# WORKING PAPERS IN ECONOMICS

THE GATT AGREEMENT ON

GOVERNMENT PROCUREMENTS: CANADA AND AUSTRALIA

by

S.S. Joson

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The usual caveats apply.

## 1 Introduction

On 1 January, 1981 the Agreement on Government Procurement under the auspices of the General Agreement on Tariffs and Trade (GATT) came into effect (GATT, 1979). Its main objective is to ensure the application of laws, regulations and procedures regarding government procurements so as not to afford protection to domestic products or suppliers. Simultaneously it seeks to encourage the most efficient use of public funds. There are some restrictions on the scope and coverage of the agreement. First, it does not apply to contracts below a specified threshold value of approximately US $195,000. Secondly, it excludes procurements indispensable for national security or national defence.

Some 19 countries[1] including a mixture of major economic powers and small countries have signed the agreement. Australia is not a signatory. For much of the time when Australia's major trading partners have been busy negotiating the agreement, Australia was raising the protective element of government purchases. The climax to that approach, followed by successive governments throughout the 1970s, was reached in 1980 when a legislation was enacted giving a 20 per cent margin of preference to Australian products in all purchases by the Commonwealth Authorities (Department of Administrative Services, 1980). On 5 August, 1981, less than a year after the passage of the Act, the Prime Minister announced the elimination of preferences except for certain "defence-strategic" industries. This announcement, representing a narrowing down of the coverage of preferences, was a dramatic reversal of policy.

The purpose of this study is to estimate the discriminatory element of government procurements for Canada and Australia. Also provided are quantitative estimates of the Implicit Nominal Protection Rates (INPRs) at the aggregate and sectoral levels. Through international comparisons of

INPRs of defence and civilian procurements the wisdom of the Australian action of refraining from signing the agreement is analysed.

## 2 The Model

A method for estimating the Implicit Nominal Rate of Protection in government procurements has been provided by Baldwin (1970) and with modifications has been used by Lowinger (1976). This is the only model available dealing exclusively with this type of non-tariff distortion of international trade. In essence, the method examines the sectoral composition of government purchases. Import coefficients are applied to sectoral government purchases to calculate hypothetical government imports; the value of government imports had there been no discriminatory procurement policy. These imports are compared with actual government imports to estimate the magnitude of preference accorded local products.

A fundamental assumption of the model must be noted; government import propensities are treated as being similar to those of the market sector. Hence the conditions ideally suited for testing the model are when government imports are exactly similar in nature to those of the private sector.

This model assumes the import supply functions to be infinitely elastic. In other words government purchases under a 'Buy Local' policy are unlikely to put so much pressure on import prices as to induce increased imports by the market sector. This is contrary to the theoretical as well as empirical evidence produced by Baldwin and Richardson that such offsetting effects may be significant especially for the relatively self sufficient economies like the United States (Baldwin and Richardson 1972, and Richardson 1972). Yet a competitive structure with cost-minimizing producers and utility-maximizing buyers entailed by the assumption seems more realistic and especially suitable for small countries. Implicit in such a proposition is the assumption that purchasing authorities are maximizing utility under budget constraints. Undoubtedly, budget constraints enter into decision-making by public purchasers in large and more self-sufficient economies as well, but there the outcome may often mean buying another commodity and/or from another domestic supplier. In small economies where the domestic supply sources are not developed enough to meet government demand, budget constraints may often mean a choice between buying locally from a limited range of alternatives or from foreign sources.

The model, using input-output tables, estimates the discriminatory factor of the government procurement policy on the following basis:

$$D = M_h - M_a$$

and

$$M_h = \sum_{i=1}^{n} m_i Y_i$$

where $D$ = the discriminatory factor of procurement policy

$M_h$ = hypothetical government imports

$m_i$ = average propensity to import of the i-th sector's product

$Y_i$ = government purchases of the i-th sector's product

$M_a$ = actual government imports

The formula used to calculate the index of discrimination ($I_d$) is

$$I_d = \left[\frac{M_h}{M_a}\right] 100$$

Obviously, $I_d > 100$ when $M_h > M_a$

$I_d = 100$ when $M_h = M_a$

$I_d < 100$ when $M_h < M_a$

An $I_d > 100$ points to a discriminatory policy against foreign supplies. $I_d = 100$ indicates a policy of non-discrimination. $I_d < 100$ suggests that the government purchasing authorities favour foreign supplies over domestic goods. On an aggregate basis, such an implication can be rejected a priori, and it may be considered a case of non-discrimination. However, for inter-sectoral analysis within an economy $I_{di} < 100$ may be interpreted as a preference given to the foreign over local supplier of the i-th sector's product. This can be the case in small economies where an individual industry is known to be virtually non-existent, hopelessly inefficient or technologically incapable of meeting the government requirement.

