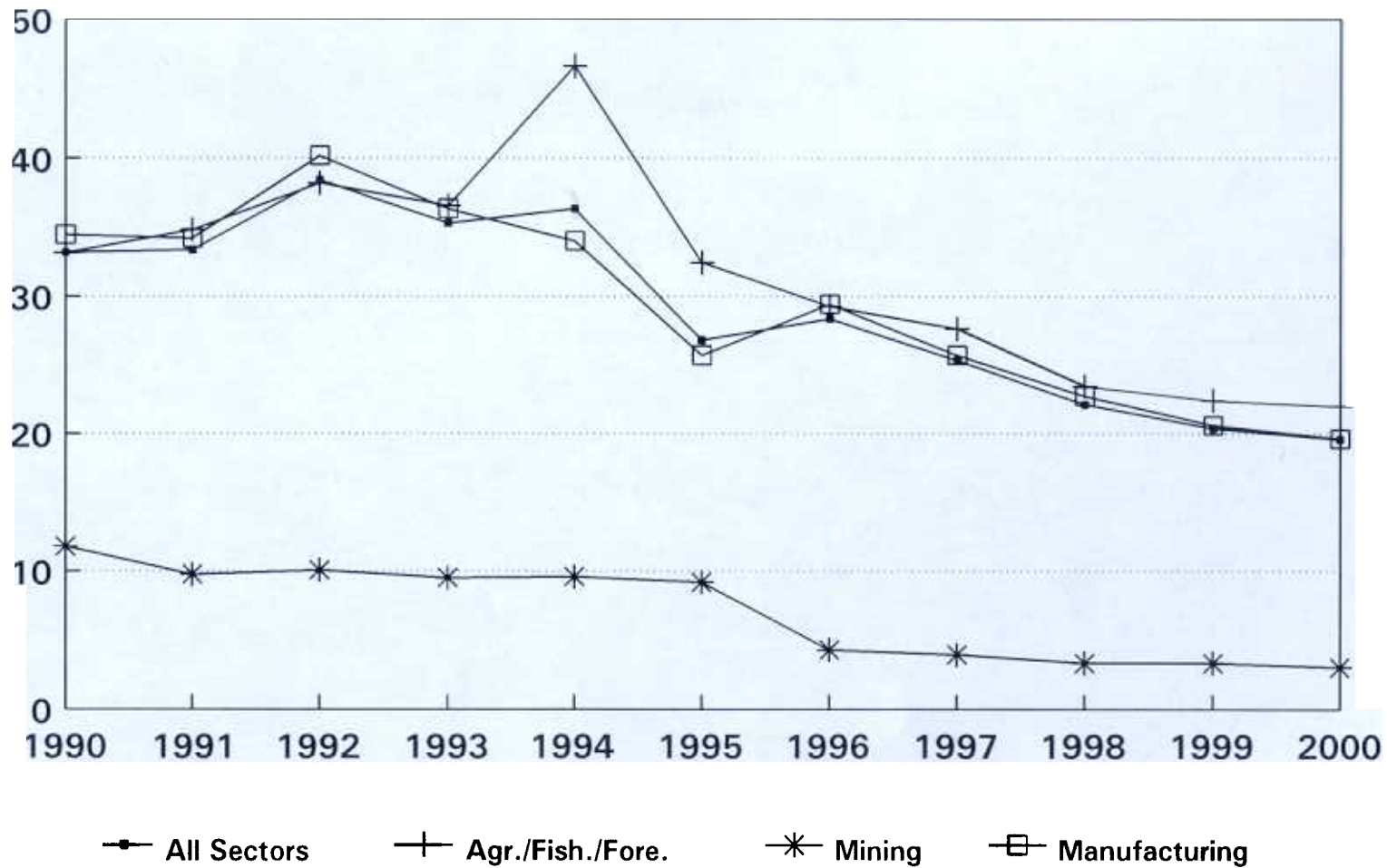
Looking at the 1-digit PSIC groups, the weighted average nominal tariff rate for the manufacturing group largely showed the same movement as that of the overall weighted average nominal tariff rate. In contrast, the weighted average nominal tariff for the agriculture/fishery/forestry (AFF or primary products) group exhibited an upward trend in 1990-1992 before declining continuously from then onwards. On the other hand, the weighted average nominal tariff rate for the mining group fluctuated within a narrow band (9-12 percent) in 1990-1995. In 1996, it declined sharply to 3.9 percent and settled at 3.0 percent in 2000.

In 1990 and 1992, the manufacturing group had the highest weighted average nominal tariff rate. From 1993 onwards, the AFF group ranked first in terms of the average nominal tariff rate. In 2000, the weighted average nominal tariff rate of the primary products group is 22.0 percent, roughly 2.5 percentage points higher than that of the manufacturing sector (**Table 6**). The mining group consistently garnered the lowest weighted average nominal tariff rate in 1990-2000.

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<sup>9</sup>These observations are also applicable to the mean and standard deviation of implicit tariff rates and effective protection rates.

**Figure 1**  
**AVERAGE NOMINAL TARIFF RATE OF MAJOR INDUSTRY SUB-GROUP**  
**1990-2000**



Looking at the major industry sub-groups, in 1990, the furniture and fixtures and the beverages and tobacco sub-groups ranked first and second in terms of the weighted average nominal tariff rate (49.7 percent and 49.2 percent, respectively). In that year, the non-metallic mineral product and the forestry sub-groups had the lowest average nominal tariffs (12.3 percent and 18.2 percent, respectively). In 2000, the food processing and the agriculture sub-groups will exhibit the highest average nominal tariff rates (35.1 percent and 28.8 percent, respectively) while the forestry and the non-metallic mineral product sub-groups continue to be the cellar dwellers (3.5 percent and 5.4 percent, respectively).

The overall standard deviation of nominal tariff rates did not register any palpable reductions during the period under study. Absolute dispersion (as measured by the standard deviation of the weighted average nominal tariff rates) across all sectors fluctuated within the 15-25 percent range during the period with peaks in 1992 and 1996. While the overall standard deviation drops from 21.4 percent to 16.4 percent in 1996-2000, its level in 2000 is higher than its 1990 and 1995 levels (**Figure 2**). It is notable, however, that the problem is pretty limited to two major industry sub-groups (agriculture and food processing). The standard deviations of nominal tariff rates within all of the major industry sub-groups, with the exception of these two, demonstrated some decline in 1990-2000.

Because the mean nominal tariff rate is falling at a faster rate than the standard deviation during the period under study, relative dispersion across all sectors (as measured by the coefficient of variation or the ratio of the standard deviation to the mean) displayed a perceptible upward trend (**Figure 3**). Note that the coefficient of variation in 2000 is almost twice as large as that in 1990.

A similar picture is obtained for the manufacturing group and the AFF group. In contrast, the coefficient of variation for the mining group showed a dramatic decline in 1996-2000. In 2000, the group's coefficient of variation stands at 5.8 percent, close to a tenth of its 1996 level.

### *Nominal Tariff Rates Adjusted for Duty Exemptions*

This study likewise estimated the overall weighted average nominal tariff rate adjusted for duty exemption in 1990-1995. The difference between the overall average nominal tariff rate based on book rates and that adjusted for duty exemption is rather hefty, ranging from 8.5 percentage points in 1993 to 15 percentage points in both 1990 and 1994 (**Annex Table 2**).<sup>10</sup>

In the manufacturing group, the impact of duty exemption was large in 1990 (a reduction of 18.7 percentage points in the weighted average nominal tariff rate) and in 1994 (a cutback of 15.1 percentage points in the weighted average nominal tariff rate). In the other years, duty exemption resulted in a 6-10 percentage point decrease in the average nominal tariff rates.

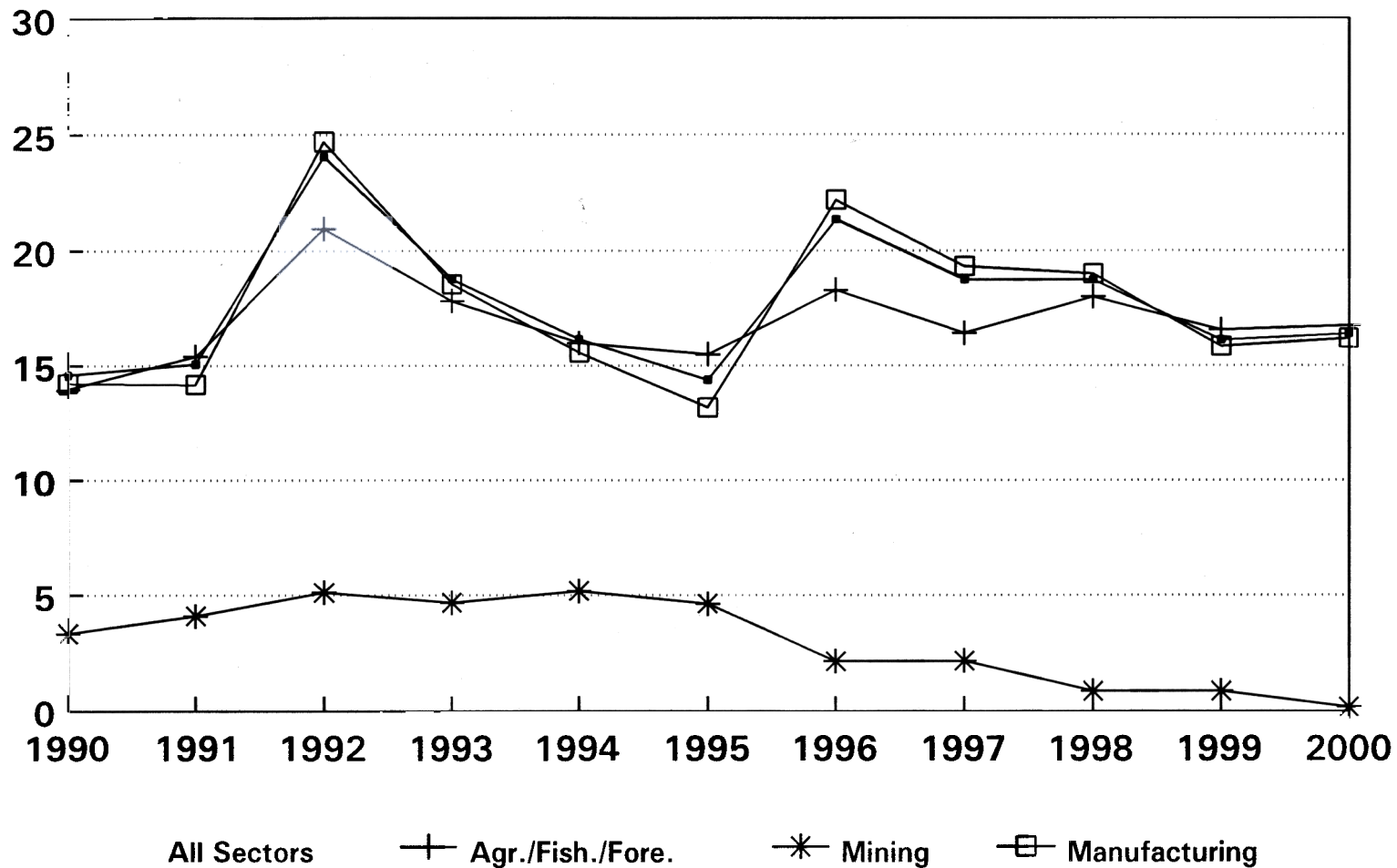
The adjusted average nominal tariff rate is zero (implying that on the average imports came in duty free) for a significant number of I-O sectors in 1990-1995 (**Annex Table 2**). In

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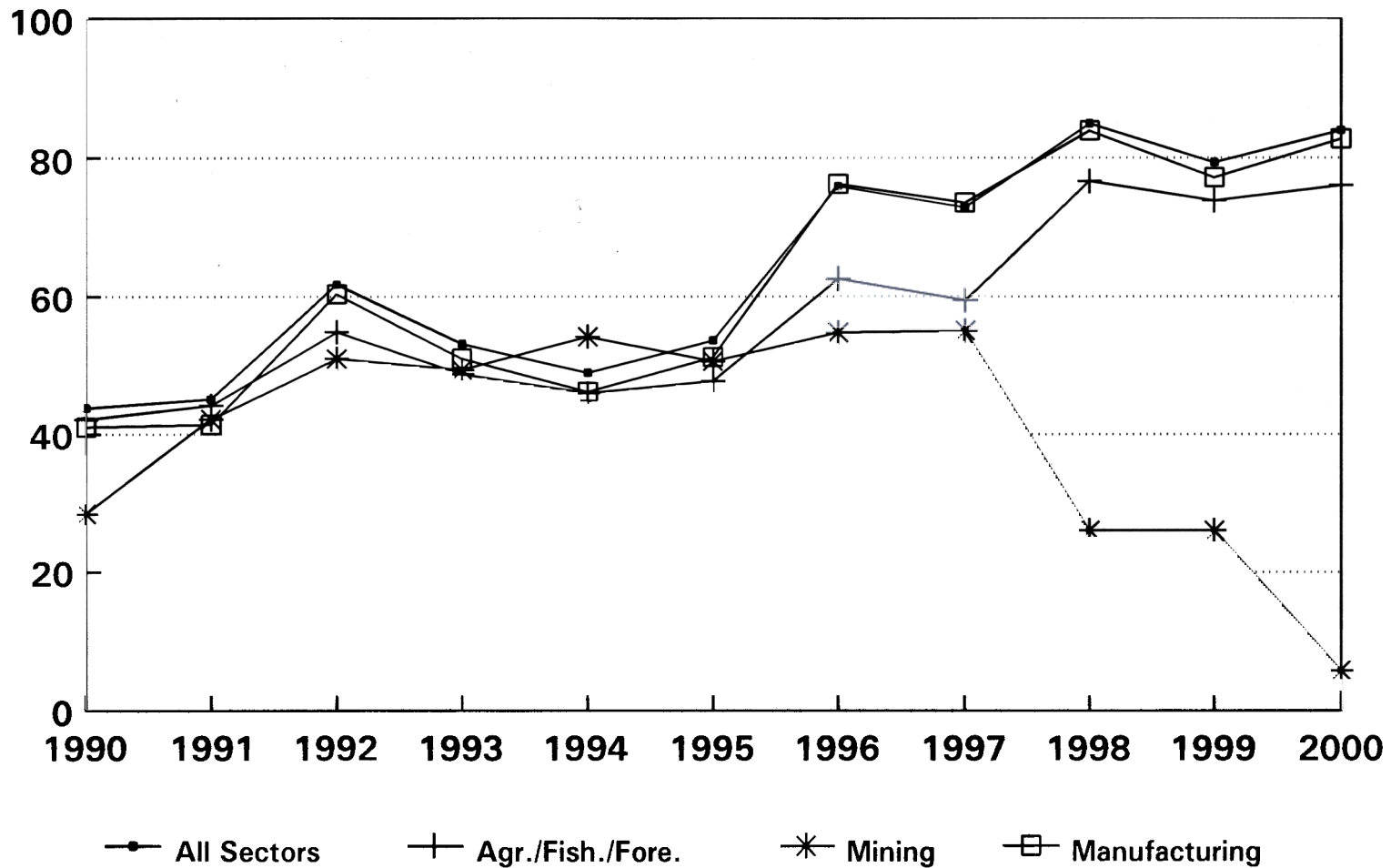
<sup>10</sup> All Annex Tables are available from author upon request.



**Figure 2**  
**SECTORAL STANDARD DEVIATIONS OF AVERAGE NOMINAL TARIFF RATE**  
**OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**



**Figure 3**  
**COEFFICIENT OF VARIATION OF AVERAGE NOMINAL TARIFF RATE**  
**OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**



particular, duty exemptions in 69 out of 162 tradeable sectors effectively wiped out the nominal tariff rate in said sectors in 1990. Similarly, 61 I-O sectors had zero adjusted average nominal tariff rates in 1994 while the same is true in 46 and 40 I-O sectors in 1991/1992 and 1995, respectively. In contrast, duty exemptions was not that significant in 1993, nullifying the nominal tariff rates in only 4 I-O sectors in that year.

In general, the standard deviation of the adjusted nominal tariff rates was considerably higher than that for the unadjusted nominal tariff rates, i.e., the distribution of adjusted nominal tariff rates is more dispersed than that of unadjusted tariff rates.

### 5.3. Implicit Tariff Rates

#### *Book Rates*

The weighted average book-rate implicit tariffs ( $T_j$ ) for all sectors as well as for each of the 1-digit PSIC groupings generally fell in 1992-2000, albeit with some upward movement in 1996 (**Figure 4**). This is the same trend registered by average nominal tariff rates although the decline in implicit tariff rates is slightly less steep.

The overall weighted average implicit tariff rate slid from 26.0 percent in 1990 to 25.7 percent in 1991 before cresting at 30.6 percent in 1992. It then tumbled to 20.9 percent in 1995. The overall average implicit tariff then bounced back to 23.6 percent in 1996. From then on, the overall implicit tariff rate posts a significant reduction, reaching a low of 16.8 percent in 2000 (**Figure 4**). The high average implicit tariff rates in 1992 and 1996 may be traced to the tariffication of QRs in those years.

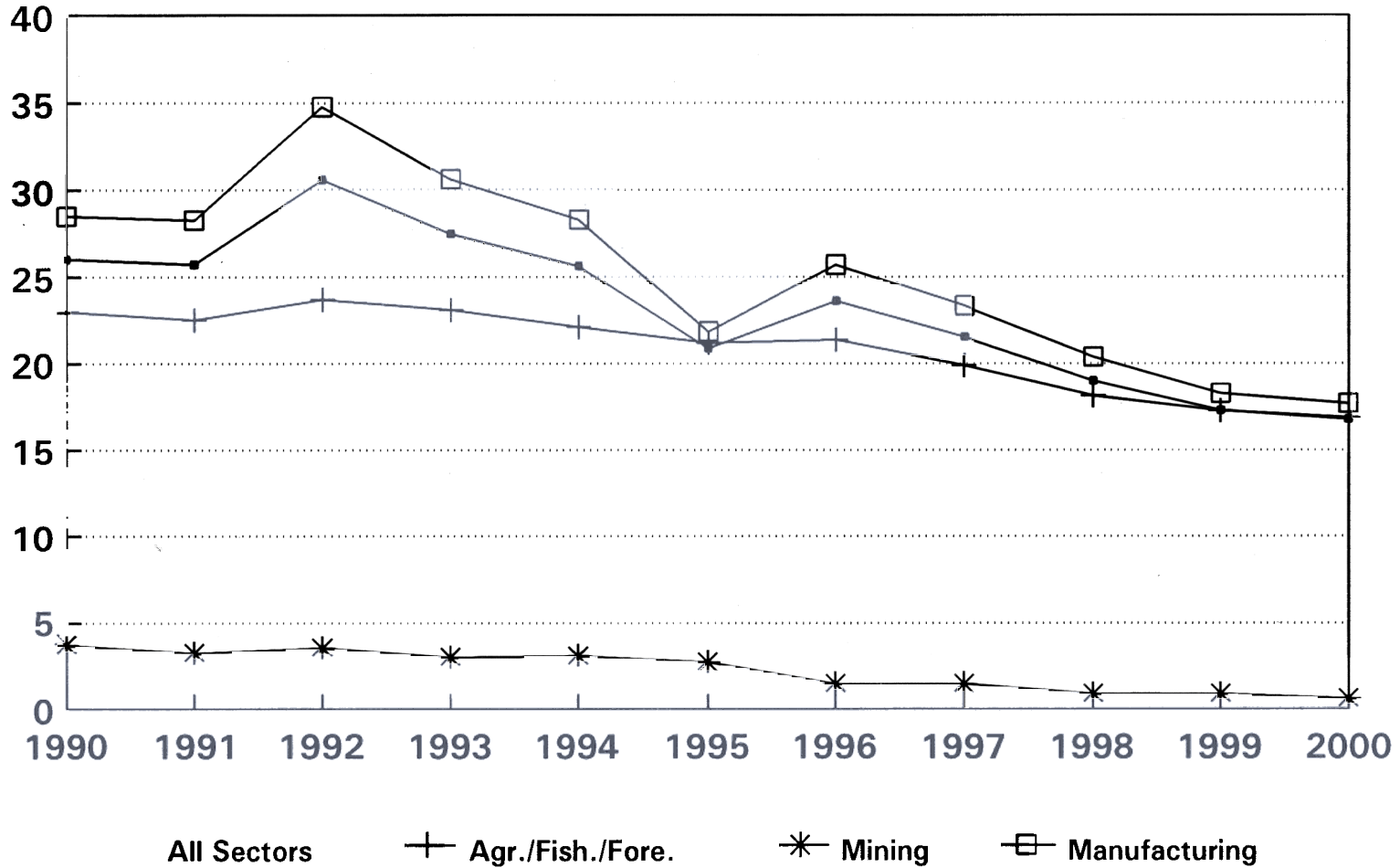
The movement of the average implicit tariff for both the AFF group and the manufacturing group showed a trend similar to overall average implicit tariff rate. In contrast, the average implicit tariff of the mining group started to go down without any let-up from 1994 onwards.

In 1990-2000, manufacturing consistently ranked first among the 1-digit PSIC groups in terms of the average implicit tariff rate. The average implicit tariff of the primary products group ranked second while that of the mining group was lowest.

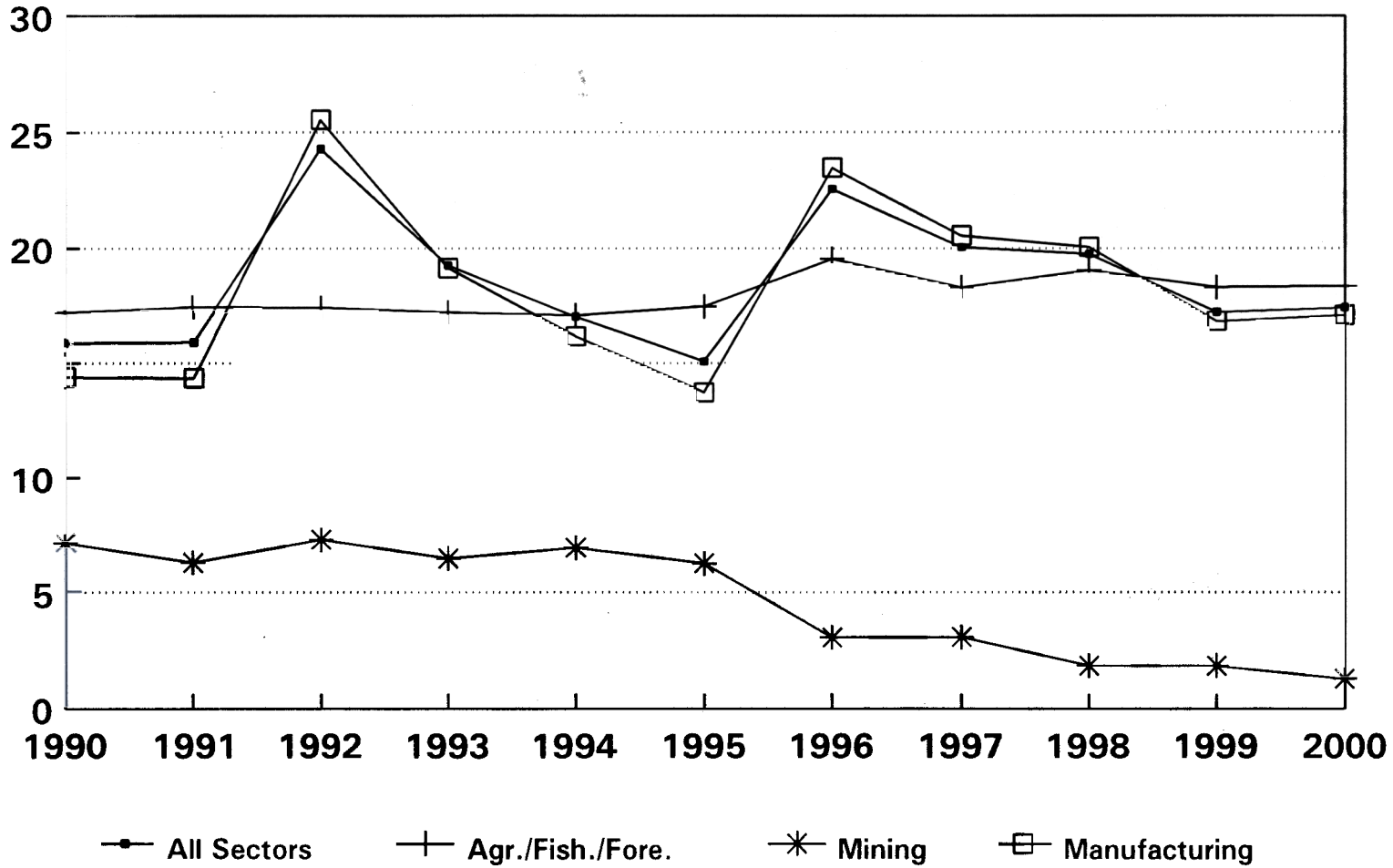
In 1990, the beverages/tobacco and the food processing sub-groups posted the highest average implicit tariff (47.5 percent and 37.6 percent, respectively) among the major industry sub-groups (**Table 7**). In contrast, non-metallic mineral products and fishery had the lowest average implicit tariffs (11.0 percent and 17.8 percent, respectively). In 2000, food processing and agriculture ranks highest in terms of the average implicit tariff rates (33.5 percent and 22.6 percent, respectively). On the other hand, forestry and non-metallic mineral products are at the bottom of the pile with average implicit tariff rates of 3.4 percent and 4.9 percent, respectively, in that year.

Abstracting from surges in 1992 and 1996, the absolute dispersion of implicit tariff rates across all I-O sectors is fairly stable (at 15-20 percent) in 1990-2000 (**Figure 5**). The overall standard deviation of implicit tariff rates was highest in 1992 and 1996 (at 24.3 percent and 22.6

**Figure 4**  
**AVERAGE IMPLICIT TARIFFS BASED ON BOOK RATES OF MAJOR**  
**INDUSTRY SUB-GROUP, 1990-2000**



**Figure 5**  
**SECTORAL STANDARD DEVIATIONS OF IMPLICIT TARIFFS BASED ON**  
**BOOK RATES OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**



percent, respectively) because of the tariffication of QRs undertaken in those years. However, the phased reduction of the tariffed rates as well as the overall reduction in the tariff schedule have led to a narrowing of the absolute dispersion of implicit tariff rates in the years following said years. Nonetheless, the overall standard deviation of the implicit tariff rate in 2000 is still higher than its 1990 and 1995 levels by some 1.5 percentage points.

Once again, stagnation of the absolute dispersion indicator is largely driven by movements in the food processing and the agriculture sub-groups. The standard deviation of the former went up during the period while that of the latter was fairly constant.

On the other hand, the coefficient of variation across all sectors exhibited a well-defined upward movement during the period under study (**Figure 6**). It increased from 61.1 percent in 1990 to 103.9 in 2000.

A similar picture is evident for the manufacturing group and the AFF group. In contrast, while the absolute dispersion of implicit tariff rates within the mining sector declined persistently from 1992 onwards, its coefficient of variation was fairly stable during the entire period under study but declined perceptibly from 1995 onwards.

### *Price Comparisons*

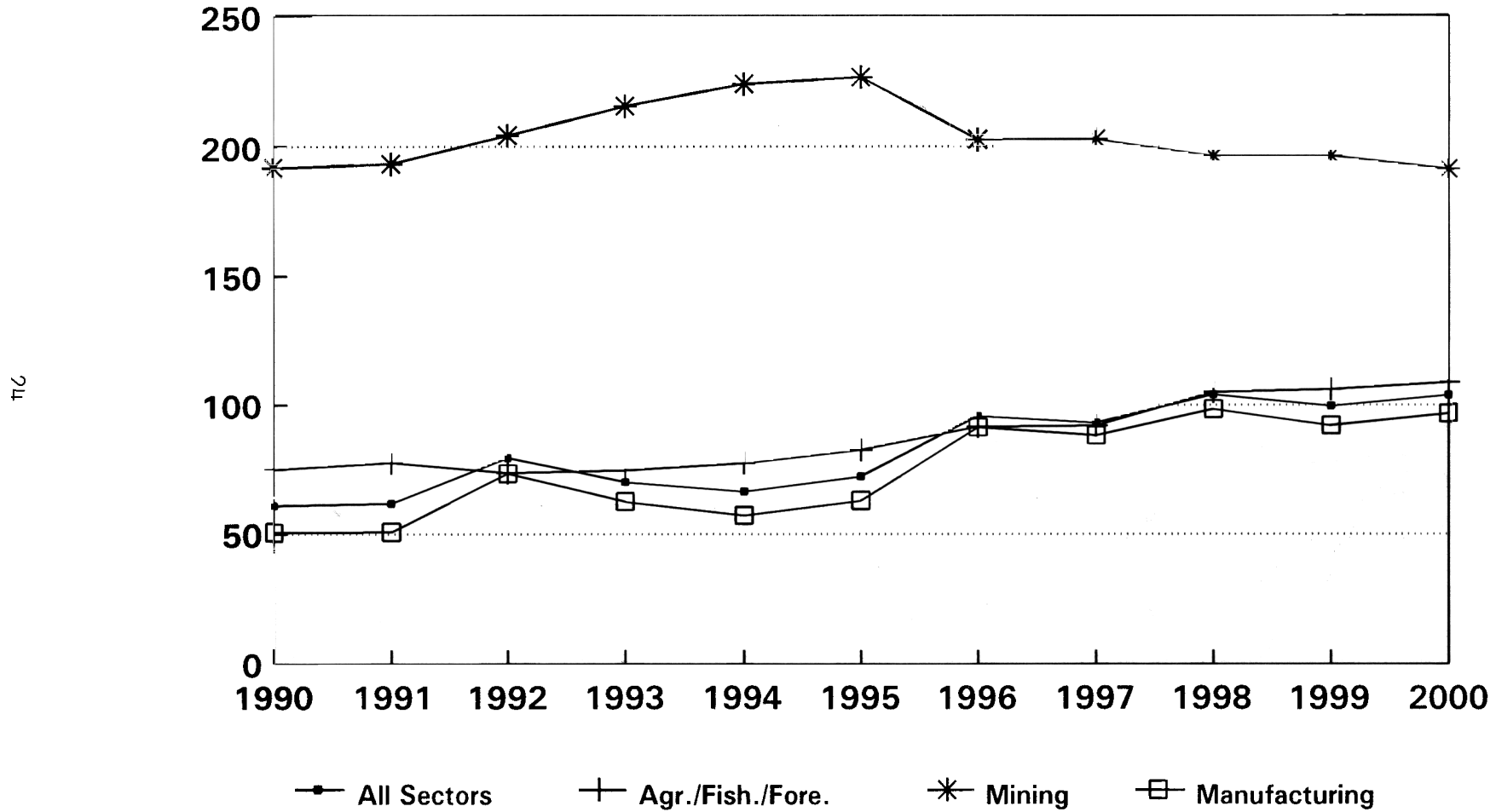
The existence of quantitative restrictions on a number products makes it necessary to also look at implicit tariffs based on price comparisons. A comparison of **Table 7** and **Table 8** shows that the overall average implicit tariff based on price comparisons is higher than that based on book rates by some 3-5 percentage points in 1990-1995. If one assumes that the price comparisons obtainable in 1995 persist for the remainder of the decade, the impact of the remaining QRs on implicit tariffs is estimated to be minimal in 1996-2000 (an addition of roughly half a percentage point compared to an addition of 3.6 percentage points in 1995). This is attributable to the very limited number of remaining regulated HS lines in 1996-2000.

In 1990-1995, QRs appear to have resulted in higher realized protection in the following major sub-groups: agriculture, food processing, chemical and chemical products and non-metallic mineral products. Non-tariff measures resulted in implicit tariff rates that are 6-12 percentage points higher than that based on book rates alone in the agriculture sub-group while they have led to an incremental 4-11 percentage points in the implicit tariff rates of the non-metallic mineral products sub-group. Likewise, QRs added some 1-6 percentage points in the implicit tariffs of the food processing sub-group and some 2-3 percentage points in the implicit tariffs of chemical and chemical products.

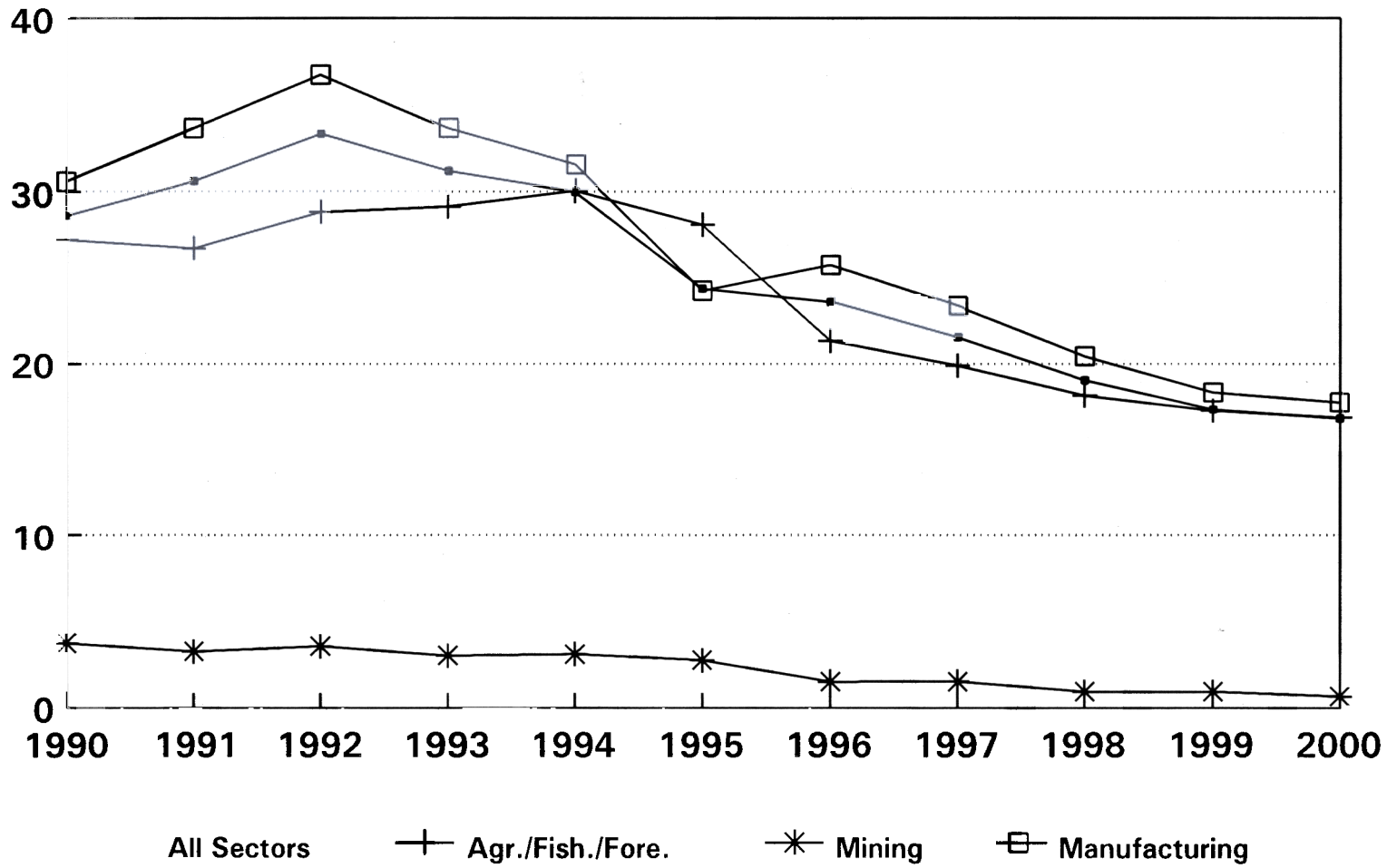
The weighted average implicit tariff rates based on price comparison for all sectors as well as for each of the 1-digit PSIC groupings generally declined in 1990-2000 (**Figure 7**). For the manufacturing group and the mining group, the decline started in 1992 while for the primary products group the drop commenced in 1994.

In 1990-2000 (with the exception of 1995), the manufacturing group and the primary products group ranked first and second, respectively, in terms of implicit tariff rates based on

**Figure 6**  
**COEFFICIENT OF VARIATION OF IMPLICIT TARIFFS BASED ON**  
**BOOK RATES OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**



**Figure 7**  
**AVERAGE IMPLICIT TARIFFS BASED ON PRICE COMPARISON OF MAJOR**  
**INDUSTRY SUB-GROUP, 1990-2000**





price comparisons. On the other hand, the mining group consistently received the lowest average implicit tariff rate during the period.

The overall standard deviation of price-comparison implicit tariff rates across all sectors was fairly constant in 1990-2000, with the exception of 1992 (**Figure 8**). The same observation holds true for the manufacturing sector. In contrast, the standard deviation of implicit tariff rates within the AFF sub-group and the mining sub-group posted some reductions between 1992-2000. For the former the drop was rather pronounced in 1992-1996.

The absolute dispersion of price-comparison implicit tariff rates within all the industry sub-groups showed some improvement (i.e., narrowed down) in 1990-2000, with the exception of the food processing sub-group.

On the other hand, the coefficient of variation within the manufacturing group, within the primary products group and across all sectors exhibited a perceptible upward movement from 1993-2000 (**Figure 9**). This development is attributable to the faster rate of reduction in the mean relative to the standard deviation of implicit tariff rates within/across these groups.

#### **5.4. Effective Protection Rates**

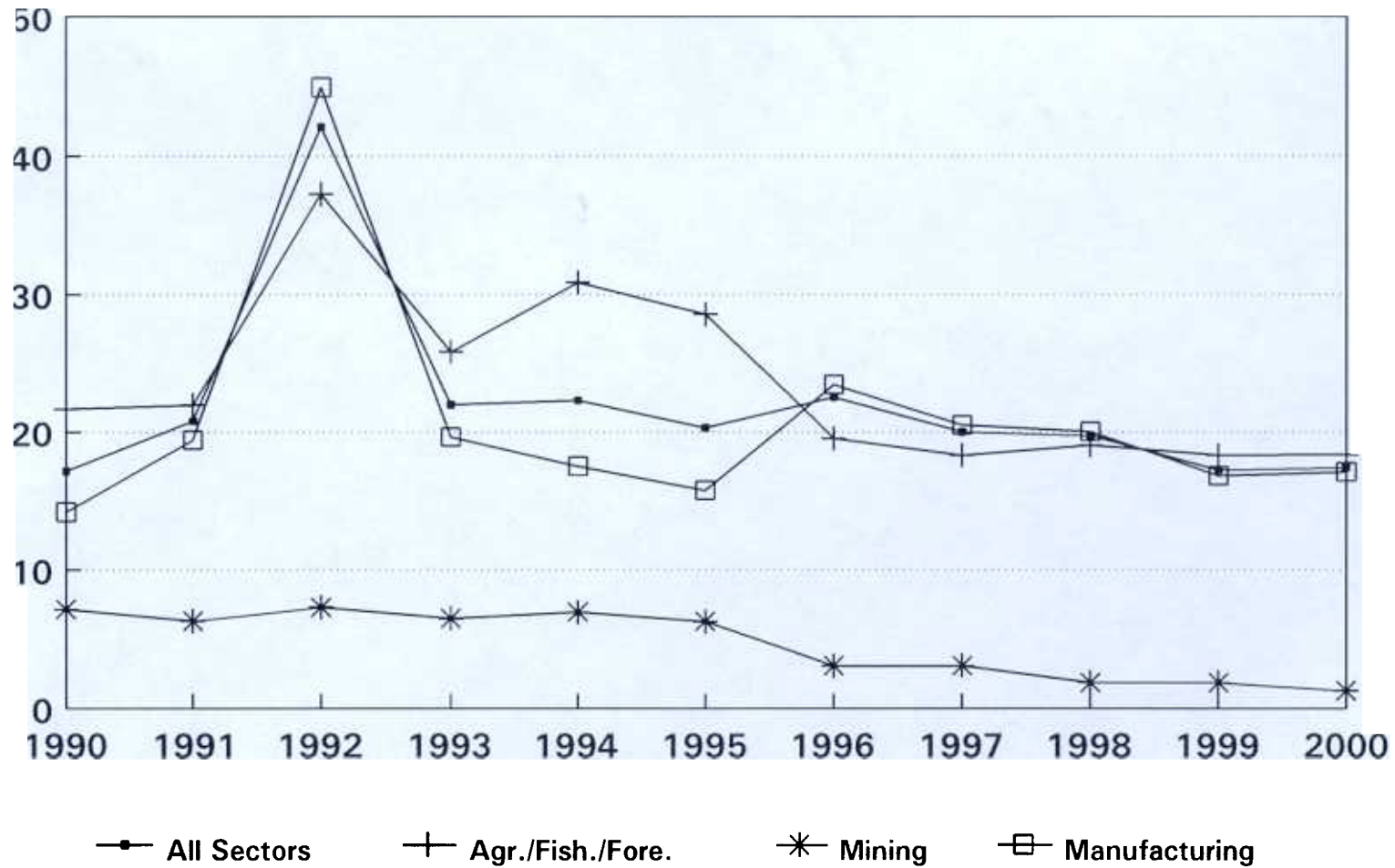
##### ***Book Rates***

The overall effective protection rate based on book rates demonstrated a well-defined downtrend in 1990-2000. The weighted average tariff-only EPR for all sectors was estimated at 27.9 percent in 1990. It peaked at 32.2 percent in 1992 as a result of the tariffication of QRs under EO 8 after faltering at 27.6 percent in 1991 with the introduction of EO 470 (**Figure 10**). From 1993-1995, the overall average EPR went down continuously, reaching 21.9 percent in 1995. As a result of the tariffication of additional QRs in 1996 under EO 313, the overall average EPR shot up to 25.4 percent in 1996. From then on, the average EPR for all sectors declines monotonically to 18.0 percent in 2000 following the phased reduction of tariff rates in EO 264 and EO 288. Note, however, that the reduction in the overall average EPR in the second half of the 1990s (under EO 264 and EO 288) is not as pronounced as that in the first half of the decade (under EO 470).

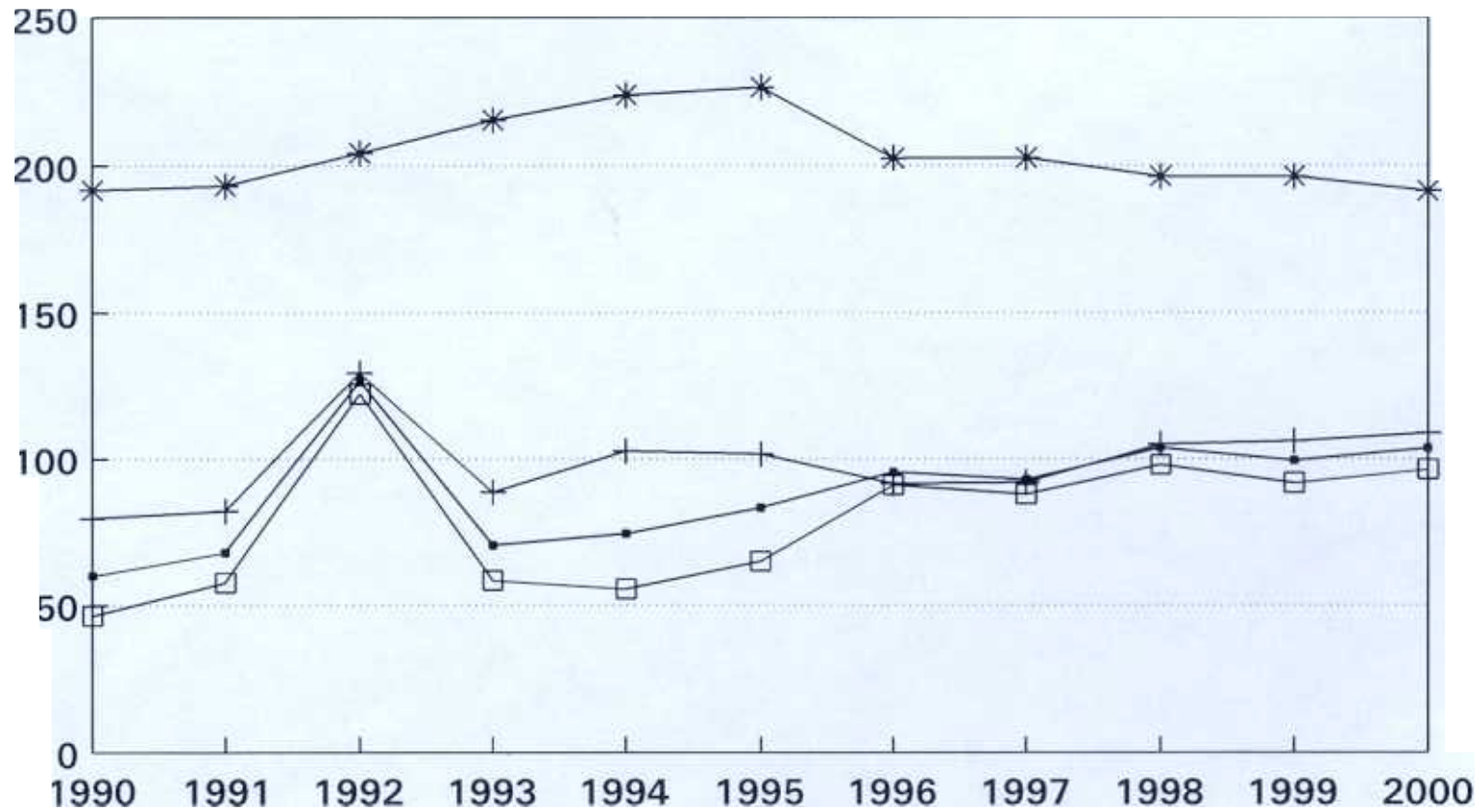
The average EPR of the manufacturing and the AFF group showed the same movement as the overall average EPR. The manufacturing group had the highest average tariff-only EPR based on book rates among the 1-digit PSIC groups in 1990-2000. The average EPR of the manufacturing group was 31.0 percent in 1990 compared to 19.2 percent in 2000. The AFF group ranked second with average EPR of 23.6 percent in 1990, some 7 percentage points lower than that of the manufacturing group, and average EPR of 17.6 percent in 2000, with the wedge between the EPRs of these two groups down to 1.6 percentage points (but still in favor the manufacturing group).