The model also gives estimates of the Implicit Nominal Rate of Protection (INPR). In as much as the 'Buy Local' policy works in much the same way as a tariff, the INPR is estimated by working out the increase in protection required to reduce imports by exactly the equivalent of the difference between $M_h$ and $M_a$, i.e.

$$\Delta M = M_h \, (e) \frac{\Delta\mu}{1+\mu}$$

where $\Delta M = M_h - M_a$

$e$ = price elasticity of demand for imports,

$\mu$ = INPR on government imports,

$\Delta\mu$ = increase in INPR.

If the initial protection on government imports is assumed zero, then

$$\Delta\mu = \frac{\Delta M}{M_h \, (e)}$$

Clearly, the height of the duty is inversely related to the elasticity. The differences in import demand elasticities between countries, by determining the relative heights of duties, facilitate international comparisons.

## 3 Empirical Results for Canada

The results on a commodity basis classification are presented in Table 1. Indications are that given the government's consumption pattern, in the case of 58.1 per cent of the commodities purchased, a discriminatory purchasing policy against foreign supplies was at work. The value of contracts in which such a practice had been pursued was \$623.8m, i.e. 77.7 per cent of the total government purchases of these import competing products. Comparatively, a greater number of manufactured goods than primary products received favourable discrimination. Also, in terms of value, local supplies were given preference in 80.4 per cent of contracts for manufactures compared with 40.6 per cent of contracts for primary products.

In order to facilitate distinction between defence and civilian purchases the following symbols are used:

$I_d^d$ = index of discrimination with regard to defence expenditure

$I_d^c$ = index of discrimination with regard to civilian expenditure

Defence and civilian contracts were equally important sources of preferential treatment in the purchase of primary products. On the other hand, in the purchase of motor vehicles, other transport equipment and other electrical products, defence contracts were a prominent source of preference since in these three cases $I_d^d > 100$ but $I_d^c < 100$. This result does not necessarily mean that preference to domestic supply of the same commodity was given in defence contracts but not in civilian contracts. Rather, the commodities in question were by their nature in demand more in defence than the civilian sector. Again, for tyres and tubes, other metal fabricated products, other industrial machinery, motor vehicle parts, industrial chemicals, and other manufactured products, $I_d^c > 100$ but $I_d^d < 100$, suggesting that these

TABLE 1: Index of Discrimination in Government Procurements by Commodity (Canada 1974)

| No. | Commodity | $I_d$ | Prominent Purchaser |
|---|---|---|---|
| 2 | Live animals | 100.3 | - |
| 3 | Other agriculture products | 251.1 | - |
| 12 | Non-metallic minerals | 118.6 | - |
| 14 | Meat products | 58.8 | - |
| 15 | Dairy products | 126.4 | - |
| 16 | Fish products | 247.7 | - |
| 17 | Fruits and vegetables preparation | 53.6 | - |
| 19 | Flour, wheat, meal and other cereals | 23.9 | - |
| 20 | Breakfast cereals and bakery products | 59.3 | - |
| 22 | Miscellaneous food products | 70.0 | - |
| | Sub total - Primary products | 85.1 | - |
| 27 | Tires and tubes | 593.4 | $I_d^d < 100$, $I_d^c > 100$ |
| 30 | Leather and leather products | 43.1 | - |
| 33 | Other textile products | 531.9 | - |
| 35 | Clothing and accessories | 64.5 | - |
| 39 | Furniture and fixtures | 21.2 | - |
| 42 | Paper products | 67,462.2 | - |
| 43 | Printing and publishing | 7,019.2 | - |
| 52 | Other metal fabricated products | 200.9 | $I_d^d < 100$, $I_d^c > 100$ |
| 54 | Other industrial machinery | 189.1 | $I_d^d < 100$, $I_d^c > 100$ |
| 55 | Motor vehicles | 564.5 | $I_d^d > 100$, $I_d^c < 100$ |
| 56 | Motor vehicle parts | 483.1 | $I_d^d < 100$, $I_d^c > 100$ |
| 57 | Other transport equipment | 574.9 | $I_d^d > 100$, $I_d^c < 100$ |
| 59 | Other electrical products | 168.8 | $I_d^d > 100$, $I_d^c < 100$ |
| 61 | Other non-metallic mineral products | 47.8 | - |
| 62 | Gasoline and fuel oil | 30.0 | - |
| 63 | Other petroleum and coal products | 73.7 | - |
| 64 | Industrial chemicals | 220.1 | $I_d^d < 100$, $I_d^c > 100$ |
| 66 | Pharmaceuticals | 94.3 | - |
| 67 | Other chemical products | 71.9 | - |
| 68 | Scientific equipment | 458.4 | - |
| 69 | Other manufactured products | 133.4 | $I_d^d < 100$, $I_d^c > 100$ |
| | Sub total - manufactures | 262.6 | - |
| | Total - all commodities | 252.0 | - |