In contrast, the mining group posted the lowest average tariff-only EPR at 1.7 percent and -0.2 percent in 1990 and 2000, respectively. The average EPR for this industry group fluctuated within a very narrow band during the period. It see-sawed between 1990 and 1995 but dropped incessantly in 1996-2000.

**Figure 8**  
**SECTORAL STANDARD DEVIATIONS OF IMPLICIT TARIFFS BASED ON**  
**PRICE COMPARISON OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**

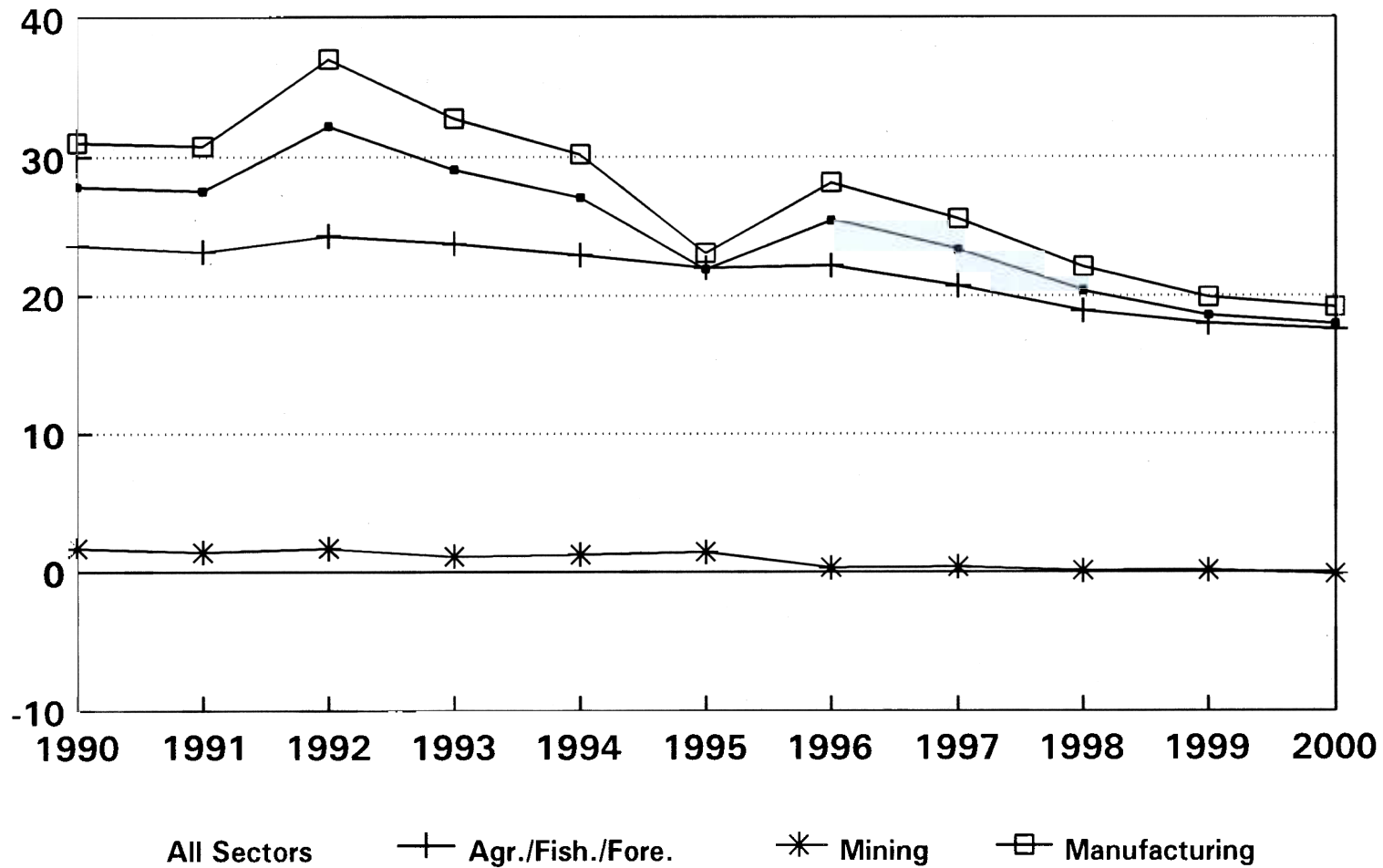


**Figure 9**  
**COEFFICIENT OF VARIATION OF IMPLICIT TARIFFS BASED ON**  
**PRICE COMPARISON OF MAJOR INDUSTRY SUB-GROUP, 1990-2000**



**All Sectors**      **+** **Agr./Fish./Fore.**      **\*** **Mining**      **-□-** **Manufacturing**

Figure 10  
**AVERAGE TARIFFS-ONLY EPRs BASED ON BOOK RATES OF MAJOR  
 INDUSTRY GROUP, 1990-2000**



In 1990, the beverages and tobacco sub-group and the food processing sub-group had the highest average tariff-only EPRs (51.9 percent and 40.4 percent, respectively) while the non-metallic mineral product sub-group and the fishery sub-group showed the lowest average EPRs, 10.6 percent and 17.9 percent, respectively (Table 9). In 2000, the food processing and the agriculture sub-groups rank first and second in terms of the tariffs-only EPRs (36.2 percent and 23.7 percent, respectively). On the other hand, the forestry and the non-metallic mineral products sub-groups are the cellar dwellers (with EPRs of 3.2 percent and 4.9 percent, respectively).

In general, there is no marked reduction in the range of book-rate EPRs in 1990-2000. The tariff-only EPR based on book rates ranged from a low of -16.9 percent for cement manufacture (I-O sector 121) to a high of 109.9 percent for manufacture of concrete products (I-O sector 123) in 1990 (Annex Table 5). In 2000, the range of sectoral EPRs is somewhat wider, from a low of -3.4 percent for manufacture of wood carvings (sector 91) to a high of 135.7 percent for coffee roasting and processing (I-O sector 58). Between these two years, the range in the EPRs of the various I-O groups fluctuated with the implementation of the various EOs. It widened with EO 8 but contracted with the phased reduction of the tariff schedule under EO 470 and EO 8. Tariffication of QRs under EO 313 caused the range to swell once again in 1996 before shrinking in 1997-2000. However, such contraction was not enough to bring it down to its 1990 level.

A remarkable improvement is likewise not discernible when one looks at the standard deviation of book-rate EPRs. The overall standard deviation of book-rate EPRs fluctuated around the 17-26 percent range in 1990-2000 (Figure 11). After surging from 19.3 percent in 1990 to 26.7 percent in 1992, it contracted to 17.0 percent in 1995. It then rose to 25.8 percent in 1996 before decreasing incessantly every year to reach 19.4 percent in 2000. Note that the overall standard deviation in 2000 is just about equal to its 1990 level and higher than its 1995 level. On the other hand, the increase in the overall coefficient of variation of book-rate EPRs is very pronounced in 1990-2000 (Figure 12).

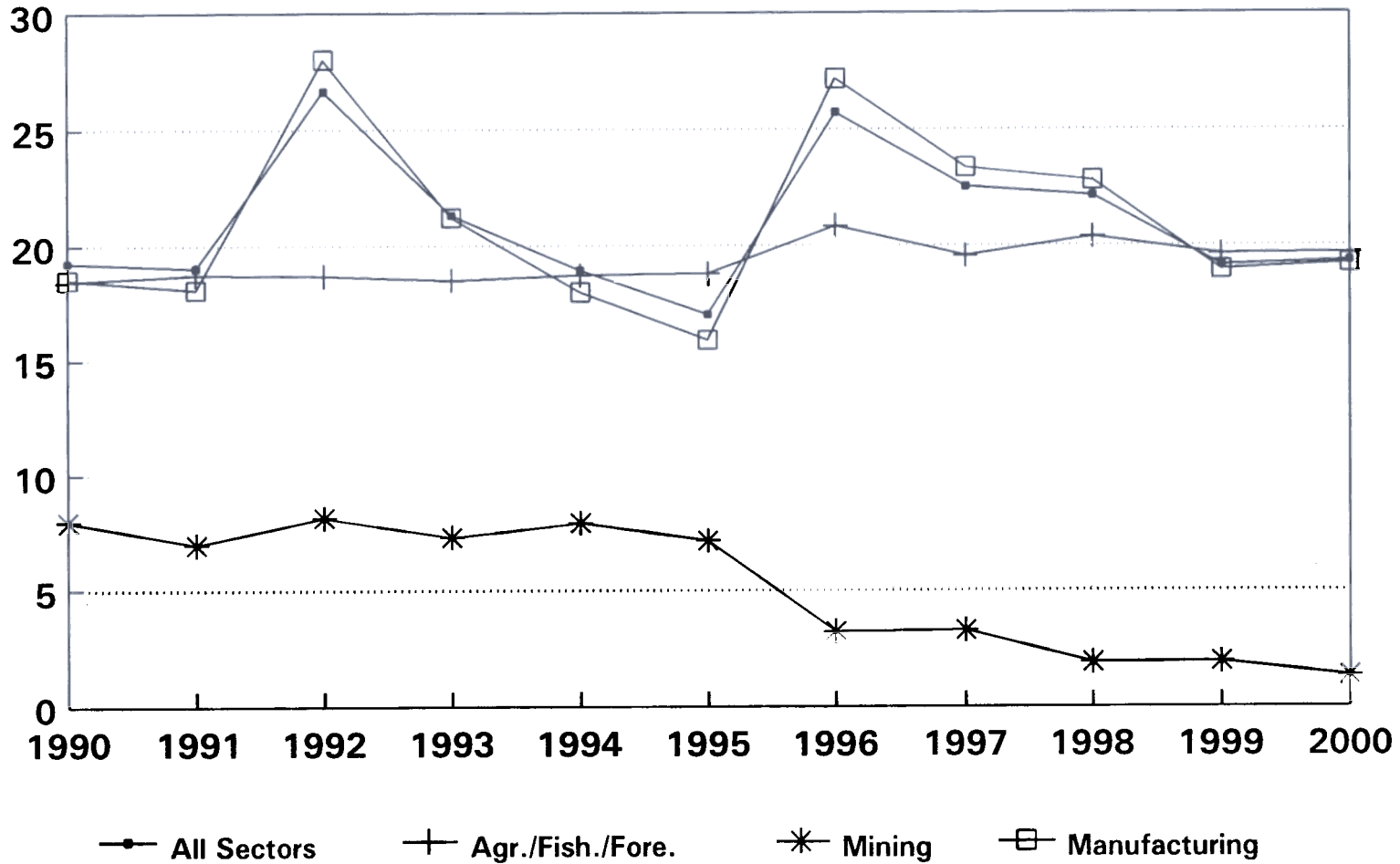
The absolute as well as relative dispersion of EPRs within the manufacturing sector exhibited the same trend as that for all sectors. In contrast, the standard deviation of EPRs within the primary products group increased slightly while that of the mining group declined persistently from 1992 onwards. In both cases, however, the coefficient of variation rose consistently.<sup>11</sup>

It should be emphasized that the lackluster performance of book-rate EPRs with respect to the various measures of dispersion is largely driven by the stickiness in the tariff adjustments in two major sub-groups: agriculture and food processing. In other words, the problem with dispersion is rather confined and the dispersion estimates may mask some of the clear improvements that has been achieved to date. Thus, Table 9 shows that in the year 2000 book-rate EPRs of the major industry sub-groups cluster around the 3-13 percent range. The average EPRs of all but 4 of the 15 major industry sub-groups fall in this range. The exceptions are

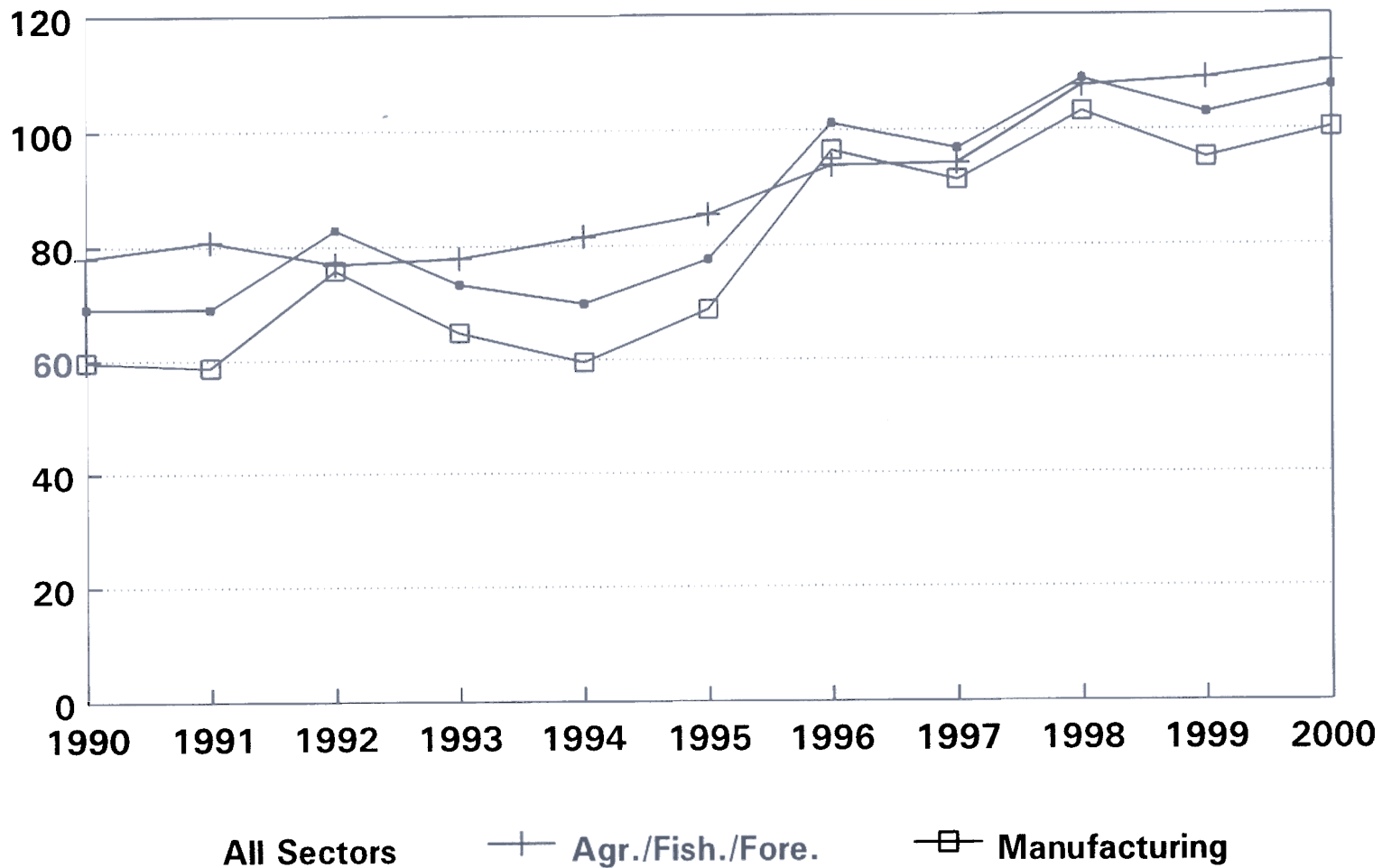
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<sup>11</sup>The coefficients of variation within the mining group are very high. This is due to the fact that this measure of dispersion tends to be volatile when one is working with very small means.

**Figure 11**  
**SECTORAL STANDARD DEVIATIONS OF TARIFFS-ONLY EPRs BASED ON**  
**BOOK RATES OF MAJOR INDUSTRY GROUP, 1990-2000**



**Figure 12**  
**COEFFICIENT OF VARIATION OF TARIFFS-ONLY EPRs BASED ON**  
**BOOK RATES OF MAJOR INDUSTRY GROUP, 1990-2000**



mining, food processing, agriculture, and beverages/tobacco. This is certainly a more compact distribution than that obtainable in 1990 when 7 industry sub-groups had EPRs in the 20-30 percent range, 4 industry sub-groups in the 31-55 percent range, 3 in the 11-20 percent range and 1 in the 0-10 percent range.

Also, while the standard deviation of EPRs within the food processing sub-group rose between 1990-2000 that of EPRs within agriculture and beverages/tobacco were pretty stable. The standard deviation of EPRs within the other major industry sub-groups declined.

#### Movements in the (1+EPR) Index

To highlight the changes in relative EPR across sectors, **Table 10** presents the (1+EPR) index of the major industry sub-groups, with the index for agriculture set at 100. This index compares the EPR of other industry sub-groups relative to the agriculture sub-group. When the EPR of a given major sub-group is less (greater) than that of agriculture, then an index less (greater) than 100 is obtained. **Table 10** shows the emergence of the agriculture sub-group as a relatively more favored industry sub-group (in terms of effective protection rates) in 1990-2000. It is also noteworthy that the (1+EPR) index of manufacturing group switched from greater than 100 to less than 100 in 1995. This suggests that while the manufacturing group received greater protection than the agriculture sub-group in 1990-1994, the opposite is true in 1995-2000. The present situation is in sharp contrast to that in previous decades [see discussion Power and Sicat (1971), Tan (1979), Medalla (1986, 1990)] when the agriculture sub-group was penalized heavily relative to manufacturing. Manufacturing's (1+EPR) index is based from 98.0 percent to 96.4 percent in 2000 in 1995.

Note that by the year 2000, only the food processing sub-group (of all the major industry sub-groups) gets more favorable treatment (effective protection) than the agriculture sub-group. The clustering of the (1+EPR) indices of the major industry sub-groups in the 85-90 percent range is remarkable. Nine of the 15 major industry sub-groups fall in this category.

#### Other Sources of Protection

An analysis of the relative importance of various policy instruments in the protection structure suggests that after tariffs, duty exemptions had the highest impact on EPRs in 1990-1995 (**Annex Table 6**). If duty exemptions are assumed to affect the implicit tariff on both inputs and outputs, then duty exemptions detract some 7-13 percentage points in the average EPR for all sectors, some 4-13 percentage points in the average EPR of the primary products group and some 5-16 percentage points in the average EPR of the manufacturing group. If duty exemptions affect the implicit tariffs on inputs but not outputs, then duty exemptions add some 2-4 percentage points in the overall average EPR, 0.5-2 percentage points in the average EPR of the primary products group and 1-5 percentage points in the average EPR of the manufacturing group. These suggest the need to review the various duty exemption schemes as duty exemptions have been shown to be an important source of "non-transparent" protection.

Duty drawback and VAT combined is found to add less than 1 percentage point in the average EPR for all sectors in 1990-2000. While they subtracted less than half a percentage



point in the average EPR of the primary products group, they added some 0.5-1.5 percentage points in the average EPR of the manufacturing group.

### *Price Comparisons*

A comparison of **Table 9** and **Table 11** indicates that the overall average tariff-only EPR based on price comparison is higher than that based on book rates by 1-4 percentage points in 1990-1995. Because of the limited number of remaining regulated HS lines in 1996-2000, the difference between the price-comparison EPRs and book-rate EPRs in those years is estimated to be less than half a percentage point.

Quantitative restrictions have had a more significant effect on the EPR of sectors within the primary products group relative to those in the manufacturing group. Thus, QRs raised the average EPR of the primary products group by 3-7 percentage points while increasing the average EPR for the manufacturing group by only 1-4 percentage points in 1990-1995.

In 1990-1995, non-tariff measures have resulted in substantially higher realized EPRs in the following major sub-groups: agriculture, chemical and chemical products and non-metallic mineral products. Quantitative restrictions led to EPRs that are 5-11 percentage points higher than those based on book rates alone in the agriculture sub-group while adding 4-11 percentage points in the average EPRs of the non-metallic mineral products sub-group. In contrast, QRs add some 3-5 percentage points in the EPRs of the chemical and chemical products sub-group.

The movement in the price-comparison EPRs generally mimics the trend in the book-rate EPRs during the period under study (**Figure 13**). That is, the EPR estimates for all sectors, for the mining group and for the manufacturing group exhibit a well-defined downward trend after peaking in 1992. In contrast, the price-comparison EPRs of the AFF group crested in 1994 before declining persistently from then onwards.

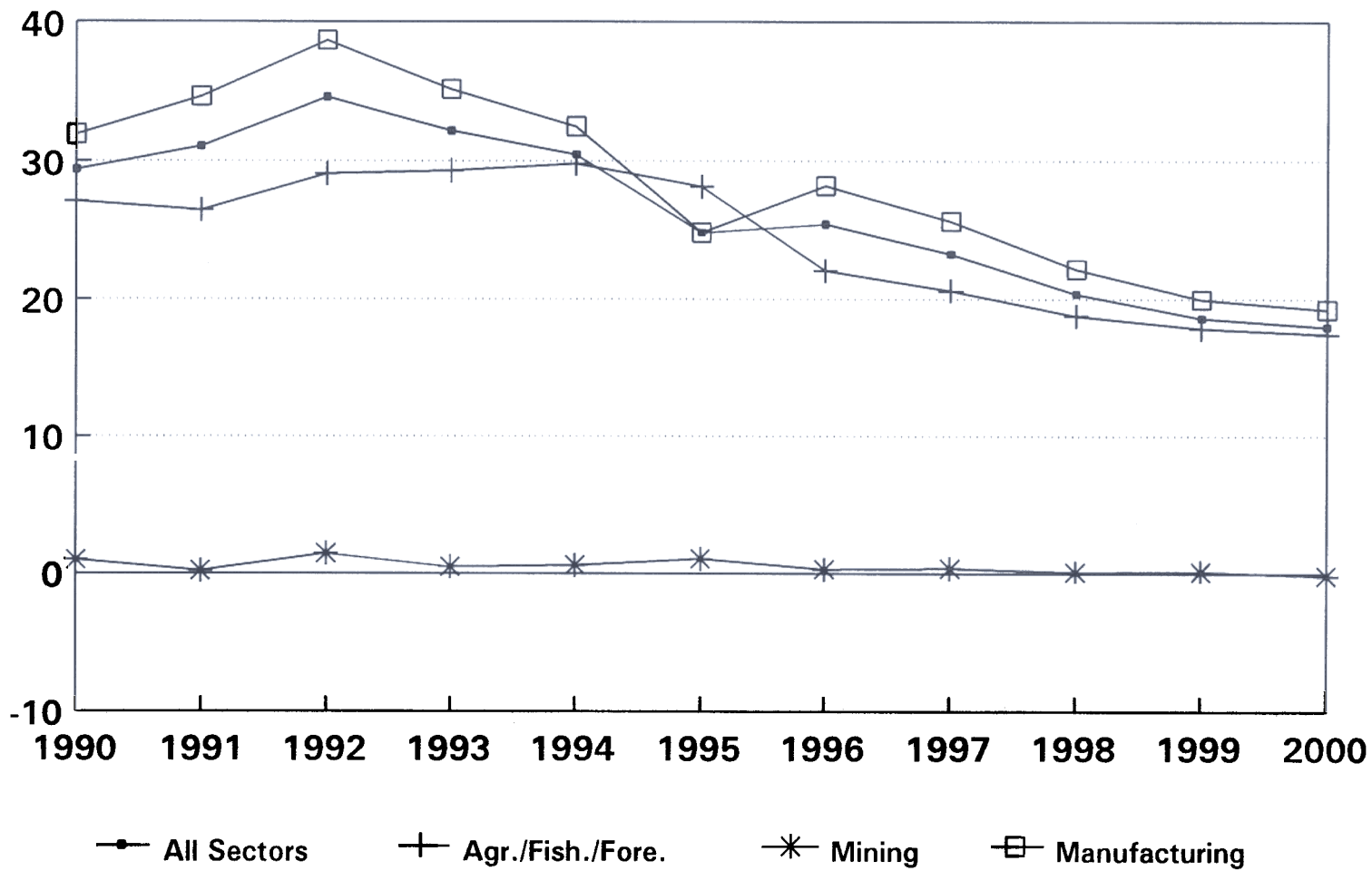
The manufacturing group had the highest price-comparison EPR among the 1-digit PSIC groupings all throughout the period 1990-2000, with the exception of 1996. As with book-rate EPRs, the AFF group ranked second while mining group showed the lowest average tariff-only price-comparison EPR.

The standard deviation of EPRs across all I-O sectors declined somewhat in 1992-2000, with the 1990 standard deviation slightly higher than that of 2000 (**Figure 14**). However, because the overall average EPR was decreasing at a faster pace than the standard deviation, the overall coefficient of variation of EPRs rose quite markedly during the period (**Figure 15**).

The absolute dispersion of EPRs within the manufacturing and the AFF sub-group showed no discernible improvement. In contrast, the standard deviation of EPRs within the mining group declined persistently from 1992 onwards. In all cases, however, the coefficient of variation rose consistently.

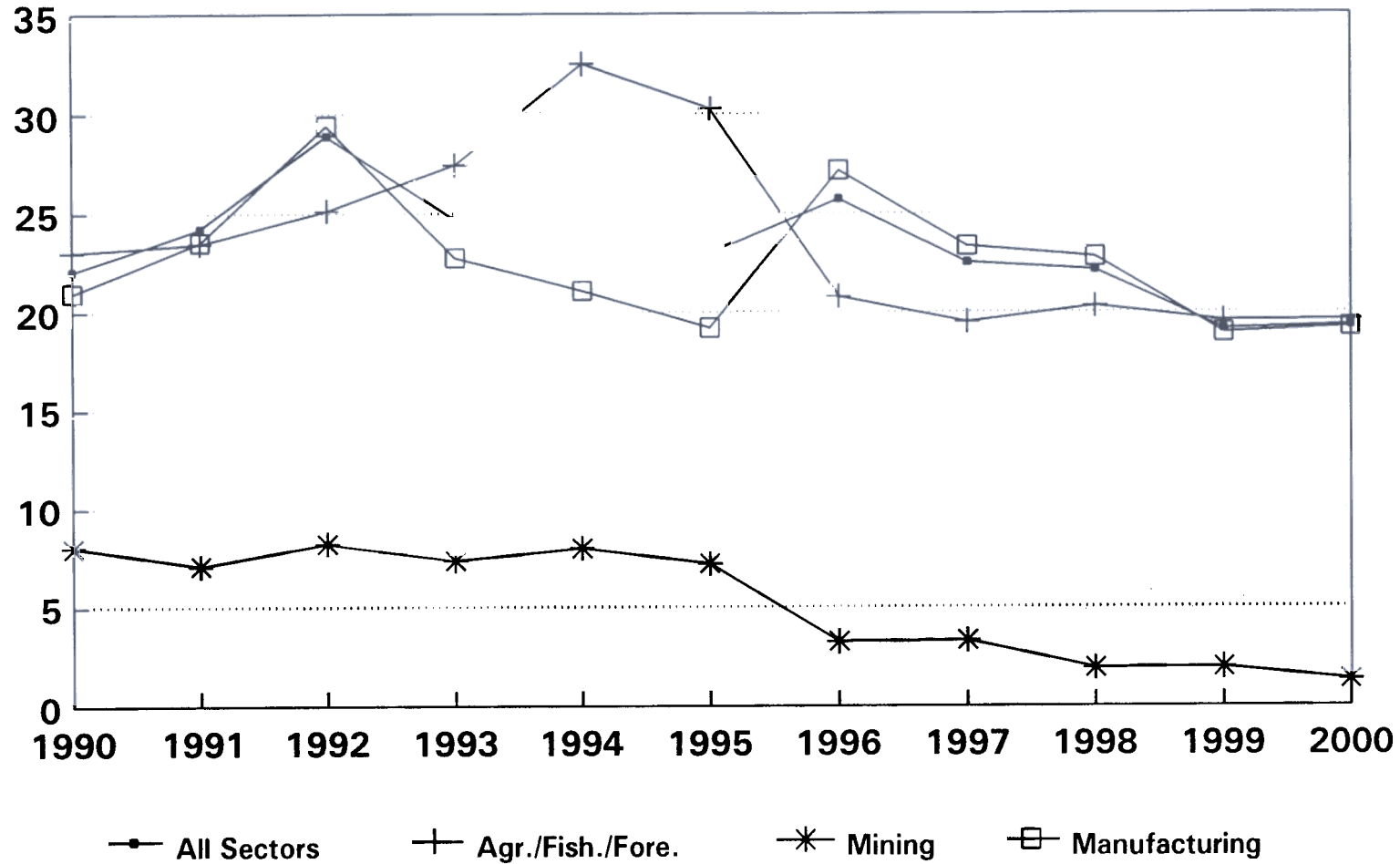
The poor performance of price comparison EPRs with respect to the coefficient of variation is largely driven by the stickiness in the tariff adjustments in two major sub-groups: agriculture and food processing. In other words, the problem with dispersion is rather confined

**Figure 13**  
**AVERAGE TARIFFS-ONLY EPRs BASED ON PRICE COMPARISONS BY**  
**MAJOR INDUSTRY GROUP, 1990-2000**

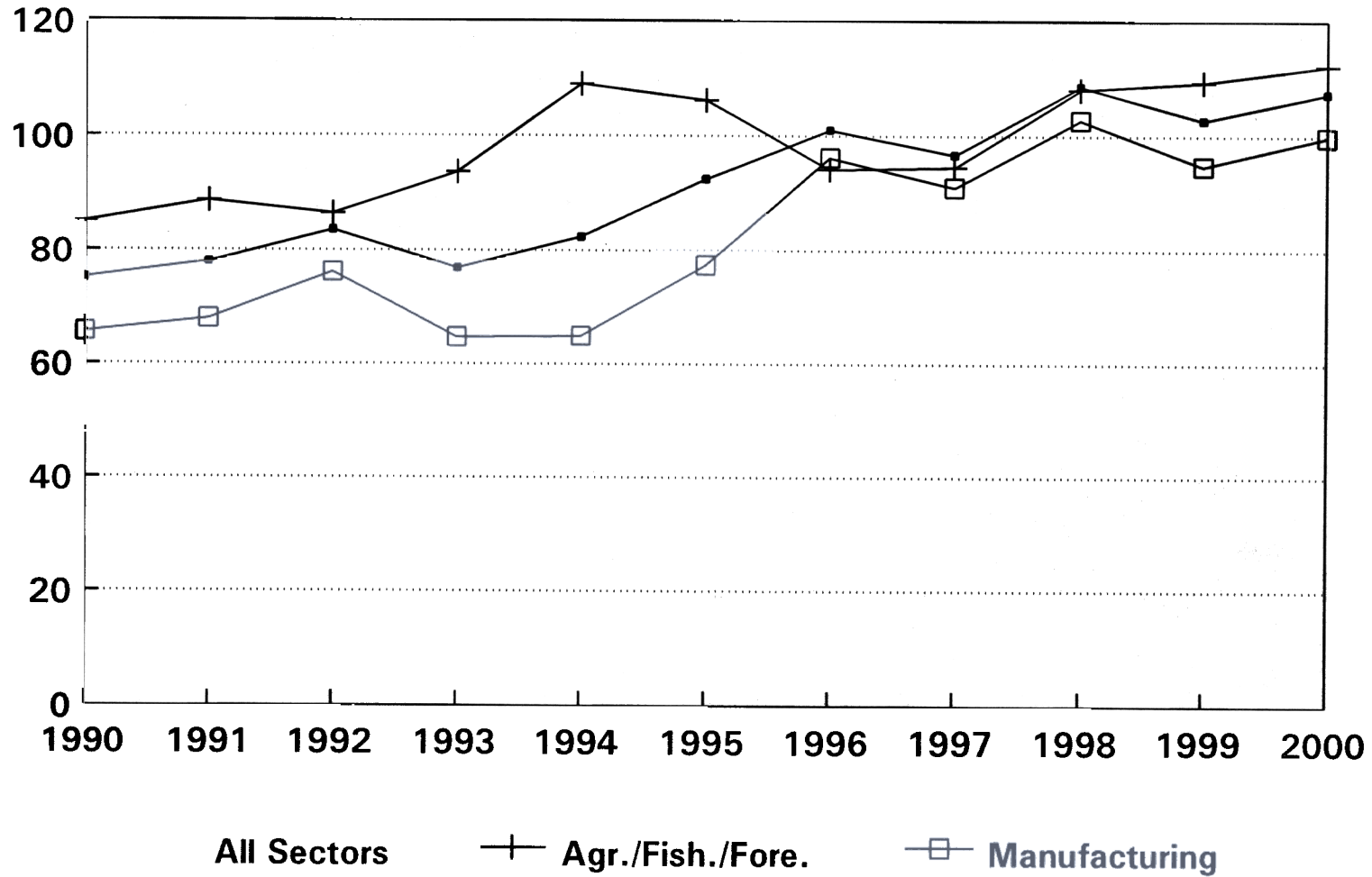


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**Figure 14**  
**SECTORAL STANDARD DEVIATIONS OF TARIFFS-ONLY EPRs BASED ON**  
**PRICE COMPARISONS BY MAJOR INDUSTRY GROUP, 1990-2000**



**Figure 15**  
**COEFFICIENT OF VARIATION OF TARIFFS-ONLY EPRs BASED ON**  
**PRICE COMPARISONS BY MAJOR INDUSTRY GROUP, 1990-2000**



and the dispersion estimates may mask some of the clear improvements that has been achieved to date. Thus, **Table 11** shows that in the year 2000 book-rate EPRs of the major industry sub-groups cluster around the 5-10 percent range. The EPRs of fishery, textile/garments, chemical and chemical products, non-metallic mineral products, basic metals and metal products, machinery and miscellaneous manufactures fall in this category. The forestry and mining sub-groups have EPRs below 5 percent while the beverages/tobacco, the wood and wood products and the furniture and fixtures sub-group have EPRs in the 11-13 percent range. In contrast, food processing's EPR stands at 36.2 percent while agriculture's EPR is set at 23.7 percent. This is certainly a more compact distribution than that obtainable in 1990 when 3 industry sub-groups had EPRs in the 20-30 percent range, 4 industry sub-groups in the 31-55 percent range, 3 in the 11-20 percent range and 1 in the 0-10 percent range.

### Movements in the (1+EPR) Index

Looking at the relative changes in EPR across sectors, **Table 13** shows that the agriculture sub-group becomes more protected than the manufacturing group starting in 1994. (Thus, an earlier switching date is observed when one is looking at price-comparison EPRs.) The (1+EPR) index of manufacturing group switched from greater than 100 to less than 100 in that year. The wedge between the EPRs of manufacturing and agriculture was fairly stable in 1994-2000. The gap in the (1+EPR) indices of these two groups stands at 3.4 percentage points in favor of agriculture in 2000. Of all the major industry sub-groups, only the food processing sub-group gets more favorable treatment (effective protection) than the agriculture sub-group by the year 2000.

Once again, the clustering of the (1+EPR) indices of the major industry sub-groups in the 85-90 percent range is striking. Eight of the 15 major industry sub-groups fall in this category.

### Other Sources of Protection

An analysis of the relative importance of various policy instruments in the protection structure suggests that after tariffs, duty exemptions had the highest impact on EPRs in 1990-1995 (**Annex Table 6**). If duty exemptions are assumed to affect the implicit tariff on both inputs and outputs, then duty exemptions detract some 3-12 percentage points in the average EPR for all sectors. If duty exemptions affect the implicit tariffs on inputs but not outputs, then duty exemptions add some 2-4 percentage points in the overall average EPR. On the other hand, VAT and duty drawback add less than half a percentage point to the overall average EPR.

### Correction for Redundant Tariffs

A number of analysts (David 1996, among others) have pointed out that the tariffication of QRs led to book rates that were substantially higher than the nominal protection that would have obtained in the presence of NTMs. This is true in the case of raw sugar, live chicken, some types of processed meat, onions, potatoes, and cabbages. As such, there is reason to believe that the nominal tariff rates levied on the newly liberalized items may be redundant. To this extent, the book-rates will tend to over-estimate the realized protection. In this case, a more realistic measure of protection may be obtained by applying the price-comparison implicit tariff

rates on the newly liberalized items (in cases where the price relatives are less than the tariffed rates) in the estimation of price-comparison EPRs.<sup>12</sup>

The rise in the price-comparison implicit tariff rates of some of the I-O sectors in the agriculture and the food processing sub-groups between 1995 and 1996 is largely traceable to the redundancy problem (**Annex Table 4**). However, it should be noted that in 1996 there were outright increases in the tariff rates of some products that were not subjected to QRs.

The EPR estimates obtained when one corrects for the redundancy of tariffed rates is presented in **Figure 16** and **Table 13** while **Table 14** shows the (1+EPR) index for each of the major industry groups. The story they tell is essentially the same one as that disclosed by the uncorrected price-comparison EPRs shown in **Table 11** and **Table 12**.

There are a number of differences, however. First, the overall average EPR drops slightly when adjustment is made for tariff redundancy. Second, the overall standard deviation of EPRs decline somewhat with this correction. Third, the standard deviation within each of the major industry sub-groups decline between 1992-2000. This is true even for food processing and agriculture whose standard deviations showed no improvement during the period (**Figure 17**). Note, however, that the coefficient of variation invariably rises over 1990-2000 for all major industry groups (**Figure 18**).

## 6. PROSPECTS

The Philippine government's largely unilateral efforts towards a more open trade policy regime in the 1990s have yielded substantial improvements. As part of TRP-III, the government proposes to move closer towards a uniform level of protection across all sectors by reducing the level and spread of tariff rates. The thrust is to move a two-tiered rate schedule comprising 3 percent for raw materials and intermediate goods and 10 percent of finished products in 2003 and to a uniform tariff rate of 5 percent in 2004. The discussion in the previous section, however, indicates unambiguously the need for more focused restructuring in the agriculture and food processing sub-groups if 2004 target is to be attained. However, political economy considerations suggest that this is going to be a difficult task.

Many writers have likened recent multilateral initiatives like the WTO and the Asia-Pacific Economic Cooperation (APEC) to a giant and un-stopable force that will help propel the country towards greater globalization and a more open international trade environment. Undeniably, these movements will, on the whole, be supportive of Philippine efforts to further enhance its trade policy regime. To what extent will these international and regional initiatives help the government focus on the specific problem at hand, i.e., the high protection on agriculture and food processing?

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<sup>12</sup>Without this correction, price-comparison implicit tariff is used only where a product is subject to QRs and where the price-comparison implicit tariff is greater than the book rate implicit tariff.

Figure 16  
**TARIFFS-ONLY EPRs BASED ON PRICE COMPARISONS CORRECTED FOR  
 TARIFF REDUNDANCY BY MAJOR INDUSTRY GROUP, 1990-2000**

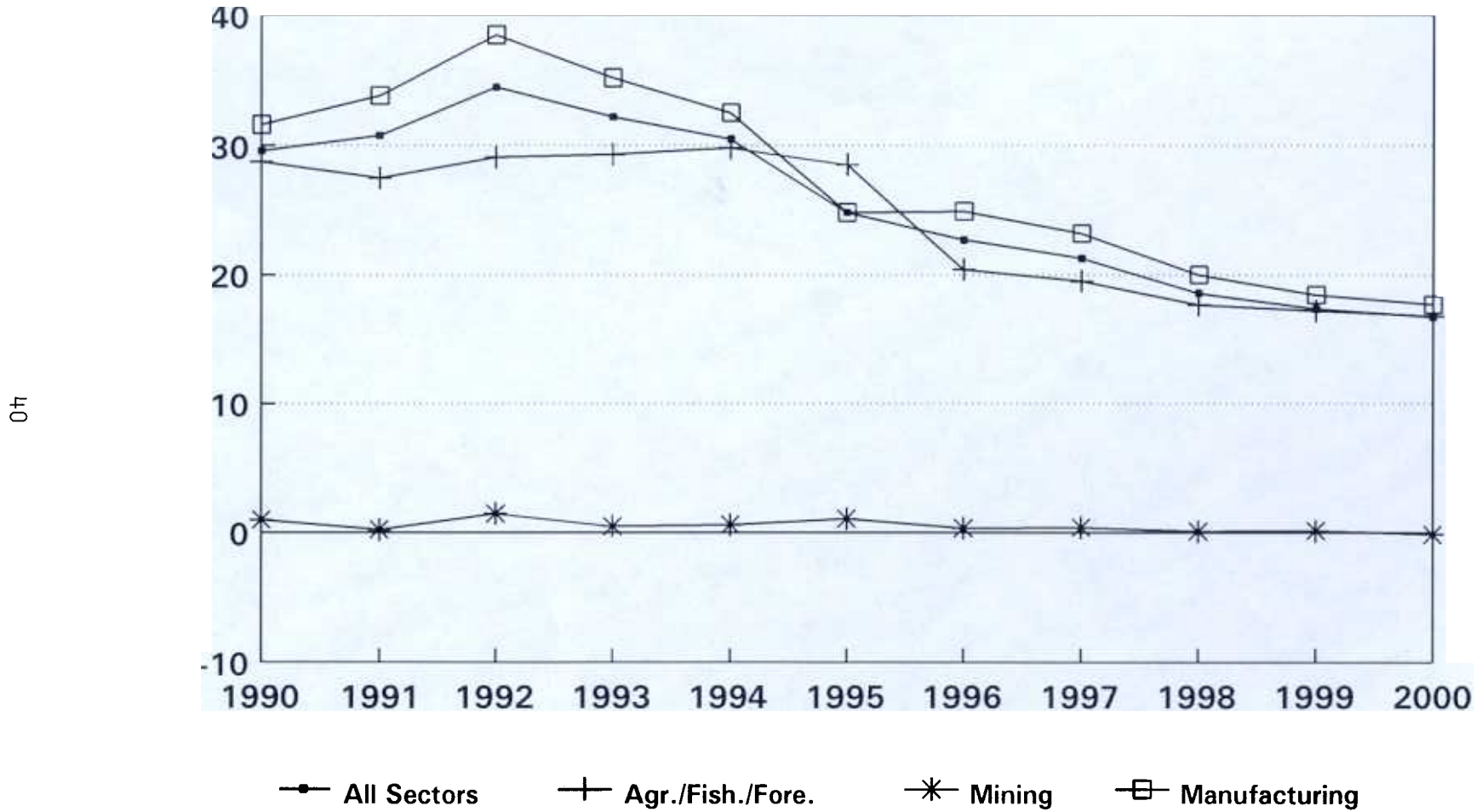
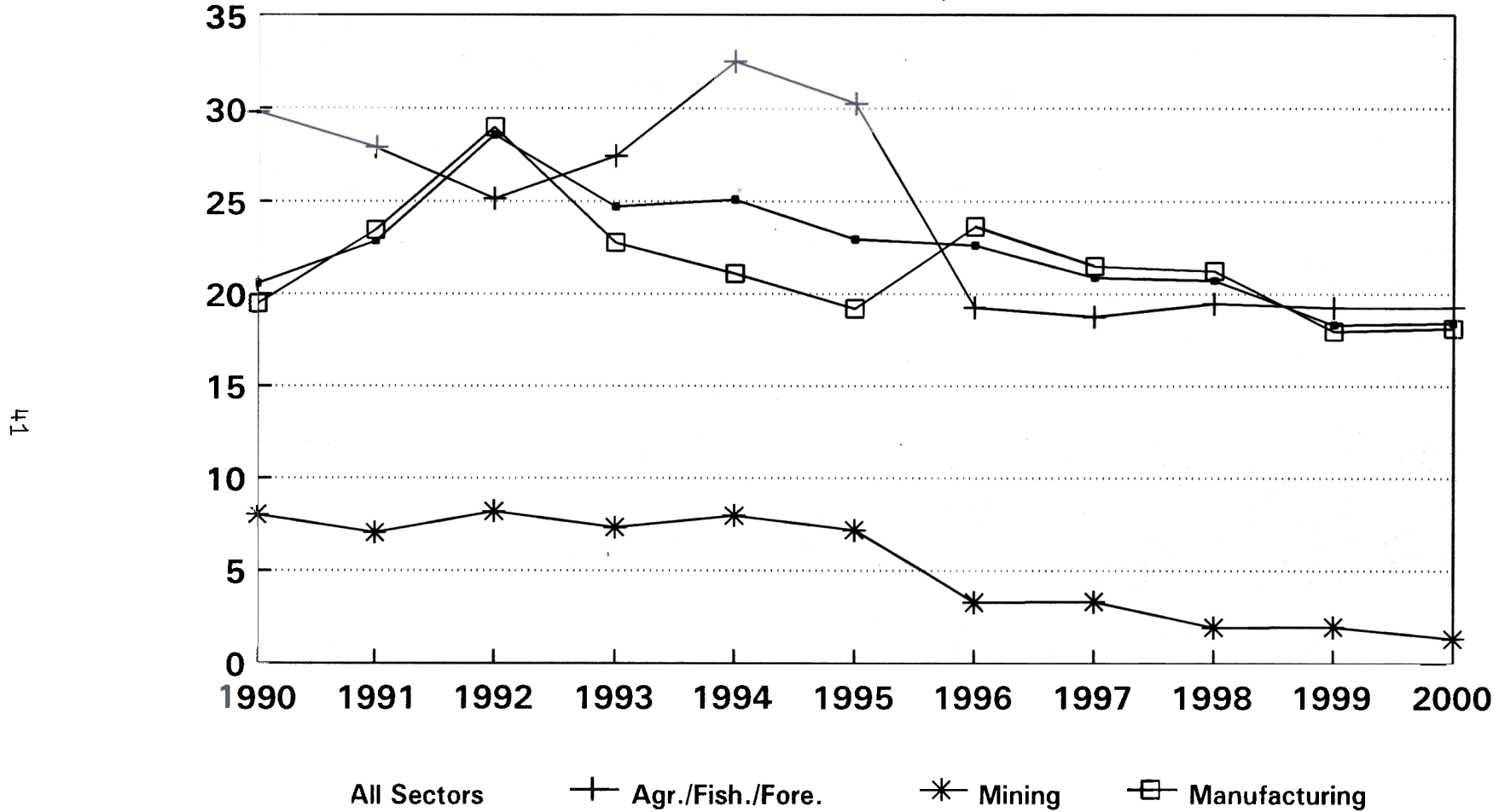
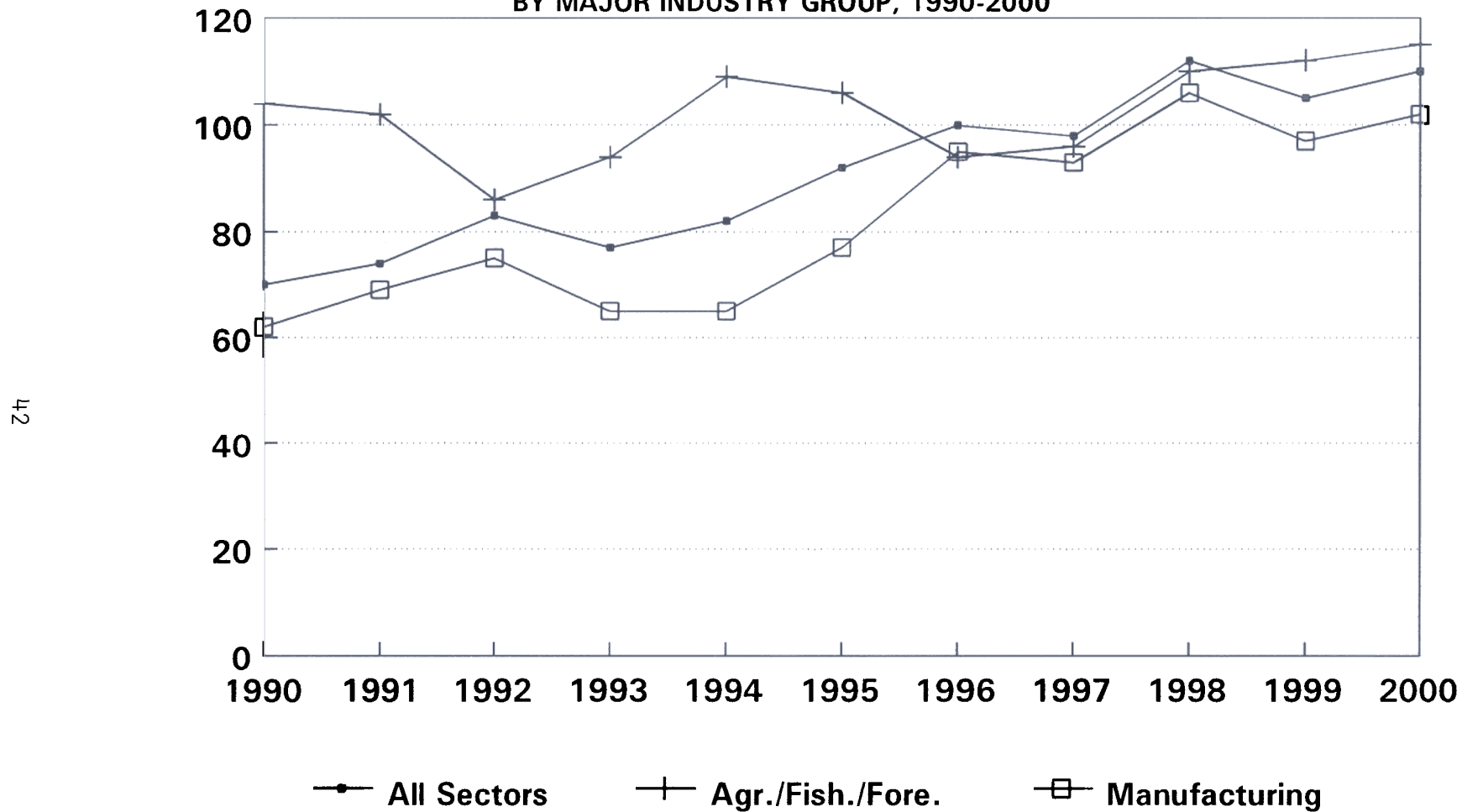