Source: Appendix 1.

commodities were by nature more used by civilian sector than defence. Combined, these results point out that government purchases of manufactures were more specialised than those of primary products.

Table 2 has the corresponding results on an industry classification. Some 50.0 per cent of industries in the primary sector (1 to 9) received preference, 61.1 per cent in the manufacturing sector (10 to 27) and 57.1 per cent in the two sectors combined. Measured in terms of value of contracts, domestic supplies were favoured in 83 per cent of the total contracts awarded. Further, within the primary sector 72.5 per cent and in manufacturing 83.2 per cent of contracts in value imparted preference.

Defence contracts contributed particularly to the favourable treatment of domestic transportation equipment and electrical products industries while civilian contracts aided fishing, hunting and trapping, non-metal mines, and metal fabricating industries. All other preference receiving industries were neither producers of special defence goods nor of any products specifically required by the civilian sector.

The differences in results produced under the two classifications are noteworthy. For instance, $I_d$ for the primary sector under the commodity classification is 85.1 as against 151.3 under the industry classification. In other words foreign primary products do not seem to have been directly discriminated against in government procurement. Notwithstanding, domestic primary production did receive preferential treatment. Again, in manufacturing $I_d$ increased from 262.7 in commodity to 338.7 under industry classification while the combined index rose by 73.4 percentage points between the two.

The difference arose due to the nature of the Market Share Matrix which was used to transform the commodity data to industry space. The Market Share Matrix is a matrix of coefficients and is based on the Make

TABLE 2: Index of Discrimination in Government Procurement by Industry
(Canada 1974)

| No. | Industry | $I_d$ | Prominent Purchaser |
|---|---|---|---|
| 1 | Agriculture | 329.2 | - |
| 2 | Forestry | 166.6 | - |
| 3 | Fishing hunting and trapping | 12,700.0 | $I_d^d < 100$, $I_d^c > 100$ |
| 4 | Metal mines | 89.1 | - |
| 5 | Mineral fuels | 2,194.9 | - |
| 6 | Non-metal mines and quarries | 359.2 | $I_d^d < 100$, $I_d^c > 100$ |
| 7 | Services incidental to mining | 12.0 | - |
| 8 | Food and beverage | 83.6 | - |
| 9 | Tobacco products | 37.5 | - |
| | Sub-total : Primary sector | 151.3 | - |
| 10 | Rubber and plastics products | 473.5 | - |
| 11 | Leather | 53.6 | - |
| 12 | Textile | 398.1 | - |
| 13 | Knitting mills | 59.7 | - |
| 14 | Clothing | 76.0 | - |
| 15 | Wood | 11.0 | - |
| 16 | Furniture and fixture | 38.9 | - |
| 17 | Paper and allied | 1,229.5 | - |
| 18 | Printing and publishing | 5,567.2 | - |
| 19 | Primary metal | 2,998.3 | - |
| 20 | Metal fabricating | 223.9 | $I_d^d < 100$, $I_d^c > 100$ |
| 21 | Machinery | 288.1 | - |
| 22 | Transportation equipment | 702.3 | $I_d^d > 100$, $I_d^c < 100$ |
| 23 | Electrical products | 200.6 | $I_d^d > 100$, $I_d^c < 100$ |
| 24 | Non-metallic mineral products | 35.5 | - |
| 25 | Petroleum and coal products | 41.3 | - |
| 26 | Chemical and chemical products | 122.5 | - |
| 27 | Miscellaneous manufacturing | 353.7 | - |
| | Sub-total: manufacturing sector | 338.7 | - |
| | Total | 325.5 | - |

Source: Appendix 1.