Figure 17  
**SECTORAL STANDARD DEVIATIONS OF TARIFFS-ONLY EPRs BASED ON  
 PRICE COMPARISONS CORRECTED FOR TARIFF REDUNDANCY  
 BY MAJOR INDUSTRY GROUP, 1990-2000**





**Figure 18**  
**COEFFICIENT OF VARIATION OF TARIFFS-ONLY EPRs BASED ON**  
**PRICE COMPARISONS CORRECTED FOR TARIFF REDUNDANCY**  
**BY MAJOR INDUSTRY GROUP, 1990-2000**



## 6.1. World Trade Organization

In ratifying the WTO, the Philippine government committed itself to bind tariffs on 744 agricultural and 2,800 industrial tariff lines. For the most part, the Philippine bound rates were set 10 percentage points above the 1995 applied rates. Thus, they would not actually reduce tariff rates with a few exceptions. On the whole, the country's commitment to the WTO will effectively affect only 66 tariff lines: 42 in agriculture and 24 in textiles. Medalla and Austria (1996) estimated that tariff rates on the 24 textile and garments products will be reduced by 7.5 to 20 percentage points relative to the 1995 applied rates.

As part of its WTO commitments, the Philippines also pledged to lift QRs on most agricultural product, except rice. Thus, in 1996, RA 8178 mandated the removal of QRs and EO 313 tariffed said QRs by providing new rates (usually equal to the bound rates) for the affected products. For agricultural products, the bound rates were high. In many instances, they were even higher than the price relatives (ratio of domestic price to border price) obtaining when QRs were in place. Thus, tariffication led to tariff redundancy in many cases. From this perspective, WTO will not provide the impetus for the government to undertake the necessary corrections in agriculture/food processing tariff rates.

Moreover, the actual implementation of the MAV provision of the WTO leaves much to be desired. Because imports under the MAV are levied tariffs at much lower rates, quota rents accrue to the those who somehow are given the authority to import at the in-quota rates. In addition, the existing rules governing the administration of the MAV allows for changes in the size of the MAV depending on the existence of a supply shortfall. Thus, the system may effectively restore QRs depending on how the MAV is managed. Consequently, rent seeking is encouraged once again, increasingly politicizing the adjustment process.

In compliance with the country's obligations to the WTO, Congress passed RA 8181 in 1996. This law mandates the shift from home consumption value (HCV) to transactions value as the basis of computing dutiable value of imported articles. However, the law provides for a 5-year transition period ending in January 1, 2000 during which the export value rather than the transactions value is used. The Implementing Rules and Regulations of RA 8181 suggests that the use of the export value will be administered in much the same manner that the HCV was managed.

Medalla (1994) demonstrated that the HCV evaluation system raises the dutiable value of imports. The wedge between the HCV and the transactions value translated into an additional tariff on imports. The unevenness in the HCV-transaction value ratio across and within industries implies that the use of the HCV produces a highly arbitrary impact on the protection structure. Thus, the use of the HCV introduces additional distortions that are not fully predictable from nominal tariff rates. Moreover, it also raises the cost of doing business by increasing transactions cost.

From this perspective, the provision of a transition period during which the export value will be used instead of the transaction value in the determination of tariff liability delays the participation in the benefits that are expected from the passage of the HCV law. However, to

the extent that the export value would tend to lie between the HCV and the transactions value, some efficiency gains are forthcoming even during the interim period.

Since the additional protection arising from the use of the export value tends to be lower than that for the HCV, the shift to the export value in the transition period will tend to reduce the overall level of protection. However, it is difficult to predict the impact on the dispersion of EPRs because of the unevenness in the export-value-to-transaction-value ratio across sectors.

## **6.2. Asia-Pacific Economic Cooperation**

Composed of 18 member economies all sharing the boundaries of the Pacific Ocean, the APEC was established in 1989. APEC aims to intensify economic cooperation, to reduce barriers to trade in goods and services and investments and to encourage the flow of good, services, capital and technology among the participating economies.

The Economic Leaders Meeting was held in 1993 in Blake Island, Seattle. There, the world leaders reaffirmed their support for the APEC vision and ideals. More substantive agreements were reached in the second Leaders Summit held in Bogor, Indonesia in 1994. The Bogor Declaration set time frame for the attainment of free trade: 2010 for industrialized economies and 2020 for developing economies. In the Economic Leaders Meeting in Osaka, Japan in 1995, the Osaka Action Agenda was adopted. It provided the operational targets that give specific content to the Bogor goal. Among others, the operational targets for the 2020 goal of free and open trade and investment are: (i) zero tariff for all goods and removal of all quantitative restrictions, (ii) no limits on rights of establishment, national treatment or travel related to the provision of services for visits of up to 2 years, and (iii) national treatment of all firms and no limits on rights of establishment in all sectors of production, including national treatment of international investors in terms of taxation and subsidies (APEC Primer 1996).

During the Senior Officials Meeting In Manila in February 1996, member economies were enjoined to prepare their Individual Action Plans (IAPs). The Philippine IAP consists of: (i) a two-tiered tariff structure of 3 percent on raw materials and intermediate products and 10 percent for finished products in 2003; (ii) a uniform 5 percent tariff in 2004; (iii) remove QRS on 95 agricultural products by 1996 and QRs on 52 products by 1997. However, 95 tariff lines pertaining to sensitive agricultural products are excluded from the above-mentioned voluntary offer on tariffs. Once again, we observe that pressure to rationalize the agriculture and food processing sectors will not come from the country's IAP. If at all, the IAP as it stands today qualifies earlier policy pronouncements with regards to moving towards a 5 percent uniform tariff in 2004. Thus, it says: "we will levy a uniform 5 percent tariff all products with the exception of 95 sensitive agricultural products.

To sum up, the various multilateral initiatives will not provide additional pressure for the government to further rationalize its tariff structure. This stems from the fact that the country's unilateral efforts in trade liberalization to date are in fact more accelerated relative to the schedule of attaining the specific targets set forth in the multilateral agreements.

This implies that the motivation for real reform will have to be generated from within the country itself. It has to come first from a realization that high and increasing protection of

agriculture and food processing will be injurious to the economy's overall efficiency and prospects for sustained growth. With a more liberalized investment policy environment, significant increases in the inflow of foreign capital has been noted. If the structure of protection is not in line with the country's comparative advantage, large flows of resources may go to relatively inefficient activities, dimming the prospects for future reform some more as the constituency for the status quo increases.

Arresting the trend towards high protection for agriculture is politically difficult. It will require a strong political will. But more than that, it will require a recognition from policy makers that price intervention is not the solution to the sector's problems. The government has to focus instead on the real issues plaguing the agriculture sector: low productivity and poor market infrastructure, among others.

## **7. SUMMARY**

The present study assessed progress of trade reform in the 1990s in terms of the extent to which it has (i) achieved tariff simplification and (ii) improved international competitiveness. Tariff simplification was evaluated by looking at the frequency distribution of tariff rates across HS lines. On the other hand, improvement in international competitiveness was judged based on the mean, standard deviation and coefficient of variation of tariff rates and EPRs and on the movement of the (1+EPR) index.

The results suggest that considerable progress has been achieved in tariff simplification. Tariff reform in the 1990s has resulted in a shift from what is essentially a five-pronged rate schedule clustered around the 10-50 percent range in 1990 (under EO 404) to what is essentially a three-pronged rate schedule that is clustered around the 3-20 percent range in 2000 (under EO264/EO288/EO313). Moreover, the number of HS lines was reduced from 6,197 in 1990 to 5,725 in 2000. The reduction in the number of HS lines as well as in the number of tariff tiers streamline customs administration and minimize the incentives for evasion.

Likewise, singular gains have been made in fostering international competitiveness. Significant reductions in the overall average nominal/implicit tariff rates and EPRs have been achieved during the period 1990-2000. First, the overall average nominal tariff rate is reduced significantly from 33.3 percent in 1990 to 19.5 percent in 2000. This represents a decrease of over 40 percent. The reduction in nominal tariff rates came in two stages: a cut of some 19 percent on the average in 1990-1995 (as mandated by EO 470 and EO 8) and another one equal to over 25 percent in 1996-2000 (as provided under EO 264, EO 288 and EO 313). Second, the overall average implicit tariff rate based on price comparisons was trimmed down substantially from 28.6 percent in 1990 to 16.8 in 2000, equivalent to a cut of 35 percent. Half of this decline occurred in the first half of the decade while the remaining half is scheduled in the last half. Third, this has led to a hefty reduction in the overall average price-comparison EPRs during the period under study. The overall average EPR based on price comparisons decreased by some 39 percent from 29.4 percent in 1990 to 18.0 percent in 2000. Over two thirds of this reduction is scheduled in the last half of the nineties. Fourth, the overall average price-comparison EPRs corrected for tariff redundancy (which is perhaps the most realistic estimate of the overall level of protection) declined from 29.4 percent in 1994 to 16.7 percent

in 2000. The proportional reduction here is slightly higher than that indicated by the simple price-comparison EPR.

Sectorwise, the cutbacks in tariff rates and EPRs were more pronounced for the manufacturing group than for the primary products group, particularly the agriculture sub-group. Thus, one of the more notable developments in the 1990s is the switch-over in the relative protection received by the agriculture and manufacturing sub-groups. While the manufacturing group received greater protection than the agriculture sub-group in 1990-1994, the opposite is true in 1995-2000. The present situation is in sharp contrast to that in previous decades when the agriculture sub-group was penalized heavily relative to manufacturing.

In contrast, it is not quite so clear that the trade reform program of the 1990s will result in a more uniform and even pattern of protection across sectors. First, there is no clear reduction in the standard deviation of nominal/implicit tariff rates and book-rate EPRs during the period under study. The standard deviation of nominal tariff rates across all sectors in 2000 is even higher than that in 1990. This finding holds true for the standard deviation of book-rate implicit tariff rates as well as the standard deviation of book-rate EPRs across all sectors. Consequently, the estimates of the coefficient of variation for these various indicators rose over the period of analysis. Second, while the standard deviation in the price-comparison EPRs (both simple and the one adjusted for tariff redundancy) decreased by some 15 percent, their coefficients of variation increased in 1990-2000.

These results appear to be counter-intuitive at first glance. The conventional wisdom is that the general compression of the range of nominal tariff rates leading to the clustering of tariff rates at a lower and narrower range should reduce not only the mean but also the standard deviation of tariff rates and EPRs. However, closer scrutiny suggests that while the tariff rates on the majority of HS lines, particularly those that were already lower than average to start with, were cut at an aggressive pace, the reduction in the rates applicable to the newly deregulated items and related products (agriculture and food processing products) was rather sticky, owing to the sensitive nature of affected products. Consequently, the improvement in the absolute dispersion of nominal tariff rates came rather slowly after each tariffication episode and the coefficient of variation tended to rise in 1990-2000.

It should be emphasized that the lackluster performance of book-rate EPRs with respect to the various measures of dispersion is largely driven by the downward stickiness of tariff adjustments in two major sub-groups: agriculture and food processing. In other words, the problem with dispersion is rather confined and the dispersion estimates may mask some of the clear improvements that has been achieved to date. For instance, price-comparison EPRs (corrected for tariff redundancy) of the major industry sub-groups cluster around the 3-13 percent range in 2000. The EPRs of 11 out of 15 major sub-industry groups fall in this category. This is certainly a more compact distribution than that obtainable in 1990 when 7 industry sub-groups had EPRs in the 20-30 percent range, 4 industry sub-groups in the 31-55 percent range, 3 in the 11-20 percent range and 1 in the 0-10 percent range.

Moreover, closer examination of the "problematic" sectors (like food processing and agriculture) in 2000 suggests that the unevenness in the pattern of protection is likewise limited to relatively few sub-sectors. For instance, while the average price-comparison EPR of food

processing is a high 32.2 percent in 2000. Only 7 of the 25 I-O sectors belonging to this sub-group have EPRs higher than 20 percent. The EPRs of the other I-O sectors in this sub-group cluster in the 0-10 percent range.

This is not to deny that a problem exists. But this discussion does tend to clarify and delineate its breadth and scope.

Prospectively, the government proposes, as part of TRP-III, to move closer towards a uniform level of protection across all sectors by reducing the level and spread of tariff rates. The thrust is to move a two-tiered rate schedule comprising 3 percent for raw materials and intermediate goods and 10 percent of finished products in 2003 and to a uniform tariff rate of 5 percent in 2004. The findings of the present paper, however, indicates unambiguously the need for more focused restructuring in the agriculture and food processing sub-groups if 2004 target is to be attained. They also point to the possibility that moving to a scenario where all imports, with the exception of sensitive agricultural products, are assessed duty at a uniform rate of 5 percent may not be a desirable move as that might likely lead to a wider dispersion in EPRs. However, political economy considerations suggest that this is going to be a difficult task.

The various multilateral initiatives will not provide additional pressure for the government to further rationalize its tariff structure. This stems from the fact that the country's unilateral efforts in trade liberalization to date are in fact more accelerated relative to the schedule of attaining the specific targets set forth in the multilateral agreements. For instance, while the Bogor goal is free trade in 2020, the Philippine IAP under the APEC proposes a uniform 5 percent tariff rate on all imports with the exception of agriculture.

This implies that the motivation for real reform will have to be generated from within the country itself. It has to come first from a realization that high and increasing protection of agriculture and food processing will be injurious to the economy's overall efficiency and prospects for sustained growth. With a more liberalized investment policy environment, significant increases in the inflow of foreign capital has been noted. If the structure of protection is not in line with the country's comparative advantage, large flows of resources may go to relatively inefficient activities, dimming the prospects for future reform some more as the constituency for the status quo increases.

Arresting the trend towards high protection for agriculture is politically difficult. It will require a strong political will. But more than that, it will require a recognition from policy makers that price intervention is not the solution to the sector's problems. The government has to focus instead on the real issues plaguing the agriculture sector: low productivity and poor market infrastructure, among others.

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

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**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 ₱0.95 per liter of ₱151.05 per barrel on imported crude oil falling under Hdg. No. 27.09 and ₱1.00 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**

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**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 ₱ 1.90 per liter or ₱ 302.10 per barrel on imported crude oil and oil products under Hdg. No. 27.09 and ₱ 2.00 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 August 9, 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 December 27, 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

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

- reduced the special duties on crude oil products from ₱ 1.90 to ₱ 0.95 under Hdg. No. 27.09 and from ₱ 2.00 to ₱ 1.00 on imported oil products falling under Hdg. No. 27.10 and 27.11
-

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

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**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)

**Executives 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 (3%), 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)**

- modifies 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 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 of import duty on imported wheat for food

**Executive Order 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%).
-

**Table 2**  
**Average EPRs by Major Grouping, 1965 and 1974**  
**(in percent)**

	1965	1974
Agriculture and Primary		9
Manufacturing	55	44
Consumption goods	70	77
Intermediate goods	27	23
Inputs into construction	55	16
Capital goods	16	18
All sectors		
Exportable		4
Importable		37
Memo item:		
(1+EPR man)/(1+EPR agr)		1.32
(1+EPRimp)/(1+EPRexp)		1.32
(1+EPRconsump)/(1+EPRcap)	1.47	1.50
(1+EPRconsump)/(1+EPRint)	1.34	1.44

Notes:

1965 estimates are from Power and Sicat, 1971  
1974 estimates are from Tan, 1979.

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**Table 3**  
**Average EPRs by Major Grouping, 1979 and 1985**  
**(in percent)**

	1979	1985
Agriculture and Primary	0	-2
Manufacturing	35	20
All sectors	19	9
Exportable	1	1
Importable	51	29
Memo item		
(1+EPR man)/(1+EPR agr)	1.35	1.22
(1+EPRimp)/(1+EPRexp)	1.50	1.24

Source: Medalla 1986

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**Table 4**  
**Average (price comparison) EPRs by Major Grouping, 1985-1995**  
**(in percent)**

	1985	1988	1990	1995
Agriculture and Primary	9	5	4	3
Manufacturing	73	55	51	45
All sectors	49	36	33	29
Exportable	-7	-4	-8	-6
Importable	102	75	69	61
Memo item:				
(1+EPR man)/(1+EPR agr)	1.59	1.48	1.45	1.41
(1+EPRimp)/(1+EPRexp)	2.17	1.82	1.84	1.71

Source:

1985 and 1988 estimates are from Medalla 1990.

1990 and 1995 estimates are from Tan 1994.

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**Table 5  
FREQUENCY DISTRIBUTION OF HS LINES BY TARIFF RATES  
(1990-2000)**

Rates n Percent	Number of HS Lines										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
0	33	45	50	48	-	-	-	-	-	-	-
3	-	277	279	307	845	1,938	2,242	2,275	2,617	2,617	2,936
5	42	11	11	17	17	14	12	15	9	9	-
7	-	-	-	-	-	-	10	10	10	10	10
10	1,637	1,594	1,965	1,942	1,471	892	832	1,289	1,486	1,486	1,778
15	-	3	3	6	32	-	-	-	-	-	-
20	1,273	973	743	886	877	996	1,114	1,131	1,366	1,366	784
25	-	30	30	103	133	-	1	1	1	1	1
30	1,224	973	767	957	919	1,561	1,349	839	73	73	73
35	7	-	93	48	565	8	1	4	4	4	7
40	544	480	381	602	95	37	32	30	30	30	13
45	2	1,177	567	-	14	2	-	36	36	36	43
50	1,431	-	526	566	513	90	47	23	21	21	18
55	-	-	-	14	2	-	-	-	-	-	1
60	-	-	80	2	73	-	13	1	1	1	50
65	-	-	-	2	-	-	-	10	10	10	7
70	-	-	-	17	-	-	1	-	-	-	-
75	-	-	4	-	-	-	-	-	-	-	-
80	-	-	15	68	-	-	10	57	57	57	-
100	-	-	68	-	-	-	57	-	-	-	-
Specific	4	4	4	4	4	4	4	4	4	4	4
<b>Total</b>	<b>6,197</b>	<b>5,567</b>	<b>5,586</b>	<b>5,589</b>	<b>5,560</b>	<b>5,542</b>	<b>5,725</b>	<b>5,725</b>	<b>5,725</b>	<b>5,725</b>	<b>5,725</b>

Rates n Percent	Percent Distribution										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
0	0.53	0.81	0.90	0.86	-	-	-	-	-	-	-
3	-	4.98	4.99	5.49	15.20	34.97	39.16	39.74	45.71	45.71	51.28
5	0.68	0.20	0.20	0.30	0.31	0.25	0.21	0.26	0.16	0.16	-
7	-	-	-	-	-	-	0.17	0.17	0.17	0.17	0.17
10	26.42	28.63	35.18	34.75	26.46	16.10	14.53	22.52	25.96	25.96	31.06
15	-	0.05	0.05	0.11	0.58	-	-	-	-	-	-
20	20.54	17.48	13.30	15.85	15.77	17.97	19.46	19.76	23.86	23.86	13.69
25	-	0.54	0.54	1.84	2.39	-	0.02	0.02	0.02	0.02	0.02
30	19.75	17.48	13.73	17.12	16.53	28.17	23.56	14.66	1.28	1.28	1.28
35	0.11	-	1.66	0.86	10.16	0.14	0.02	0.07	0.07	0.07	0.12
40	8.78	8.62	6.82	10.77	1.71	0.67	0.56	0.52	0.52	0.52	0.23
45	0.03	21.14	10.15	-	0.25	0.04	-	0.63	0.63	0.63	0.75
50	23.09	-	9.42	10.13	9.23	1.62	0.82	0.40	0.37	0.37	0.31
55	-	-	-	0.25	0.04	-	-	-	-	-	0.02
60	-	-	1.43	0.04	1.31	-	0.23	0.02	0.02	0.02	0.87
65	-	-	-	0.04	-	-	-	0.17	0.17	0.17	0.12
70	-	-	-	0.30	-	-	0.02	-	-	-	-
75	-	-	0.07	-	-	-	-	-	-	-	-
80	-	-	0.27	1.22	-	-	0.17	1.00	1.00	-	-
100	-	-	1.22	-	-	-	1.00	-	-	-	-
Specific	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.00	100.00

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Table 6

Description	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	33.33%	33.38%	38.94%	35.31%	33.02%	26.82%	28.11%	25.71%	22.07%	20.32%	19.52%
Agriculture, Fishery and Forestry	33.16%	34.83%	38.20%	36.56%	34.78%	32.44%	29.28%	27.64%	23.47%	22.42%	22.01%
Agriculture	36.73%	39.88%	39.61%	39.40%	38.77%	38.25%	36.92%	34.50%	30.92%	29.35%	28.75%
Fishery	29.24%	29.94%	45.30%	38.81%	33.10%	24.86%	17.60%	17.55%	10.48%	10.46%	10.44%
Forestry	18.21%	12.19%	12.09%	12.17%	12.06%	11.00%	4.96%	4.96%	3.51%	3.51%	3.51%
Mining	11.77%	9.74%	10.06%	9.49%	9.58%	9.18%	3.93%	3.94%	3.33%	3.33%	3.04%
Manufacturing	34.66%	34.23%	40.92%	36.36%	33.73%	25.73%	29.10%	26.26%	22.64%	20.52%	19.55%
Food Processing	41.44%	42.05%	60.15%	50.67%	45.02%	34.49%	49.53%	44.74%	40.57%	35.40%	35.07%
Beverages and Tobacco	49.22%	49.68%	48.89%	48.10%	47.31%	46.52%	29.70%	28.66%	19.74%	19.54%	19.50%
Textile, Garments and Footwear	46.35%	44.88%	44.71%	41.75%	41.72%	25.30%	25.29%	17.06%	16.42%	16.34%	9.84%
Wood and Wood Products	43.82%	28.06%	28.13%	27.85%	27.79%	24.32%	23.78%	23.77%	14.17%	14.17%	14.16%
Furniture and Fixtures	49.72%	49.75%	44.62%	39.73%	34.77%	29.74%	29.74%	29.74%	19.83%	19.83%	19.83%
Paper, Rubber, Leather and Plastic Products	35.55%	34.24%	31.50%	28.68%	27.39%	21.66%	21.07%	20.51%	13.26%	13.23%	13.16%
Chemicals and chemical products	20.56%	16.74%	16.45%	15.91%	15.86%	10.29%	10.20%	8.86%	6.73%	6.64%	5.84%
Non-metallic mineral products	12.30%	14.65%	17.28%	17.11%	17.94%	13.44%	5.90%	6.12%	5.84%	5.84%	5.37%
Basic metals and metal products	21.93%	19.52%	19.45%	18.88%	18.13%	14.44%	12.70%	12.40%	9.22%	7.93%	7.84%
Machinery	29.83%	29.12%	25.42%	22.80%	19.37%	13.03%	12.34%	12.28%	10.19%	9.93%	9.08%
Miscellaneous Manufactures	39.94%	36.94%	34.09%	31.50%	27.82%	19.86%	19.87%	19.10%	12.57%	12.32%	11.92%
<b>SECTORAL STANDARD DEVIATIONS</b>	14.59%	15.06%	24.05%	18.76%	16.15%	14.37%	21.35%	18.74%	18.74%	16.12%	16.39%
Agriculture, Fishery and Forestry	13.97%	15.39%	20.95%	17.81%	15.99%	15.49%	18.29%	16.42%	17.99%	16.55%	16.74%
Agriculture	14.51%	14.40%	14.32%	14.34%	14.67%	15.25%	17.20%	15.29%	17.44%	15.89%	16.43%
Fishery	9.31%	10.30%	30.90%	22.20%	14.54%	3.51%	5.62%	5.56%	4.29%	4.27%	4.25%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	3.34%	4.11%	5.13%	4.68%	5.19%	4.64%	2.15%	2.17%	0.87%	0.87%	0.18%
Manufacturing	14.23%	14.17%	24.70%	18.54%	15.57%	13.17%	22.19%	19.32%	18.99%	15.84%	16.18%
Food Processing	6.52%	7.05%	25.13%	15.24%	10.66%	8.26%	20.63%	16.41%	18.57%	14.99%	15.31%
Beverages and Tobacco	1.45%	0.50%	1.75%	3.53%	5.34%	7.15%	0.48%	2.82%	0.41%	0.56%	0.66%
Textile, Garments and Footwear	5.98%	7.05%	7.23%	11.11%	11.10%	6.43%	6.47%	5.56%	4.80%	4.79%	2.72%
Wood and Wood Products	6.32%	5.47%	4.96%	4.77%	4.45%	3.92%	4.06%	4.06%	3.61%	3.61%	3.60%
Furniture and Fixtures	0.90%	0.72%	1.39%	1.06%	0.84%	0.80%	0.80%	0.80%	0.54%	0.54%	0.54%
Paper, Rubber, Leather and Plastic Products	12.86%	12.88%	11.57%	11.41%	11.09%	6.95%	7.02%	7.39%	4.66%	4.67%	4.72%
Chemicals and chemical products	13.40%	11.82%	11.30%	11.03%	10.93%	7.61%	7.65%	7.43%	4.64%	4.56%	4.79%
Non-metallic mineral products	8.17%	7.61%	6.55%	5.23%	3.51%	3.77%	4.12%	3.71%	2.61%	2.61%	2.07%
Basic metals and metal products	8.10%	7.28%	7.09%	6.74%	6.58%	8.45%	7.58%	7.69%	5.74%	4.68%	4.68%
Machinery	8.16%	8.10%	13.92%	12.07%	10.24%	9.92%	9.04%	9.04%	7.12%	6.82%	5.57%
Miscellaneous Manufactures	8.64%	10.18%	8.85%	7.43%	5.89%	5.41%	5.31%	5.42%	3.02%	3.14%	3.26%

Table 6

Description	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>COEFFICIENT OF VARIATION</b>	43.79%	45.10%	61.76%	53.13%	48.91%	53.60%	75.95%	72.91%	84.92%	79.33%	83.95%
<b>Agriculture, Fishery and Forestry</b>	42.13%	44.18%	54.85%	48.72%	45.96%	47.73%	62.48%	59.40%	76.65%	73.85%	76.05%
Agriculture	39.50%	36.12%	36.15%	36.41%	37.84%	39.86%	46.59%	44.32%	56.41%	54.15%	57.15%
Fishery	31.83%	34.42%	68.22%	57.20%	43.94%	14.12%	31.93%	31.70%	40.96%	40.83%	40.66%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Mining</b>	28.40%	42.18%	50.98%	49.35%	54.16%	50.58%	54.79%	55.06%	26.01%	26.01%	5.78%
<b>Manufacturing</b>	41.04%	41.39%	60.37%	50.98%	46.16%	51.18%	76.27%	73.55%	83.87%	77.18%	82.74%
Food Processing	15.74%	16.77%	41.77%	30.07%	23.68%	23.95%	41.66%	36.67%	45.77%	42.34%	43.67%
Beverages and Tobacco	2.94%	1.00%	3.58%	7.34%	11.29%	15.38%	1.61%	9.84%	2.06%	2.85%	3.37%
Textile, Garments and Footwear	12.89%	15.72%	16.16%	26.61%	26.60%	25.41%	25.59%	32.60%	29.21%	29.29%	27.67%
Wood and Wood Products	14.42%	19.50%	17.62%	17.14%	16.02%	16.11%	17.09%	17.09%	25.48%	25.48%	25.46%
Furniture and Fixtures	1.81%	1.44%	3.11%	2.66%	2.41%	2.69%	2.69%	2.69%	2.73%	2.73%	2.73%
Paper, Rubber, Leather and Plastic Products	36.17%	37.62%	36.73%	39.77%	40.50%	32.09%	33.31%	36.01%	35.12%	35.25%	35.90%
Chemicals and chemical products	65.18%	70.65%	68.73%	69.34%	68.94%	73.94%	75.00%	83.90%	68.93%	68.71%	81.94%
Non-metallic mineral products	66.37%	51.98%	37.89%	30.57%	19.55%	28.08%	69.81%	60.65%	44.73%	44.73%	38.57%
Basic metals and metal products	36.95%	37.32%	36.43%	35.70%	36.28%	58.49%	59.69%	61.96%	62.25%	59.01%	59.76%
Machinery	27.34%	27.81%	54.76%	52.95%	52.88%	76.19%	73.26%	73.59%	69.86%	68.71%	61.41%
Miscellaneous Manufactures	21.62%	27.56%	25.96%	23.58%	21.18%	27.22%	26.71%	28.38%	24.07%	25.45%	27.34%

*ta* - average nominal tariff rates

*ta-adj* - average nominal tariff rate adjusted for duty exemptions

Computed from Annex Table 1



Table 7

Implicit Tariffs Based on Book Rates of Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	26.04%	25.73%	30.56%	27.47%	25.61%	20.86%	23.57%	21.51%	18.99%	17.29%	16.77%
Agriculture, Fishery and Forestry	22.96%	22.49%	23.65%	23.06%	22.08%	21.17%	21.35%	19.90%	18.14%	17.26%	16.87%
Agriculture	25.50%	25.60%	25.39%	25.32%	24.62%	24.45%	27.49%	25.34%	24.48%	23.18%	22.60%
Fishery	17.76%	18.01%	23.66%	21.27%	19.17%	16.14%	10.69%	10.67%	6.14%	6.14%	6.13%
Forestry	17.94%	11.97%	11.87%	11.95%	11.84%	10.78%	4.79%	4.79%	3.35%	3.35%	3.35%
Mining	3.72%	3.25%	3.56%	3.01%	3.10%	2.76%	1.51%	1.51%	0.94%	0.94%	0.67%
Manufacturing	28.52%	28.28%	34.78%	30.59%	28.28%	21.81%	25.71%	23.31%	20.38%	18.27%	17.68%
Food Processing	37.62%	37.83%	55.01%	45.96%	40.81%	31.06%	47.04%	42.33%	38.95%	33.78%	33.51%
Beverages and Tobacco	47.53%	47.94%	47.16%	46.37%	45.58%	44.79%	28.66%	27.74%	19.05%	18.87%	18.85%
Textile, Garments and Footwear	24.40%	23.40%	23.27%	21.03%	21.02%	12.76%	12.75%	8.38%	8.17%	8.12%	5.06%
Wood and Wood Products	23.23%	15.12%	15.09%	14.91%	14.83%	12.66%	12.34%	12.34%	7.07%	7.07%	7.07%
Furniture and Fixtures	21.88%	21.91%	19.58%	17.45%	15.28%	13.05%	13.05%	13.05%	8.70%	8.70%	8.70%
Paper, Rubber, Leather and Plastic Products	29.74%	28.65%	26.17%	23.65%	22.54%	18.05%	17.60%	17.15%	11.04%	11.01%	10.95%
Chemicals and chemical products	18.77%	15.33%	15.04%	14.54%	14.49%	9.45%	9.35%	8.10%	6.17%	6.09%	5.37%
Non-metallic mineral products	11.00%	13.36%	15.68%	15.56%	16.32%	12.16%	5.34%	5.58%	5.36%	5.36%	4.90%
Basic Metals and metal products	18.41%	17.37%	17.31%	16.77%	16.08%	13.16%	11.52%	11.27%	8.37%	7.12%	7.05%
Machinery	22.73%	22.15%	20.04%	18.01%	15.27%	10.58%	9.95%	9.90%	8.20%	7.97%	7.23%
Miscellaneous Manufactures	19.37%	18.03%	16.92%	15.68%	14.06%	10.04%	10.03%	9.46%	6.42%	6.21%	5.95%
<b>SECTORAL STANDARD DEVIATIONS</b>	15.86%	15.90%	24.30%	19.25%	17.02%	15.07%	22.56%	20.04%	19.75%	17.23%	17.42%
Agriculture, Fishery and Forestry	17.21%	17.44%	17.42%	17.21%	17.08%	17.48%	19.53%	18.30%	19.04%	18.31%	18.36%
Agriculture	20.54%	20.51%	20.43%	20.39%	20.30%	20.38%	21.26%	20.17%	20.48%	19.86%	20.09%
Fishery	1.87%	1.50%	5.95%	2.80%	0.04%	3.95%	1.11%	1.13%	0.16%	0.16%	0.17%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	7.13%	6.29%	7.28%	6.47%	6.93%	6.25%	3.06%	3.07%	1.84%	1.84%	1.29%
Manufacturing	14.39%	14.34%	25.54%	19.13%	16.17%	13.72%	23.48%	20.54%	20.05%	16.83%	17.10%
Food Processing	11.00%	10.99%	27.81%	18.31%	14.45%	10.75%	23.91%	19.80%	20.81%	17.23%	17.45%
Beverages and Tobacco	3.44%	2.76%	2.81%	3.84%	5.31%	6.95%	1.70%	3.57%	1.17%	1.33%	1.45%
Textile, Garments and Footwear	7.89%	6.99%	6.91%	6.40%	6.39%	3.89%	3.91%	2.62%	2.54%	2.47%	1.80%
Wood and Wood Products	11.07%	8.30%	7.86%	7.50%	7.17%	6.04%	5.98%	5.98%	3.44%	3.44%	3.44%
Furniture and Fixtures	9.78%	9.84%	8.58%	7.71%	6.77%	5.74%	5.74%	5.74%	3.82%	3.82%	3.82%
Paper, Rubber, Leather and Plastic Products	11.47%	11.61%	9.14%	7.85%	7.21%	5.62%	5.87%	6.26%	3.66%	3.67%	3.75%
Chemicals and chemical products	12.52%	11.21%	10.61%	10.35%	10.26%	7.17%	7.18%	6.92%	4.37%	4.31%	4.51%
Non-metallic mineral products	6.93%	6.72%	5.78%	4.50%	2.79%	3.16%	3.41%	3.06%	2.31%	2.31%	1.67%
Basic Metals and metal products	7.39%	8.18%	7.98%	7.66%	7.44%	8.58%	7.60%	7.67%	5.86%	4.68%	4.67%
Machinery	8.78%	8.61%	13.38%	11.67%	9.88%	8.91%	8.10%	8.09%	6.59%	6.31%	5.18%
Miscellaneous Manufactures	5.64%	6.04%	6.27%	5.70%	5.56%	4.70%	4.68%	3.96%	3.04%	2.78%	2.62%

Table 7

Implicit Tariffs Based on Book Rates of Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>COEFFICIENT OF VARIATION</b>	60.90%	61.81%	79.50%	70.09%	66.44%	72.27%	95.70%	93.13%	104.02%	99.65%	103.87%
Agriculture, Fishery and Forestry	74.96%	77.55%	73.64%	74.65%	77.35%	82.55%	91.49%	91.94%	104.98%	106.06%	108.79%
Agriculture	80.53%	80.13%	80.46%	80.50%	82.44%	83.36%	77.33%	79.63%	83.65%	85.68%	88.92%
Fishery	10.52%	8.31%	25.13%	13.17%	0.19%	24.47%	10.43%	10.63%	2.55%	2.66%	2.82%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	191.83%	193.39%	204.23%	215.43%	223.85%	226.40%	202.61%	202.77%	196.36%	196.36%	191.28%
Manufacturing	50.46%	50.71%	73.42%	62.54%	57.18%	62.93%	91.32%	88.14%	98.39%	92.09%	96.70%
Food Processing	29.24%	29.04%	50.55%	39.85%	35.41%	34.63%	50.84%	46.77%	53.44%	50.99%	52.08%
Beverages and Tobacco	7.24%	5.76%	5.97%	8.29%	11.66%	15.51%	5.95%	12.87%	6.12%	7.03%	7.69%
Textile, Garments and Footwear	32.32%	29.89%	29.68%	30.42%	30.39%	30.49%	30.64%	31.22%	31.05%	30.48%	35.62%
Wood and Wood Products	47.65%	54.92%	52.05%	50.35%	48.32%	47.74%	48.43%	48.46%	48.59%	48.59%	48.63%
Furniture and Fixtures	44.69%	44.94%	43.84%	44.18%	44.32%	43.97%	43.97%	43.97%	43.95%	43.95%	43.95%
Paper, Rubber, Leather and Plastic Products	38.58%	40.51%	34.94%	33.19%	32.00%	31.11%	33.38%	36.48%	33.20%	33.36%	34.23%
Chemicals and chemical products	66.68%	73.14%	70.56%	71.17%	70.80%	75.85%	76.80%	85.39%	70.93%	70.73%	84.07%
Non-metallic mineral products	62.99%	50.29%	36.85%	28.90%	17.08%	25.97%	63.77%	54.89%	43.04%	43.04%	34.07%
Basic Metals and metal products	40.12%	47.08%	46.14%	45.67%	46.26%	65.19%	65.92%	68.02%	69.99%	65.66%	66.23%
Machinery	38.64%	38.85%	66.76%	64.79%	64.66%	84.28%	81.44%	81.74%	80.36%	79.21%	71.64%
Miscellaneous Manufactures	29.13%	33.48%	37.08%	36.37%	39.56%	46.84%	46.67%	41.87%	47.33%	44.71%	43.96%

Computed from Annex Table 2

Table 8

Implicit Tariffs Based on Price Comparison of Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	28.60%	30.60%	33.31%	31.18%	29.99%	24.38%	23.61%	21.55%	19.04%	17.33%	16.81%
Agriculture, Fishery and Forestry	27.22%	26.74%	28.83%	29.15%	30.06%	28.10%	21.35%	19.90%	18.14%	17.26%	16.87%
Agriculture	31.86%	31.96%	33.13%	34.43%	36.59%	34.81%	27.49%	25.34%	24.48%	23.18%	22.60%
Fishery	17.76%	18.01%	23.66%	21.27%	19.17%	16.14%	10.69%	10.67%	6.14%	6.14%	6.13%
Forestry	17.94%	11.97%	11.87%	11.95%	11.84%	10.78%	4.79%	4.79%	3.35%	3.35%	3.35%
Mining	3.72%	3.25%	3.56%	3.01%	3.10%	2.76%	1.51%	1.52%	0.94%	0.94%	0.67%
Manufacturing	30.60%	33.68%	36.76%	33.62%	31.55%	24.25%	25.77%	23.36%	20.44%	18.33%	17.74%
Food Processing	38.25%	43.97%	58.11%	49.35%	44.69%	34.66%	47.04%	42.33%	38.95%	33.78%	33.51%
Beverages and Tobacco	47.53%	47.94%	47.16%	46.37%	45.58%	44.79%	28.66%	27.74%	19.05%	18.87%	18.85%
Textile, Garments and Footwear	24.40%	23.40%	23.27%	21.03%	21.02%	12.76%	12.75%	8.38%	8.17%	8.12%	5.06%
Wood and Wood Products	23.23%	15.12%	15.09%	14.91%	14.83%	12.66%	12.34%	12.34%	7.07%	7.07%	7.07%
Furniture and Fixtures	21.88%	21.91%	19.58%	17.45%	15.28%	13.05%	13.05%	13.05%	8.70%	8.70%	8.70%
Paper, Rubber, Leather and Plastic Products	29.74%	28.65%	26.17%	23.65%	22.54%	18.05%	17.60%	17.15%	11.04%	11.01%	10.95%
Chemicals and chemical products	22.28%	18.74%	17.79%	17.28%	17.23%	12.22%	10.07%	8.82%	7.01%	6.84%	6.12%
Non-metallic mineral products	22.42%	33.24%	19.45%	26.06%	27.25%	18.35%	5.34%	5.58%	5.36%	5.36%	4.90%
Basic Metals and metal products	18.41%	17.37%	17.31%	16.77%	16.08%	13.16%	11.52%	11.27%	8.37%	7.12%	7.05%
Machinery	22.76%	22.48%	20.91%	18.85%	16.10%	10.59%	10.01%	9.97%	8.27%	8.04%	7.30%
Miscellaneous Manufactures	19.37%	18.03%	16.92%	15.68%	14.06%	10.04%	10.03%	9.46%	6.42%	6.21%	5.95%
<b>SECTORAL STANDARD DEVIATIONS</b>	17.16%	20.78%	42.10%	21.99%	22.30%	20.30%	22.54%	20.02%	19.74%	17.23%	17.41%
Agriculture, Fishery and Forestry	21.68%	21.95%	37.29%	25.82%	30.87%	28.57%	19.53%	18.30%	19.04%	18.31%	18.36%
Agriculture	25.21%	25.17%	27.45%	30.01%	35.98%	32.79%	21.26%	20.17%	20.48%	19.86%	20.09%
Fishery	1.87%	1.50%	5.95%	2.80%	0.04%	3.95%	1.11%	1.13%	0.16%	0.16%	0.17%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	7.13%	6.28%	7.28%	6.47%	6.93%	6.25%	3.06%	3.07%	1.85%	1.85%	1.29%
Manufacturing	14.18%	19.41%	44.92%	19.63%	17.51%	15.75%	23.46%	20.52%	20.03%	16.81%	17.09%
Food Processing	12.20%	22.35%	26.76%	18.44%	16.30%	14.47%	23.91%	19.80%	20.81%	17.23%	17.45%
Beverages and Tobacco	3.44%	2.76%	2.81%	3.84%	5.31%	6.95%	1.70%	3.57%	1.17%	1.33%	1.45%
Textile, Garments and Footwear	7.89%	6.99%	6.91%	6.40%	6.39%	3.89%	3.91%	2.62%	2.54%	2.47%	1.80%
Wood and Wood Products	11.07%	8.30%	7.86%	7.50%	7.17%	6.04%	5.98%	5.98%	3.44%	3.44%	3.44%
Furniture and Fixtures	9.78%	9.84%	8.58%	7.71%	6.77%	5.74%	5.74%	5.74%	3.82%	3.82%	3.82%
Paper, Rubber, Leather and Plastic Products	11.47%	11.61%	9.14%	7.85%	7.21%	5.62%	5.87%	6.26%	3.66%	3.67%	3.75%
Chemicals and chemical products	22.78%	20.09%	17.46%	17.38%	17.28%	15.61%	7.70%	7.56%	5.46%	5.46%	5.72%
Non-metallic mineral products	6.80%	10.25%	5.86%	6.31%	4.47%	4.25%	3.41%	3.06%	2.31%	2.31%	1.67%
Basic Metals and metal products	7.39%	8.18%	7.98%	7.66%	7.44%	8.58%	7.60%	7.67%	5.86%	4.68%	4.67%
Machinery	8.80%	8.85%	14.36%	12.72%	11.02%	8.93%	8.18%	8.17%	6.70%	6.42%	5.27%
Miscellaneous Manufactures	5.64%	6.04%	6.27%	5.70%	5.56%	4.70%	4.68%	3.96%	3.04%	2.78%	2.62%