Matrix according to which a commodity may be produced by more than one industry. Thus there is a redistribution of commodities amongst primary, manufacturing and service sectors after application of the Market Share Matrix. This redistribution also became evident when actual import data were transformed from commodity to industry space. In the data collected there were no service contracts. They had been excluded. But after reclassification, $1.79m worth of contracts appeared in the service industries. Hence, it was the redistribution that caused an increase in $I_d$ when the calculations were made after transformation. Further, most manufactured products being at higher stages of the production process show a comparatively greater increase than primary products.

Just like $I_d$, INPRs for various sectors were found to be lower in the commodity as against the industry classification. Using an import demand elasticity of 2.07, the INPR for the manufacturing sector which is the main area of interest in the present study was found to be 29.9 per cent on commodity basis and 34.0 per cent on industry basis.

Within manufacturing, calculations on an industry basis were made to estimate INPR for defence and civilian procurements separately. On User Department categorization, according to which purchases made on the defence vote are classified as defence items and those for all other departments as civilian, INPR for defence procurements was found to be 29.4 per cent and for civilian 42.0 per cent.

Unfortunately the user department categorization does not rest on commodity function at all. It therefore does not reflect the Canadian industrial capability with respect to government purchases. Defence equipment therefore had to be arbitrarily defined. The following method was employed in doing so.

Manufactures receiving positive protection through government procurements but for which $I_d^d > 100$ and $I_d^c < 100$ were noted. Let us call such protection Defence Oriented protection. Defence contracts were found to be influential in determining protection for motor vehicles, other transport equipment and other electrical products. When purchases in these three categories, whether for defence or civilian use were excluded from the aggregate, INPR for manufacturing decreased by roughly 7.6 percentage points from 29.9 per cent to 22.3 per cent on a commodity basis. Similarly a drop in INPR was noticed when computations were made on industry basis by excluding 'Defence Oriented' industries. It registered a fall of 5.7 percentage points from 34.0 per cent to 28.3 per cent. Clearly the definition used was arbitrary. Any other definition would have resulted in a different outcome. But it does point to the positive contribution made by defence equipment purchases in protecting local defence support industries.

These results, a relatively higher INPR for manufacturing in general than for the defence sector on the user department definition and a decline in INPR recorded with the employment of the defence oriented definition, indicate that Canada has some well developed and well protected defence support industries but does not enjoy self sufficiency in its defence requirements. This reflects a rather successful working of the offset-type arrangements and a beneficial production sharing agreement with the United States in defence items (Regehr, 1975, pp. 6-10, 42, 43).

## 4 Empirical Results for Australia

It is evident from Table 3 that in the Australian case the index of discrimination for the primary sector is quite high as compared with the manufacturing sector. To some extent this reflects the country's geographical location and the fact that Australia is a major primary producer. Further,

TABLE 3: Index of Discrimination in Government Procurements (Australia, 1974-75)

| No. | Industry | $I_d$ | Prominent Purchaser |
|---|---|---|---|
| 1 | Agriculture | 14,500 | - |
| 2 | Forestry, fishing and hunting | ∞ | - |
| 3 | Mining | 9,574 | - |
| 4 | Food manufacturing - animal origins | 65 | |
| 5 | Food manufacturing - vegetable origins | 653 | - |
| 6 | Beverages and tobacco products | 141 | - |
| | Sub total: Primary sector | 1,976 | - |
| 7 | Textiles | 301 | - |
| 8 | Clothing and footwear | 1,158 | - |
| 9 | Wood, wood products and furniture | 1,169 | - |
| 10 | Paper products, printing and publishing | 79 | - |
| 11 | Chemicals | 112 | $I_d^d > 100$, $I_d^c < 100$ |
| 12 | Petroleum and coal products | 2,364 | - |
| 13 | Glass and non-metallic min. products | 44 | - |
| 14 | Basic metals | 21 | - |
| 15 | Fabricated metal products | 224 | $I_d^d > 100$, $I_d^c < 100$ |
| 16 | Transport equipment | 135 | $I_d^d < 100$, $I_d^c > 100$ |
| 17 | Other machinery and equipment | 129 | $I_d^d < 100$, $I_d^c > 100$ |
| 18 | Leather, rubber and manufacturing n.e.c. | 265 | $I_d^d > 100$, $I_d^c < 100$ |
| | Sub total: Manufacturing sector | 134 | |
| | Total: | 135 | |

Source: Appendix 1.

no special preference appears to have been received by local food manufacturing; paper and paper products; glass, clay and non-metallic mineral products; and basic metals industries; as for all these industries $I_d < 100$.