Table 8

<b>Implicit Tariffs Based on Price Comparison of Major Industry Sub-Group, 1990-2000</b>											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>COEFFICIENT OF VARIATION</i>	60.00%	67.91%	126.41%	70.51%	74.35%	83.26%	95.49%	92.91%	103.71%	99.38%	103.58%
Agriculture, Fishery and Forestry	79.65%	82.08%	129.36%	88.57%	102.69%	101.67%	91.49%	91.94%	104.98%	106.06%	108.79%
Agriculture	79.13%	78.75%	82.86%	87.16%	98.34%	94.21%	77.33%	79.63%	83.65%	85.68%	88.92%
Fishery	10.52%	8.31%	25.13%	13.17%	0.19%	24.47%	10.43%	10.63%	2.55%	2.66%	2.82%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	191.73%	193.13%	204.23%	215.43%	223.85%	226.40%	202.45%	202.60%	196.25%	196.25%	191.34%
Manufacturing	46.34%	57.63%	122.21%	58.41%	55.50%	64.95%	91.03%	87.85%	97.98%	91.73%	96.32%
Food Processing	31.88%	50.84%	46.05%	37.36%	36.48%	41.76%	50.84%	46.77%	53.44%	50.99%	52.08%
Beverages and Tobacco	7.24%	5.76%	5.97%	8.29%	11.66%	15.51%	5.95%	12.87%	6.12%	7.03%	7.69%
Textile, Garments and Footwear	32.32%	29.89%	29.68%	30.42%	30.39%	30.49%	30.64%	31.22%	31.05%	30.48%	35.62%
Wood and Wood Products	47.65%	54.92%	52.05%	50.35%	48.32%	47.74%	48.43%	48.46%	48.59%	48.59%	48.63%
Furniture and Fixtures	44.69%	44.94%	43.84%	44.18%	44.32%	43.97%	43.97%	43.97%	43.95%	43.95%	43.95%
Paper, Rubber, Leather and Plastic Products	38.58%	40.51%	34.94%	33.19%	32.00%	31.11%	33.38%	36.48%	33.20%	33.36%	34.23%
Chemicals and chemical products	102.21%	107.19%	98.17%	100.58%	100.29%	127.82%	76.44%	85.78%	77.83%	79.79%	93.35%
Non-metallic mineral products	30.33%	30.85%	30.15%	24.21%	16.40%	23.15%	63.77%	54.89%	43.04%	43.04%	34.07%
Basic Metals and metal products	40.12%	47.08%	46.14%	45.67%	46.26%	65.19%	65.92%	68.02%	69.99%	65.66%	66.23%
Machinery	38.68%	39.39%	68.70%	67.45%	68.42%	84.32%	81.69%	82.00%	80.96%	79.92%	72.27%
Miscellaneous Manufactures	29.13%	33.48%	37.08%	36.37%	39.56%	46.84%	46.67%	41.87%	47.33%	44.71%	43.96%

Table 9

Tariffs-Only Effective Protection Rates Based on Book Rates of Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	27.86%	27.56%	32.20%	29.08%	27.09%	21.91%	25.43%	23.26%	20.35%	18.58%	17.95%
Agriculture, Fishery and Forestry	23.63%	23.18%	24.32%	23.76%	22.94%	22.00%	22.19%	20.73%	18.91%	18.00%	17.58%
Agriculture	26.42%	26.62%	26.39%	26.34%	25.92%	25.60%	28.70%	26.48%	25.65%	24.29%	23.67%
Fishery	17.86%	18.11%	23.84%	21.48%	19.30%	16.46%	10.90%	10.99%	6.16%	6.15%	6.15%
Forestry	18.31%	11.79%	11.52%	11.63%	11.52%	10.64%	4.66%	4.66%	3.18%	3.18%	3.18%
Mining	1.67%	1.40%	1.68%	1.11%	1.24%	1.43%	0.30%	0.36%	0.08%	0.11%	-0.16%
Manufacturing	31.02%	30.77%	36.99%	32.75%	30.18%	23.09%	28.15%	25.57%	22.10%	19.90%	19.16%
Food Processing	40.40%	41.10%	57.98%	48.76%	42.88%	32.31%	51.61%	45.99%	42.34%	36.70%	36.22%
Beverages and Tobacco	51.93%	51.99%	49.21%	48.77%	48.29%	48.28%	26.37%	27.78%	16.36%	17.75%	17.75%
Textile, Garments and Footwear	25.35%	24.41%	24.25%	22.20%	22.22%	13.33%	13.55%	8.54%	8.48%	8.41%	5.16%
Wood and Wood Products	33.81%	20.44%	20.46%	20.11%	20.16%	16.38%	22.64%	22.70%	11.98%	11.99%	12.02%
Furniture and Fixtures	21.32%	27.18%	22.74%	19.23%	15.20%	13.19%	15.01%	15.81%	10.63%	10.70%	10.95%
Paper, Rubber, Leather and Plastic Products	32.37%	32.03%	28.85%	26.41%	25.16%	20.66%	20.27%	20.17%	12.97%	12.98%	13.05%
Chemicals and chemical products	23.50%	18.50%	18.26%	17.88%	17.99%	11.27%	11.89%	10.55%	7.71%	7.66%	6.86%
Non-metallic mineral products	10.59%	13.09%	15.29%	15.37%	16.68%	11.91%	5.30%	5.76%	5.73%	5.74%	4.88%
Basic Metals and metal products	23.15%	20.40%	20.28%	19.64%	18.98%	15.48%	14.16%	14.03%	10.54%	8.92%	8.84%
Machinery	24.22%	23.73%	22.29%	19.81%	16.36%	11.32%	10.67%	10.77%	8.91%	8.70%	7.92%
Miscellaneous Manufactures	20.58%	19.26%	17.85%	16.75%	14.59%	10.29%	10.53%	10.40%	6.73%	6.51%	6.50%
<b>SECTORAL STANDARD DEVIATIONS</b>	19.26%	19.03%	26.67%	21.31%	18.92%	17.00%	25.73%	22.53%	22.15%	19.14%	19.32%
Agriculture, Fishery and Forestry	18.45%	18.73%	18.69%	18.49%	18.71%	18.79%	20.84%	19.55%	20.37%	19.62%	19.67%
Agriculture	21.99%	21.98%	21.91%	21.86%	22.17%	21.88%	22.72%	21.60%	21.94%	21.32%	21.56%
Fishery	2.00%	1.56%	6.24%	2.91%	0.04%	4.23%	1.28%	1.35%	0.20%	0.20%	0.21%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	7.98%	7.00%	8.17%	7.32%	7.94%	7.17%	3.23%	3.29%	1.90%	1.93%	1.32%
Manufacturing	18.53%	18.08%	28.02%	21.21%	17.97%	15.89%	27.17%	23.36%	22.81%	18.94%	19.22%
Food Processing	13.10%	14.07%	29.45%	18.93%	15.07%	12.25%	28.30%	22.88%	24.36%	19.71%	20.06%
Beverages and Tobacco	5.64%	4.86%	5.26%	7.14%	8.89%	10.65%	8.17%	7.09%	7.61%	5.45%	5.48%
Textile, Garments and Footwear	13.13%	11.03%	10.88%	9.02%	8.98%	5.79%	5.78%	3.53%	3.41%	3.34%	2.83%
Wood and Wood Products	29.10%	18.41%	17.65%	17.01%	16.55%	14.16%	17.69%	17.65%	9.38%	9.38%	9.37%
Furniture and Fixtures	19.14%	19.36%	16.33%	14.79%	12.70%	11.35%	10.57%	11.26%	7.24%	7.28%	7.50%
Paper, Rubber, Leather and Plastic Products	17.31%	17.34%	14.23%	12.39%	11.33%	9.31%	9.67%	10.18%	6.11%	6.07%	6.15%
Chemicals and chemical products	25.78%	20.95%	20.79%	20.69%	20.69%	14.60%	15.42%	15.48%	10.11%	9.93%	10.23%
Non-metallic mineral products	12.82%	12.90%	12.12%	9.02%	4.64%	7.43%	7.17%	4.83%	4.26%	4.27%	2.82%
Basic Metals and metal products	12.27%	11.20%	11.04%	10.57%	10.39%	13.58%	12.17%	12.35%	9.03%	7.50%	7.50%
Machinery	11.97%	11.92%	18.75%	15.83%	12.74%	10.97%	10.05%	10.19%	8.09%	7.64%	6.56%
Miscellaneous Manufactures	6.54%	7.12%	7.21%	6.54%	6.04%	5.50%	5.51%	4.81%	3.44%	3.21%	3.16%

Table 9

Tariffs-Only Effective Protection Rates Based on Book Rates of Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>COEFFICIENT OF VARIATION</b>	69.10%	69.03%	82.84%	73.27%	69.85%	77.56%	101.16%	96.85%	108.85%	102.98%	107.64%
Agriculture, Fishery and Forestry	78.07%	80.80%	76.85%	77.83%	81.53%	85.42%	93.89%	94.31%	107.72%	109.01%	111.85%
Agriculture	83.25%	82.59%	83.03%	82.97%	85.52%	85.47%	79.17%	81.55%	85.56%	87.76%	91.08%
Fishery	11.17%	8.59%	26.17%	13.53%	0.20%	25.68%	11.73%	12.32%	3.17%	3.30%	3.47%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	476.84%	498.80%	486.52%	661.41%	639.62%	500.20%	1067.0%	927.44%	2423.65%	1781.25%	-825.50%
Manufacturing	59.73%	58.75%	75.77%	64.75%	59.55%	68.81%	96.53%	91.35%	103.22%	95.17%	100.30%
Food Processing	32.42%	34.23%	50.79%	38.82%	35.15%	37.93%	54.83%	49.75%	57.53%	53.71%	55.39%
Beverages and Tobacco	10.87%	9.35%	10.69%	14.65%	18.42%	22.06%	31.00%	25.53%	46.49%	30.71%	30.90%
Textile, Garments and Footwear	51.77%	45.20%	44.85%	40.62%	40.43%	43.40%	42.69%	41.28%	40.19%	39.64%	54.91%
Wood and Wood Products	86.08%	90.08%	86.25%	84.59%	82.09%	86.45%	78.13%	77.75%	78.28%	78.17%	77.97%
Furniture and Fixtures	89.74%	71.22%	71.83%	76.90%	83.52%	86.00%	70.39%	71.24%	68.05%	68.04%	68.46%
Paper, Rubber, Leather and Plastic Products	53.48%	54.15%	49.34%	46.93%	45.04%	45.08%	47.71%	50.46%	47.10%	46.79%	47.16%
Chemicals and chemical products	109.67%	113.22%	113.81%	115.71%	115.02%	129.59%	129.68%	146.72%	130.99%	129.65%	149.08%
Non-metallic mineral products	121.03%	98.52%	79.23%	58.67%	27.80%	62.39%	135.25%	83.92%	74.39%	74.33%	57.77%
Basic Metals and metal products	53.02%	54.87%	54.41%	53.82%	54.75%	87.71%	85.99%	88.04%	85.66%	84.04%	84.87%
Machinery	49.44%	50.25%	84.11%	79.92%	77.91%	96.91%	94.15%	94.60%	90.79%	87.89%	82.89%
Miscellaneous Manufactures	31.77%	36.99%	40.41%	39.08%	41.39%	53.51%	52.38%	46.32%	51.11%	49.24%	48.61%

Computed from Annex Table 4

**Table 10**  
**(1+EPR) INDEX BY MAJOR GROUPS**  
**1990-2000**  
**USING BOOK RATES**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
ALL SECTORS	101.14	100.74	104.60	102.17	100.93	97.06	97.46	97.45	95.78	95.41	95.37
AGRICULTURE, FISHING & FORESTRY	97.79	97.28	98.36	97.96	97.63	97.13	94.94	95.45	94.64	94.94	95.08
AGRICULTURE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
FISHERY	93.23	93.27	97.95	96.15	94.74	92.72	86.17	87.75	84.49	85.41	85.83
FORESTRY	93.58	88.29	88.22	88.33	88.55	88.09	81.32	82.75	82.12	83.02	83.43
MINING	80.42	80.08	80.45	80.02	80.40	80.73	77.93	79.35	79.65	80.55	80.70
MANUFACTURING	103.64	103.28	108.39	105.07	103.38	98.00	99.57	99.28	97.17	96.47	96.35
Food Processing	111.06	111.44	124.99	117.75	113.47	105.34	117.80	115.43	113.28	109.98	110.15
Beverages and Tobacco	120.16	120.04	118.05	117.75	117.77	118.06	98.19	101.03	92.61	94.74	95.21
Textile, Garments and Footwear	99.15	98.25	98.31	96.72	97.06	90.21	88.23	85.78	86.34	87.22	85.03
Wood and Wood Products	105.84	95.12	95.31	95.06	95.43	92.66	95.29	97.01	89.12	90.10	90.58
Furniture and Fixtures	95.95	100.44	97.08	94.35	91.49	90.12	89.36	91.56	88.05	89.07	89.71
Paper, Rubber, Leather & Plastic Products	104.71	104.27	101.95	100.06	99.40	96.07	93.45	95.01	89.91	90.90	91.41
Chemicals and Chemical Products	97.69	93.59	93.57	93.30	93.70	88.59	86.94	87.41	85.72	86.62	86.41
Non-metallic Mineral Products	87.48	89.31	91.22	91.32	92.66	89.10	81.82	83.62	84.15	85.08	84.81
Basic Metals and Metal Products	97.41	95.09	95.17	94.70	94.49	91.94	88.70	90.16	87.97	87.63	88.01
Machinery	98.24	97.69	96.76	94.82	92.41	88.61	85.99	87.58	86.68	87.46	87.26
Miscellaneous Manufacturers	95.38	94.19	93.24	92.41	91.00	87.81	85.88	87.29	84.94	85.69	86.12

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Table 11

Tariffs-Only Effective Protection Rates Based on Price Comparisons by Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	29.39%	31.07%	34.61%	32.18%	30.46%	24.83%	25.45%	23.27%	20.37%	18.60%	17.97%
Agriculture, Fishery and Forestry	27.10%	26.47%	29.09%	29.30%	29.81%	28.51%	22.07%	20.61%	18.77%	17.86%	17.45%
Agriculture	31.98%	32.17%	33.64%	34.96%	36.58%	35.54%	28.51%	26.30%	25.45%	24.10%	23.48%
Fishery	17.14%	16.92%	23.57%	20.84%	18.62%	16.05%	10.89%	10.98%	6.15%	6.14%	6.14%
Forestry	17.44%	10.28%	11.24%	10.84%	10.69%	10.17%	4.65%	4.66%	3.18%	3.18%	3.18%
Mining	0.98%	0.20%	1.45%	0.47%	0.58%	1.06%	0.30%	0.36%	0.08%	0.11%	-0.16%
Manufacturing	31.93%	34.64%	38.66%	35.15%	32.47%	24.83%	28.22%	25.64%	22.17%	19.97%	19.23%
Food Processing	38.23%	44.65%	60.26%	50.73%	44.45%	34.18%	51.61%	45.99%	42.33%	36.69%	36.21%
Beverages and Tobacco	51.57%	47.06%	49.07%	48.42%	47.92%	48.06%	26.37%	27.78%	16.36%	17.74%	17.75%
Textile, Garments and Footwear	24.97%	23.73%	24.12%	21.85%	21.85%	13.12%	13.55%	8.54%	8.47%	8.41%	5.16%
Wood and Wood Products	32.81%	18.72%	20.12%	19.19%	19.18%	15.82%	22.64%	22.70%	11.98%	11.99%	12.02%
Furniture and Fixtures	21.06%	26.68%	22.65%	18.99%	14.95%	13.05%	15.01%	15.81%	10.63%	10.70%	10.95%
Paper, Rubber, Leather and Plastic Products	32.05%	31.44%	28.74%	26.11%	24.85%	20.48%	20.27%	20.17%	12.95%	12.97%	13.04%
Chemicals and chemical products	28.04%	22.54%	21.85%	21.33%	21.40%	14.79%	12.86%	11.52%	8.83%	8.69%	7.89%
Non-metallic mineral products	21.91%	32.79%	19.04%	25.79%	27.52%	18.05%	5.29%	5.75%	5.71%	5.73%	4.87%
Basic Metals and metal products	22.65%	19.53%	20.12%	19.18%	18.50%	15.21%	14.16%	14.03%	10.54%	8.92%	8.84%
Machinery	24.17%	23.95%	23.22%	20.67%	17.20%	11.29%	10.74%	10.84%	8.97%	8.77%	7.99%
Miscellaneous Manufactures	20.41%	18.94%	17.79%	16.59%	14.42%	10.19%	10.52%	10.39%	6.72%	6.51%	6.50%
<b>SECTORAL STANDARD DEVIATIONS</b>	22.07%	24.21%	28.90%	24.70%	25.08%	22.96%	25.71%	22.51%	22.13%	19.12%	19.31%
Agriculture, Fishery and Forestry	23.04%	23.47%	25.13%	27.45%	32.51%	30.28%	20.78%	19.49%	20.29%	19.55%	19.59%
Agriculture	26.83%	26.83%	29.18%	31.86%	37.95%	34.81%	22.69%	21.56%	21.90%	21.27%	21.51%
Fishery	1.73%	1.06%	6.31%	3.16%	0.30%	4.09%	1.29%	1.36%	0.20%	0.21%	0.22%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	8.01%	7.05%	8.18%	7.33%	7.95%	7.17%	3.24%	3.29%	1.91%	1.94%	1.32%
Manufacturing	20.96%	23.54%	29.41%	22.75%	21.08%	19.20%	27.15%	23.34%	22.79%	18.93%	19.22%
Food Processing	21.44%	27.24%	31.41%	22.42%	22.76%	19.89%	28.31%	22.89%	24.37%	19.72%	20.07%
Beverages and Tobacco	5.53%	6.97%	5.32%	7.30%	9.04%	10.72%	8.18%	7.09%	7.61%	5.45%	5.49%
Textile, Garments and Footwear	12.97%	10.81%	10.83%	9.06%	9.03%	5.80%	5.78%	3.53%	3.41%	3.33%	2.84%
Wood and Wood Products	28.87%	17.76%	17.54%	16.68%	16.22%	14.04%	17.69%	17.65%	9.38%	9.38%	9.37%
Furniture and Fixtures	19.10%	19.27%	16.32%	14.76%	12.67%	11.33%	10.57%	11.26%	7.23%	7.28%	7.50%
Paper, Rubber, Leather and Plastic Products	17.27%	17.29%	14.23%	12.38%	11.29%	9.32%	9.67%	10.18%	6.10%	6.07%	6.15%
Chemicals and chemical products	36.50%	30.95%	28.07%	28.11%	28.08%	24.12%	15.81%	15.97%	10.96%	10.88%	11.25%
Non-metallic mineral products	14.00%	17.91%	12.58%	11.42%	5.63%	8.81%	7.17%	4.83%	4.27%	4.27%	2.82%
Basic Metals and metal products	12.52%	11.56%	11.10%	10.75%	10.56%	13.72%	12.17%	12.35%	9.03%	7.50%	7.50%
Machinery	11.96%	12.06%	19.48%	16.64%	13.72%	10.97%	10.12%	10.25%	8.18%	7.75%	6.64%
Miscellaneous Manufactures	6.50%	7.07%	7.20%	6.52%	6.01%	5.49%	5.51%	4.82%	3.44%	3.21%	3.16%



Table 11

Tariffs-Only Effective Protection Rates Based on Price Comparisons by Major Industry Sub-Group, 1990-2000											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>COEFFICIENT OF VARIATION</i>	75%	78%	84%	77%	82%	92%	101%	97%	109%	103%	107%
Agriculture, Fishery and Forestry	85%	89%	86%	94%	109%	106%	94%	95%	108%	109%	112%
Agriculture	84%	83%	87%	91%	104%	98%	80%	82%	86%	88%	92%
Fishery	10%	6%	27%	15%	2%	25%	12%	12%	3%	3%	4%
Forestry	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mining	813%	3597%	562%	1548%	1370%	677%	1065%	926%	2469%	1773%	-833%
Manufacturing	66%	68%	76%	65%	65%	77%	96%	91%	103%	95%	100%
Food Processing	56%	61%	52%	44%	51%	58%	55%	50%	58%	54%	55%
Beverages and Tobacco	11%	15%	11%	15%	19%	22%	31%	26%	47%	31%	31%
Textile, Garments and Footwear	52%	46%	45%	41%	41%	44%	43%	41%	40%	40%	55%
Wood and Wood Products	88%	95%	87%	87%	85%	89%	78%	78%	78%	78%	78%
Furniture and Fixtures	91%	72%	72%	78%	85%	87%	70%	71%	68%	68%	68%
Paper, Rubber, Leather and Plastic Products	54%	55%	50%	47%	45%	45%	48%	50%	47%	47%	47%
Chemicals and chemical products	130%	137%	128%	132%	131%	163%	123%	139%	124%	125%	143%
Non-metallic mineral products	64%	55%	66%	44%	20%	49%	135%	84%	75%	74%	58%
Basic Metals and metal products	55%	59%	55%	56%	57%	90%	86%	88%	86%	84%	85%
Machinery	50%	50%	84%	81%	80%	97%	94%	95%	91%	88%	83%
Miscellaneous Manufactures	32%	37%	41%	39%	42%	54%	52%	46%	51%	49%	49%

Computed from Annex Table 5

**Table 12**  
**(1+EPR) INDEX BY MAJOR GROUPS**  
**1990-2000**  
**USING PRICE COMPARISON**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
ALL SECTORS	98.04	99.17	100.73	97.94	95.52	92.10	97.62	97.60	95.95	95.57	95.54
AGRICULTURE, FISHING & FORESTRY	96.30	95.69	96.60	95.81	95.04	94.81	94.99	95.49	94.68	94.97	95.12
Agriculture	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fishery	88.76	88.46	92.46	89.54	86.85	85.62	86.29	87.87	84.62	85.53	85.96
Forestry	88.98	83.44	83.24	82.13	81.04	81.28	81.43	82.87	82.25	83.14	83.56
MINING	76.51	75.81	75.91	74.44	73.64	74.56	78.05	79.46	79.78	80.67	80.86
MANUFACTURING	99.96	101.87	103.76	100.14	96.99	92.10	99.76	99.48	97.39	96.67	96.56
Food Processing	104.74	109.44	119.92	111.68	105.76	99.00	117.98	115.59	113.46	110.15	110.31
Beverages and Tobacco	114.84	111.27	111.55	109.97	108.30	109.24	98.33	101.17	92.75	94.88	95.36
Textile, Garments and Footwear	94.69	93.61	92.88	90.29	89.22	83.46	88.36	85.94	86.46	87.36	85.16
Wood and Wood Products	100.63	89.82	89.88	88.32	87.26	85.45	95.43	97.15	89.26	90.24	90.72
Furniture and Fixtures	91.73	95.85	91.78	88.17	84.16	83.41	89.49	91.69	88.19	89.20	89.85
Paper, Rubber, Leather & Plastic Products	100.05	99.45	96.33	93.44	91.41	88.89	93.59	95.15	90.04	91.03	91.55
Chemicals and Chemical Products	97.01	92.71	91.18	89.90	88.89	84.70	87.82	88.30	86.75	87.58	87.37
Non-metallic Mineral Products	92.37	100.47	89.08	93.21	93.37	87.10	81.93	83.73	84.26	85.20	84.93
Basic Metals and Metal Products	92.93	90.44	89.88	88.31	86.76	85.00	88.83	90.29	88.11	87.77	88.14
Machinery	94.08	93.78	92.20	89.41	85.81	82.11	86.17	87.76	86.86	87.65	87.46
Miscellaneous Manufacturers	91.23	89.99	88.14	86.39	83.78	81.30	86.00	87.40	85.07	85.83	86.25

Fn: tb1013\_r.wk1 (11-28-96)

Table 13

Tariffs-Only Effective Protection Rates Based on Price Comparisons Corrected for Tariff Redundancy by Major Industry Sub-Group, 1992-2000									
	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>SECTORAL WEIGHTED AVERAGES</b>	34.46%	32.19%	30.47%	24.83%	22.72%	21.29%	18.57%	17.37%	16.73%
Agriculture, Fishery and Forestry	29.09%	29.30%	29.81%	28.51%	20.41%	19.51%	17.67%	17.21%	16.80%
Agriculture	33.65%	34.96%	36.58%	35.54%	26.04%	24.66%	23.81%	23.13%	22.51%
Fishery	23.57%	20.84%	18.62%	16.05%	10.89%	10.98%	6.15%	6.14%	6.14%
Forestry	11.24%	10.84%	10.69%	10.17%	4.65%	4.66%	3.18%	3.18%	3.18%
Mining	1.45%	0.47%	0.58%	1.06%	0.32%	0.37%	0.09%	0.12%	-0.15%
Manufacturing	38.45%	35.16%	32.48%	24.83%	24.91%	23.20%	20.00%	18.44%	17.70%
Food Processing	59.72%	50.77%	44.49%	34.18%	42.79%	39.63%	36.67%	32.72%	32.21%
Beverages and Tobacco	49.07%	48.42%	47.92%	48.06%	27.62%	27.80%	16.38%	17.76%	17.76%
Textile, Garments and Footwear	24.12%	21.85%	21.85%	13.12%	13.55%	8.54%	8.47%	8.41%	5.16%
Wood and Wood Products	20.12%	19.19%	19.18%	15.82%	22.64%	22.70%	11.98%	12.00%	12.02%
Furniture and Fixtures	22.65%	18.99%	14.95%	13.05%	15.07%	15.84%	10.67%	10.72%	10.97%
Paper, Rubber, Leather and Plastic Products	28.74%	26.11%	24.85%	20.48%	20.31%	20.20%	12.98%	12.99%	13.06%
Chemicals and chemical products	21.80%	21.33%	21.40%	14.79%	12.93%	11.53%	8.84%	8.69%	7.89%
Non-metallic mineral products	19.04%	25.79%	27.52%	18.05%	5.30%	5.76%	5.71%	5.73%	4.88%
Basic Metals and metal products	20.12%	19.18%	18.50%	15.21%	14.16%	14.03%	10.54%	8.92%	8.84%
Machinery	23.22%	20.67%	17.20%	11.29%	10.75%	10.84%	8.97%	8.77%	7.99%
Miscellaneous Manufactures	17.79%	16.59%	14.42%	10.19%	10.52%	10.39%	6.72%	6.51%	6.50%
<b>SECTORAL STANDARD DEVIATIONS</b>	28.58%	24.72%	25.09%	22.96%	22.63%	20.88%	20.73%	18.32%	18.42%
Agriculture, Fishery and Forestry	25.14%	27.45%	32.51%	30.28%	19.26%	18.76%	19.48%	19.25%	19.28%
Agriculture	29.19%	31.86%	37.95%	34.81%	21.31%	21.00%	21.27%	21.14%	21.36%
Fishery	6.31%	3.16%	0.30%	4.09%	1.29%	1.36%	0.20%	0.21%	0.22%
Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mining	8.18%	7.32%	7.95%	7.17%	3.28%	3.32%	1.93%	1.96%	1.33%
Manufacturing	28.99%	22.77%	21.10%	19.20%	23.64%	21.51%	21.25%	17.97%	18.13%
Food Processing	30.74%	22.45%	22.77%	19.89%	26.62%	23.33%	25.02%	20.50%	20.59%
Beverages and Tobacco	5.32%	7.30%	9.04%	10.72%	5.94%	7.09%	7.61%	5.45%	5.49%
Textile, Garments and Footwear	10.83%	9.06%	9.03%	5.80%	5.79%	3.53%	3.41%	3.34%	2.84%
Wood and Wood Products	17.54%	16.68%	16.22%	14.04%	17.69%	17.65%	9.38%	9.38%	9.37%
Furniture and Fixtures	16.32%	14.76%	12.67%	11.33%	10.63%	11.30%	7.27%	7.30%	7.52%
Paper, Rubber, Leather and Plastic Products	14.23%	12.38%	11.29%	9.32%	9.64%	10.16%	6.06%	6.04%	6.12%
Chemicals and chemical products	28.10%	28.11%	28.08%	24.12%	15.78%	15.97%	10.96%	10.88%	11.25%
Non-metallic mineral products	12.58%	11.42%	5.63%	8.81%	7.16%	4.83%	4.26%	4.27%	2.82%
Basic Metals and metal products	11.10%	10.75%	10.56%	13.72%	12.17%	12.35%	9.03%	7.50%	7.50%
Machinery	19.48%	16.65%	13.72%	10.97%	10.12%	10.26%	8.18%	7.75%	6.64%
Miscellaneous Manufactures	7.20%	6.52%	6.01%	5.49%	5.51%	4.82%	3.44%	3.21%	3.16%

Table 13

	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>COEFFICIENT OF VARIATION</i>	83%	77%	82%	92%	100%	98%	112%	105%	110%
Agriculture, Fishery and Forestry	86%	94%	109%	106%	94%	96%	110%	112%	115%
Agriculture	87%	91%	104%	98%	82%	85%	89%	91%	95%
Fishery	27%	15%	2%	25%	12%	12%	3%	3%	4%
Forestry	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mining	563%	1549%	1370%	677%	1022%	904%	2204%	1679%	-878%
Manufacturing	75%	65%	65%	77%	95%	93%	106%	97%	102%
Food Processing	51%	44%	51%	58%	62%	59%	68%	63%	64%
Beverages and Tobacco	11%	15%	19%	22%	21%	26%	46%	31%	31%
Textile, Garments and Footwear	45%	41%	41%	44%	43%	41%	40%	40%	55%
Wood and Wood Products	87%	87%	85%	89%	78%	78%	78%	78%	78%
Furniture and Fixtures	72%	78%	85%	87%	71%	71%	68%	68%	69%
Paper, Rubber, Leather and Plastic Products	50%	47%	45%	45%	47%	50%	47%	47%	47%
Chemicals and chemical products	129%	132%	131%	163%	122%	138%	124%	125%	143%
Non-metallic mineral products	66%	44%	20%	49%	135%	84%	75%	74%	58%
Basic Metals and metal products	55%	56%	57%	90%	86%	88%	86%	84%	85%
Machinery	84%	81%	80%	97%	94%	95%	91%	88%	83%
Miscellaneous Manufactures	41%	39%	42%	54%	52%	46%	51%	49%	49%

Table 14  
 (1+EPR) INDEX BY MAJOR GROUPS  
 1990-2000

USING PRICE COMPARISONS CORRECTED FOR TARIFF REDUNDANCY

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
ALL SECTORS	98.04	99.17	100.61	97.95	95.53	92.10	97.37	97.30	95.77	95.32	95.28
AGRICULTURE, FISHING & FORESTRY	96.30	95.69	96.59	95.81	95.04	94.81	95.53	95.87	95.04	95.19	95.34
Agriculture	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fishery	88.76	88.46	92.46	89.54	86.85	85.62	87.98	89.03	85.74	86.20	86.64
Forestry	88.98	83.44	83.23	82.13	81.04	81.28	83.03	83.96	83.34	83.80	84.22
MINING	76.51	75.81	75.91	74.44	73.64	74.56	79.59	80.52	80.84	81.31	81.50
MANUFACTURING	99.96	101.87	103.59	100.15	97.00	92.10	99.10	98.83	96.92	96.19	96.07
Food Processing	104.74	109.44	119.51	111.71	105.79	99.00	113.29	112.01	110.39	107.79	107.92
Beverages and Tobacco	114.84	111.27	111.54	109.97	108.30	109.24	101.25	102.52	94.00	95.64	96.12
Textile, Garments and Footwear	94.69	93.61	92.87	90.29	89.22	83.46	90.09	87.07	87.61	88.05	85.84
Wood and Wood Products	100.63	89.82	89.88	88.32	87.26	85.45	97.30	98.43	90.45	90.96	91.44
Furniture and Fixtures	91.73	95.85	91.77	88.17	84.16	83.41	91.30	92.92	89.39	89.92	90.58
Paper, Rubber, Leather & Plastic Products	100.05	99.45	96.33	93.44	91.41	88.89	95.45	96.42	91.25	91.76	92.29
Chemicals and Chemical Products	97.01	92.71	91.13	89.90	88.89	84.69	89.60	89.47	87.91	88.27	88.07
Non-metallic Mineral Products	92.37	100.47	89.07	93.21	93.37	87.10	83.54	84.84	85.38	85.87	85.61
Basic Metals and Metal Products	92.93	90.44	89.88	88.31	86.76	85.00	90.57	91.47	89.28	88.46	88.84
Machinery	94.08	93.78	92.20	89.41	85.81	82.11	87.87	88.91	88.01	88.34	88.15
Miscellaneous Manufacturers	91.23	89.99	88.13	86.39	83.78	81.30	87.69	88.55	86.20	86.50	86.93

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**APPENDIX 1**  
**SUMMARY OF FORMULAE IN COMPUTING DIFFERENT VARIANTS OF EPR**

**1. AVERAGE TARIFF RATE FOR EACH I-O SECTOR**

The average tariff rates for each I-O sector for the year 199- is computed using the based on the following expression:

$$t_{a9-} = \frac{\sum (Q_{i88} + M_{i88}) t_{i9-}}{\sum (Q_{i88} + M_{i88})} \quad (1)$$

- where  $t_{a9-}$  = average tariff rate for given sector in 199-;
- $Q_i$  = value of domestic production of commodity i obtained from the 1988 Census of Establishments;
- $M_i$  = value of imports of commodity i obtained from 1988 Philippine Foreign Trade Statistics;
- $t_{i9-}$  = nominal tariff rate on commodity i for 199-.

**2. IMPLICIT TARIFF AND EPR FORMULAE: WITH TARIFF ONLY**

When only the protective effect of tariffs are considered, the implicit tariffs for inputs ( $T_i$ ) and outputs ( $T_j$ ) are given by the following formulae.

For exportables,

$$T_{j9-} = T_{i9-} = - t_{x9-} \quad (2)$$

- where  $t_x$  = export tax in 199-

For importables,

$$T_{j9-} = T_{i9-} = \frac{t_{a9-} \frac{wQ}{1 + t_{a1988}^{adj}} + t_{a9-} \frac{M}{1 + t_{a1988}^{adj}}}{\frac{wQ}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}}} \quad (3)$$

where  $w$  = weight of output based on the  $j$ 'th sector's demand elasticity which is assumed to be equal to 1.5 for demand elasticities up to 0.35, equal to 1.25 for demand elasticities between 0.35 and 0.45, and equal to 1.2 for demand elasticities higher than 0.45; and

$t_{aj}^{adj}$  = average tariff rate adjusted for duty exemption; see equation (6).

For mixed sectors,

$$T_{j9-} = T_{i9-} = \frac{t_{a9-} \frac{wQ_m}{1 + t_{a1988}^{adj}} + t_{a9-} \frac{M}{1 + t_{a1988}^{adj}} + (-t_x) \frac{wQ_x - X}{1 - t_{x1988}}}{\frac{wQ}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}} + \frac{wQ_x - X}{1 + (-t_{x1988})}}$$

The formula for EPR is:

$$EPR_{j9-} = \frac{(1 + T_{j9-}) - \sum a_{ij} (1 + T_{i9-})}{1 - \sum a_{ij}} - 1$$

### 3. IMPLICIT TARIFF AND EPR FORMULAE: WITH TARIFFS AND DUTY EXEMPTIONS

When the protective effect of tariffs and duty exemptions are taken into account, the implicit tariffs will have to be adjusted in the following manner. First, duty exemptions will have to be netted out of the average tariff rate:

$$t_{aj9-}^{adj} = \frac{t_{aj9-} M_{j9-} - D_{j9-}}{M_{j9-}}$$

where  $t_{aj}^{adj}$  average tariff rate adjusted for duty exemption.

- $t_{aj}$  = average tariff rate;
- $M_j$  = value of imports of sector  $j$  from the Philippine Foreign Trade Statistics;
- $D_j$  = value of duty foregone from exemptions of imports of sector from TC file.

Second, the implicit tariffs for importables and exportables will have to be adjusted as follows. Two alternatives are considered here. Under the first scenario, duty exemption is made to affect both the implicit tariff on input and output. Under the second one, duty exemption is made to affect the implicit tariff on input but not the implicit tariff on output.

Thus, under alternative 1, the implicit tariffs on importables are:

$$T_{i9-}^{adj2*} = \frac{t_{a9-}^{adj} \frac{wQ}{1 + t_{a1988}^{adj}} + t_{a9-}^{adj} \frac{M}{1 + t_{a1988}^{adj}}}{\frac{wQ}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}}} \quad (7)$$

For mixed sectors,

$$T_{j9-}^{adj2*} = T_{ij9-}^{adj2*} = \frac{t_{a9-}^{adj} \frac{wQ_m}{1 + t_{a1988}^{adj}} + t_{a9-}^{adj} \frac{M}{1 + t_{a1988}^{adj}} + (-t_x) \frac{wQ_x - X}{1 - t_{x1988}}}{\frac{wQ_m}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}} + \frac{wQ_x - X}{1 + (-t_{x1988})}} \quad (8)$$

On the other hand, under alternative 2, the implicit tariffs for importables are:

$$T_{j9-}^{adj2**} = \frac{t_{a9-} \frac{wQ}{1 + t_{a1988}^{adj}} + t_{a9-} \frac{M}{1 + t_{a1988}^{adj}}}{\frac{wQ}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}}} \quad (9)$$

and



$$T_{i9-}^{adj2^{**}} = \frac{t_{a9-}^{adj} \frac{wQ}{1 + t_{a1988}^{adj}} + t_{a9-}^{adj} \frac{M}{1 + t_{a1988}^{adj}}}{\frac{wQ}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}}}$$

$$T_{i9-}^{adj2^*} = \frac{t_{a9-}^{adj} \frac{wQ_m}{1 + t_{a1988}^{adj}} + t_{a9-}^{adj} \frac{M}{1 + t_{a1988}^{adj}} + (-t_x) \frac{wQ_x - X}{1 - t_{x1988}}}{\frac{wQ_m}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}} + \frac{wQ_x - X}{1 + (-t_{x1988})}}$$

For mixed sectors,

$$T_{j9-}^{adj2^{**}} = \frac{t_{a9-} \frac{wQ_m}{1 + t_{a1988}^{adj}} + t_{a9-} \frac{M}{1 + t_{a1988}^{adj}} + (-t_x) \frac{wQ_x - X}{1 - t_{x1988}}}{\frac{wQ_m}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}} + \frac{wQ_x - X}{1 + (-t_{x1988})}}$$

and

$$T_{i9-}^{adj2^{**}} = \frac{t_{a9-}^{adj} \frac{wQ_m}{1 + t_{a1988}^{adj}} + t_{a9-}^{adj} \frac{M}{1 + t_{a1988}^{adj}} + (-t_x) \frac{wQ_x - X}{1 - t_{x1988}}}{\frac{wQ_m}{1 + t_{a1988}^{adj}} + \frac{M}{1 + t_{a1988}^{adj}} + \frac{wQ_x - X}{1 + (-t_{x1988})}}$$

The formula for EPR under alternative 1 is:

$$EPR_{j9-}^{adj2^*} = \frac{(1 + T_{j9-}^{adj2^*}) - \sum a_{ij} (1 + T_{i9-}^{adj2^*})}{1 - \sum a_{ij}} - 1$$

while the formula under alternative 2 is:

$$EPR_{j9-}^{adj2**} = \frac{(1 + T_{j9-}^{adj2**}) - \sum a_{ij} (1 + T_{i9-}^{adj2**})}{1 - \sum a_{ij}}$$

#### 4. IMPLICIT TARIFF AND EPR FORMULAE: WITH TARIFFS AND DUTY DRAWBACK

When the protective effect of tariffs and duty drawback are taken into consideration, the appropriate formulae for implicit tariffs exportables, importables and mixed sectors are those given by equations (2), (3) and (4), respectively. However, the EPR formula becomes:

$$EPR_{j9-}^{adj3} = \frac{(1 + T_{j9-}) - \sum a_{ij} (1 + T_{i9-}) + k (\sum a_{ij}^m T_{i9-})}{1 - \sum a_{ij}} - 1$$

where  $a_{ij}^m$  = free-trade value of imports of i used to produce one unit of output of sector j;<sup>1</sup>

k = the ratio of export sales of j ( $X_j$ ) from the I-O table to the value of production of sector j ( $Q_j$ ) also from the I-O table.

#### 5. IMPLICIT TARIFF AND EPR FORMULAE: WITH TARIFFS AND VAT

When the protective effect of tariffs and VAT are taken jointly the appropriate formulae for implicit tariffs exportables, importables and mixed sectors are those given by equations (2), (3) and (4), respectively.

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<sup>1</sup>Note that the free-trade import-output coefficient is derived from the domestic-value import-output coefficient,  $a_{ij}^{m/}$  as follows:

$$a_{ij}^m = \frac{a_{ij}^{m/} (1 + T_{j1988}^{adj})}{1 + T_{i1988}^{adj}}$$

In computing EPR, it is necessary to differentiate between VAT-exempt and VAT-liable sectors. The former are not allowed to claim credit on VAT paid on their inputs because they are levied VAT on their output. Thus, it is necessary to include in the VAT in the cost of inputs to VAT-exempt sectors (but not in the cost of inputs to VAT-liable sectors), as in:

$$EPR_{j9-}^{VAT-exempt} = \frac{(1 + T_{j9-}) - \sum a_{ij} (1 + T_{i9-}) (1 + v_i)}{1 - \sum a_{ij}} - 1$$

and

$$EPR_{j9-}^{VAT-liable} = \frac{(1 + T_{j9-}) - \sum a_{ij} (1 + T_{i9-})}{1 - \sum a_{ij}} - 1$$

where  $v_i = 0$  if  $i$  is a VAT-liable sector; and  $1$  if  $i$  is a VAT-exempt sector.<sup>2</sup>

## 6. IMPLICIT TARIFF AND EPR FORMULAE: TARIFFS, DUTY DRAWBACK AND VAT<sup>3</sup>

When the protective effect of tariffs, duty drawback, discriminatory excise tax, and VAT are all taken into account in the estimation of EPR, the formulae for implicit tariffs and EPR are for exportables, importables, and mixed sectors are those given by equations (2), (3) and (4), respectively.

The formula for EPR of VAT-liable sectors is given by

$$EPR_{j9-}^{adj5} = \frac{(1 + T_{j9-}) - \sum a_{ij} (1 + T_{i9-}) (1 + v_i) + k (\sum a_{ij}^m T_{i9-})}{1 - \sum a_{ij}}$$

while that for VAT-exempt sector is the same as equation (16)

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<sup>2</sup>The sale and importation of the following are exempted from VAT: agricultural and marine food products in their original state; agricultural marine and forest non-food products in their original state; fertilizers; pesticides, herbicides and chemicals for the formulation of pesticides; seeds, seedlings and fingerlings; fish/animal/poultry feed; soya bean and fish meal; services of contract growers; milling for others of palay into rice, corn into grits, and sugarcane into raw sugar; petroleum products; books, newspaper, magazine, review or bulletin; medical dental hospital and veterinary services; leasing of property; and sale of small firms.

<sup>3</sup>It is not possible to estimate the EPR for the joint effects of duty exemption and duty drawback unless one can correct for the possible double-counting of duty exemption given to some inputs to certain export products.

## 7. USE OF PRICE COMPARISONS

The book rate will tend to underestimate realized protection when NTM coverage for any given sector is extensive. In this study, price comparisons were made for sectors that were subject to NTMs. The list of regulated items in 1990-2000 were drawn from Central Bank Circulars.

When price comparisons were available, the implicit tariff formula for these specific commodities/products is estimated as:

$$T_j^{PC} = \frac{P_d}{P_b} - 1$$

where  $P_d$  = domestic wholesale price from NSO

$P_b$  = border price based on Hong Kong trade Statistics

For items affected by NTMs, the price ratios were used as implicit tariffs only if they are higher than the implicit tariffs based on book rates.

When price comparisons were obtained for only a subset (A) of the commodities in a given I-O sector, the implicit tariff based on price comparisons and book rates for tariffs,  $T_j^{PCB}$ , for the entire I-O sector is computed as follows. For importables,

$$T_j^{PCB} = T_i^{PCB} = \frac{\frac{T_A^{PC} wQ^A}{1 + T_{A1988}^{PC}} + \frac{T_A^{PC} M_A}{1 + T_{A1988}^{PC}} + \frac{t_B wQ^B}{1 + t_{B1988}^{adj}} + \frac{t_B M_B}{1 + t_{B1988}^{adj}}}{\frac{wQ^B}{1 + T_{A1988}^{PC}} + \frac{M_A}{1 + T_{A1988}^{PC}} + \frac{M_B}{1 + t_{B1988}^{adj}}}$$

and for mixed sectors,

$$T_j^{PCB} = T_i^{PCB} = \frac{\frac{T_A^{PC} wQ_m^A}{1 + T_{A1988}^{PC}} + \frac{T_A^{PC} M_A}{1 + T_{A1988}^{PC}} + t_B \frac{wQ_m^B}{1 + t_{B1988}^{adj}} + \frac{t_B M_B}{1 + t_{B1988}^{adj}} - \frac{t_x wQ_x - X}{1 - t_{x1988}}}{\frac{wQ_m^A}{1 + T_{A1988}^{PC}} + \frac{M_A}{1 + T_{A1988}^{PC}} + \frac{M_B}{1 + t_{B1988}^{adj}} + \frac{wQ_x - X}{1 - t_{x1988}}}$$

where A = subset of commodities subject to NTMs or smuggling, with available data on price ratios;

B = subset of commodities not subject to NTMs or smuggling, thus, their implicit tariffs are based on book rates only;

$Q_m$  ( $Q_A/Q_A + Q_B$ );  $Q_A$  and  $Q_B$  are the values of production for the different subsets of commodities in the given sector as obtained from the Survey/Census of Establishments.

Here,  $M_A$  and  $M_B$  are the import values derived from the I-O using the following relationship:

$$M_A^{I-O} = M^{I-O} \frac{M_A^{PFTS}}{M_A^{PFTS} + M_B^{PFTS}} \quad (23)$$

where  $M^{PFTS}$  import values in the Philippine Foreign Trade Statistics.

When the protective effect of tariffs and duty exemptions are taken into account and when price comparisons are made for selected sectors, the implicit tariff for said sectors may be written as follows. For importable sectors,

$$T_j^{adj2,PCB} = T_i^{adj2,PCB} = \frac{\frac{T_A^{PC} wQ^A}{1 + T_{A1988}^{PC}} + \frac{T_A^{PC} M_A}{1 + T_{A1988}^{PC}} + \frac{t_B^{adj} wQ^B}{1 + t_{B1988}^{adj}} + \frac{t_B^{adj} M_B}{1 + t_{B1988}^{adj}}}{\frac{wQ^A}{1 + T_{A1988}^{PC}} + \frac{M_A}{1 + T_{A1988}^{PC}} + \frac{M_B}{1 + t_{B1988}^{adj}}} \quad (24)$$

For mixed sectors,

$$T_j^{adj2,PCB} = T_i^{adj2,PCB} = \frac{\frac{T_A^{PC} wQ_m^A}{1 + T_{A1988}^{PC}} + \frac{T_A^{PC} M_A}{1 + T_{A1988}^{PC}} + \frac{t_B^{adj} wQm^B}{1 + t_{B1988}^{adj}} + \frac{t_B^{adj} M_B}{1 + t_{B1988}^{adj}} - \frac{t_x wQ_x - X}{1 + T_{A1988}^{PC}}}{\frac{wQ_m^A}{1 + T_{A1988}^{PC}} + \frac{wQ_m^B}{1 + T_{A1988}^{PC}} + \frac{M_A}{1 + T_{A1988}^{PC}} + \frac{M_B}{1 + t_{B1988}^{adj}} + \frac{wQ_x - X}{1 + T_{A1988}^{PC}}} \quad (25)$$

When price comparisons are used, the EPR formulae themselves do not differ from the formulae used when only book rates are considered. It is just formulae for implicit tariffs of sectors where there are NTMs or smuggling which are affected.