Before interpreting the results on INPRs the Industry Capability Categorization employed in differentiating between defence and civilian procurements must be explained. The categorization rests on the Department of Administrative Services (DAS) definition of "defence and sophisticated equipment" constituting items in the tendering for which the local industry did not offer much competition irrespective of whether the user department happended to be the Department of Defence or a civilian authority.[2] All items in the DAS definition plus ships make up defence goods in this categorization.[3] The classification is an arbitrary one. Nevertheless, this measure being used by the DAS can be taken as a reasonable indicator of local industry capabilities.

The estimates in Table 4 show that, in the aggregate, defence procurements have been responsible for lowering the INPR of the manufacturing sector considerably. Negative sign of the INPR for the defence sector under both categorizations indicates that foreign sources of supply may have received a favourable discrimination in defence purchases. Obviously the index of discrimination for defence was less than 100 whichever measure was used. This evidence supports the hypothesis that the Australian industry is not able to provide for the country's defence requirements (Joint Committee on Foreign Affairs and Defence, 1978).

TABLE 4: Sectoral INPRs* (Australia)
(per cent)

| | User Department Categorisation | | Industry Capability Categorisation | |
|---|---|---|---|---|
| | 1968-69 | 1974-75 | 1968-69 | 1974-75 |
| Primary sector | - | 79.1 | - | 79.1 |
| Manufacturing sector | -27.2 | 21.4 | -27.2 | 21.4 |
| Manufacturing defence | -59.6 | -20.1 | -49.6 | - 5.7 |
| Manufacturing civilian | 48.2 | 53.6 | 24.2 | 42.5 |
| Total | -27.4 | 21.7 | -27.4 | 21.7 |

* Elasticity used in all calculations = 1.2

Source : Appendix 1.

Sensitivity of the above results was further tested by applying the same measure of defence and civilian industry classification that was used in the Canadian case. Accordingly, industries for which $I_d^d > 100$ but $I_d^c < 100$ i.e. for which defence contracts were more important than civilian purchases were noted from Table 3. Excluding these 'Defence Oriented' industries from calculations left the manufacturing INPR virtually unchanged. Actually, exclusion of the chemicals industry raised its value while the other two lowered it marginally. Each one of the changes was less than one percentage point. In the Canadian situation the operation had caused a significant fall in the corresponding INPR. This again supports the assertion that in contrast to their Canadian counterparts the Australian defence procurements did not contribute to the protection of the manufacturing sector.

Also it is worth noting from Table 4 that the relative negative impact of defence purchases on the manufacturing INPR is much smaller under the industry capability definition than under the user department definition. Since excluding from calculations industries which are relatively important to defence changes the resultant manufacturing INPR little, it shows that treating industries for which $I_d^d > 100$ but $I_d^c < 100$ as defence support industries is far closer to the industry capability definition than it is to the user department definition.

## 5 Intertemporal Analysis: The Australian Experience

Here, intertemporal analysis of the protective element of defence and civilian procurements is conducted with the help of the 1968-69 and 1974-75 input-output tables. The results for both years are presented in Table 4. A change from -27.6 per cent to 21.4 per cent in the total INPR for manufacturing is indicative of a substantial escalation in the protective element of the government procurements. Economy-wide estimates point in the same direction. On the User Department categorisation defence sector INPRs are negative in both years, while those for the civilian sector, positive. This means that Australian defence procurements which have been secured mainly from overseas during the period had exerted great influence in reducing INPR of the manufacturing sector. So much so that the value of the INPR in 1968-69 was rendered negative.

From this evidence it is not easy to determine the efficacy of the government policy. For that a measure which may be called the <u>protection elasticity of procurement</u> is needed. Let protection elasticity of procurement be defined as -

$$E = \frac{\text{Percentage change in Ext/Int procurement ratio}}{\text{Percentage change in INPR}}$$

$E < 1$ means that for a normal downward sloping Ext/Int procurement ratio curve, a given proportionate change in INPR can bring about only a relatively small change in the procurement ratio. The efficacy of the procurement policy in such a circumstance is less. $E > 1$ on the other hand suggests the policy is a rather potent protective measure. For instance procurement policy will be a more effective means of protection if say a 5 per cent increase in INPR can cause the Ext/Int procurement ratio to decline by 6 per cent than if the resultant fall was only 4 per cent.

On that definition, elasticities for defence and civilian procurements on two categorizations were estimated to be as follows.

Defence elasticity on User Dept. catn. $E^d_{ud} = 0.101$

Defence elasticity on Ind. Capty. catn. $E^d_{ic} = 0.076$

Civilian elasticity on User Dept. catn. $E^c_{ud} = 1.982$

Civilian elasticity on Ind. Capty. catn. $E^c_{ic} = 0.294$

It is noteworthy that both $E^d_{ud}$ and $E^d_{ic} < 1$, but $E^c_{ud} > 1$ and $E^c_{ic} < 1$. That is, defence elasticity does not respond to the switch from User Department to Industry Capability categorization while the civilian elasticity does so.

Before explaining the significance of this phenomenon it must be stressed that by definition the civilian sector INPR using the industry capability classification reflects the competitiveness of the civilian industries rather than their ability to produce comparable supplies for government contracts. Further, a change in INPR portrays a change in competitiveness rather than a change in capability. Now if it can be assumed that the government civilian demand pattern and the local civilian industrial capability did not alter greatly, or at least the capability did not decline during the period[4], then the measure of elasticity reflects the response of a falling Ext/Int procurement ratio to a rise in protective element of the government policy. To the extent this assumption is valid to the Australian situation, it supports the hypothesis that a considerable fall (0.031, 0.024, 0.013, 0.015) in the civilian ratio experienced during 1971-75 may have been due to a move away from the policy of 'best value for money' to a policy of 'Buy Australian' (Joson, 1979).

The same cannot be said of the defence sector. There the elasticity is based on negative INPRs. Thus the capability of the Australian industries to meet government defence needs may have been improving though with $E^{d}_{ic} < 1$, that improvement has been very sluggish.

$E^{c}_{ic} < 1$ which means given the industrial capability and government-civilian demand pattern of 1974-75 it would take a proportionately greater increase in INPR to cause a certain decline in the civilian procurement ratio now makes more sense especially as $E^{c}_{ud} > 1$. It indicates that were government civilian requirements defined as those which Australian industry had the capability to meet then by the mid-1970s persistently increased protection had lowered the civilian Ext/Int procurement ratio to such a level that the future potential of the policy was greatly reduced. If annual input-output tables for Australia were available as they are for Canada, it could be easily shown that increasing the INPR much higher than 42.5 per cent could prove counter-productive. It would increase costs of government civilian purchases without diverting many contracts from foreign to domestic suppliers.

## 6 International Comparisons

Table 5 shows the magnitude of imports foregone because of the 'Buy Local' policies of the governments and the relevant INPRs. The differences between the hypothetical and actual imports, for countries other than Australia and Canada, relate to the mid-1960s. However, there seems little reason to expect that the governments' policies and therefore the extent of protection embodied in government procurements would have changed considerably over the years. Some evidence supporting this assertion has been produced in the U.S. A Rand Corporation study done by C. Wolf, Jr. *et al.*, and focussing especially on merchandise defence imports into the U.S. between 1964 and 1974 suggests that government

TABLE 5: International Comparisons of INPRs (U.S. dollars)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Country | Year | $\Delta M$ \$m | $\Delta M$ at 1978 prices \$m | $I_d$ | Best elasticity $e_b$ | INPR % with $e_b$ | $\hat{M}_a$ at 1978 Prices | INPR % Upper Limit in 1978 |
| Australia | | | | | | | | |
| Inc. defence | 1974 | 63 | 86 | 134.4 | 1.2 | 21.4 | N/A # | N/A # |
| Exc. defence | 1974 | 70 | 96 | 204.1 | 1.2 | 42.5 | N/A # | N/A # |
| Belgium | 1965 | -12 | -26 | 87.8 | 1.34 | 0 | 267 | * |
| Canada | 1974 | 233 | 317 | 338.7 | 2.06 | 34.2 | 103 | 42.7 |
| France | 1965 | 51 | 111 | 125.9 | 2.36 | 8.8 | 600 | * |
| West Germany | 1965 | -892 | -1,938 | 28.0 | 2.53 | 0 | 2,880 | * |
| Italy | 1965 | 8 | 17 | 110.6 | 1.02 | 9.2 | 187 | * |
| Netherlands | 1965 | -3 | -6 | 96.8 | .88 | 0 | 252 | * |
| U.K. | 1968 | 178 | 363 | 149.8 | 1.22 | 27.3 | 669 | * |
| U.S.A. | 1963 | 971 | 2,148 | 706.8 | 1.84 | 46.6 | 517 | 52.8 |

\# Not applicable because Australia did not participate in the GATT negotiations.
* Could not be calculated because of unavailability of relevant data

Sources: Appendix 1.

discrimination in the purchase of foreign commodities did not decline over this 11 year period (Wolf, 1976, p.46). Still, the estimates of the imports foregone at 1978 prices, which are obtained by inflating the base year $\Delta M$ values with the U.S. wholesale price index for industrial goods, should be treated as very rough approximations. This method of projecting estimates seems to have gained acceptance although in some respects it is obviously deficient (Cline, 1978, p.193). Quite simply it ignores any differences in real growth rates of imports caused by increased international trade and by different growth rates in government spending.

For Belgium, West Germany and Netherlands $\Delta M$ is negative, indicating that these countries do not discriminate against imports. The same is evident from the index of discrimination which is less than 100 for each of these countries. The sums involved in the case of Belgium and Netherlands are relatively small. But, for West Germany the actual imports are substantially higher than the hypothetical imports. According to Lowinger, West German results may have been somewhat biased because of the inclusion of military hardware in government imports (Lowinger, 1976, p.456). Despite that however this seems to indicate that the country may have pursued a genuinely non-discriminatory policy. This seems especially to be the case in face of evidence on the exclusion of military equipment from French purchases causing a very small change in the index; an increase of less than three per cent.

Our computations for Canada produced conflicting evidence. On the user department definition the exclusion of defence goods increased the index by 95.2 per cent (from 252.0 to 491.9) on commodity basis, and by 132.0 per cent (from 325.5 to 755.2) on industry basis classification. For manufactures only the exclusion raised the index by 91.9 per cent (from 262.6 to 504.1) on the industry basis. Defining defence goods by function or their importance for the military purpose (named 'defence oriented' industries) and excluding these though decreased the index by 29.2 per cent from 262.6 to 185.8.

Hence the change in the index appears to depend upon the definition employed of defence goods on the one hand and the degree to which domestic industry is capable of meeting the country's defence requirements on the other. Australian results demonstrate this very clearly. On user department definition excluding defence purchases increased the index for manufacturing by 108.9 per cent from 134 to 280. On the industry capability definition the registered increase was 52.2 per cent to 204. This seems to support the results for France. An increase of less than three per cent clearly reflects a near self sufficiency in the French case while an increase of 52.2 per cent an apparent lack of defence support industry in Australia. Now if the West German economy is assumed to be less self-sufficient in defence equipment production than the French, ceteris paribus, the rise in index could be expected to be greater than three per cent on exclusion of defence imports from the calculations. But even if the bias were greater than three per cent, its presence by itself, would not be conclusive enough to suggest that West German procurements may not have been genuinely liberal.

Further evidence on this issue is sought by projecting the problem to 1978 and anlysing it under different assumptions. The actual government imports for all the countries are estimated ($\hat{M}_a$) by applying their respective volume of imports indices to their base year government imports. Implicit in this is the assumption that government imports follow a growth pattern similar to that of the private imports, which is quite consistent with the assumption of similarity between the import propensities of the two sectors.

Initial indications of the possible offers of coverage under the Government Procurement Agreement of GATT in 1978, are now treated as rough estimates of the upper limit of hypothetical imports ($\hat{M}_h$). This is based on the assumption that a country entering into negotiations would, after taking into consideration the capacity and capability of the local industry to meet its defence requirements, offer a figure that does not expose its domestic industry to undue foreign competition but at the same time enables it to elicit maximum concessions from other parties. Admittedly, this is rather strong to assume that governments can make adequate allowance for the industry's capacity to meet the defence requirements, when in reality, many governments are known to aspire to develop local defence support industries to the point of self-sufficiency, not only with regard to present demand, but anticipated future demand as well. Even in small economies, where establishment of such industries is uneconomic due to insufficient demand, governments use offset programmes, sometimes at high costs, to create a local defence supply capability (Lloyd, 1973, p.74). The question in indicating offers for international negotiations, therefore, is not that of making due allowance for local industrial capacity as it exists. It is to make allowance for the performance of industrial structure, which in practice is difficult to do.

In addition to this obstacle, since the offers represent only initial indications of the possible offers, they have to be treated as a very rough guide. Also because the offers refer to the coverage of government purchases, they can be taken as hypothetical imports only under the extreme assumption that all those purchases were being made domestically before negotations and will be made overseas after reaching the agreement. They therefore have to be looked upon as a limiting case, or as potential hypothetical imports in the complete absence of discriminatory purchasing.

The limit values of INPR under these new assumptions for Canada and the U.S. are shown in column eight. Similar estimates for other countries could not be made because of unavailability of relevant data. Nevertheless the main point can be made with the help of estimates done for Canada and the U.S. Assuming that there were no major changes in the government's policies, the levels of protection existing in 1978, could not be expected to differ substantially from those in the respective base years. If, however, it is postulated that actual government imports followed the same pattern of growth as private imports, and the initial offers represent potential imports in the absence of discrimination, the implicit protection rates could be as high as those in column eight.

Now the limit INPR for Canada may be noted to differ more from the corresponding value in column six, than is the case for the U.S.. This is despite the fact that the Canadian figure in column eight may be somewhat understated. It may be so because the figure for estimated actual imports ($\hat{M}_a$) included defence goods whereas the initial offers of coverage under the GATT agreement, taken as hypothetical imports ($\hat{M}_h$), are net of arms, ammunition or war materials, or purchases indispensable for national security or defence purposes.[5]

A relatively small difference for the U.S. may be because it is the only country where an explicit level of preference for domestic supplies is provided for by legislation, so establishing a lower limit for the INPR. Rigidity on the upper side may be due to competitive procurements. Of course, if supplies are purchased on a strictly competitive basis, the upper limit converges towards the lower, and discrimination beyond the prescribed levels is minimal. But even if purchasing is not done competitively in the sense that the lowest bidder is awarded the contract, discrimination far higher than that legally provided for is less likely under U.S. regulations and practices. In 'formally advertised' contracts the problem is generally not encountered as the bids are opened publicly. In the second and often employed method of 'negotiated procurements', where the bids are not open to public scrutiny, the unsuccessful bidder, on request, is given explanation of the basis for the award, except where security considerations forbid this, and is informed about the price of the successful offeror (O.E.C.D., 1976, p.124). Thus, the procedure keeps the deviations in INPR, above the permissible levels, to a minimum. A part of the explanation of the existing divergence between the two INPRs may also lie in the crudeness of the data used. Whatever the cause, a relatively small difference in INPRs calculated under two different sets of assumptions, suggests that much of the potential protection has been available to the U.S. industry under provisions of the 'Buy American' Act.

Now as the numerical value of the negative $\Delta M$ for Belgium and Netherlands is small there is likelihood that the potential INPR under alternative assumptions for these countries may turn out to be positive. A negative value for the potential INPR for West Germany though, which seems very likely, would tend to reinforce that even after allowing for the bias in estimates that country's policy may be non-discriminatory.

## 7 Conclusions

In summary indications are that discriminatory purchasing curtails imports by roughly \$2.1 billion in the U.S. Comparatively smaller curtailments occur in the case of the U.K., \$363m; followed by Canada, \$317m; France, \$111m; Australia, \$86m; and Italy, \$17m.[6] Reductions in discrimination therefore appear to be capable of generating more trade in the U.S., Britain and Canada.

Protection accorded local industry is also highest in the U.S., 46.6 per cent; followed by Canada, 34.2 per cent; Britain, 27.3 per cent; Australia, 21.4 per cent; Italy, 9.2 per cent; and France, 8.8 per cent. However excluding defence purchases from calculations shows that the Australian protection level of 42.5 per cent is second only to the U.S. Local supplies appear to receive no special preference in West Germany, Belgium and the Netherlands. Out of these three countries the evidence for government purchases being genuinely non-discriminatory is strongest in West Germany.

Furthermore, indications are that much of the potential protection has been available to the U.S. industry under provisions of the 'Buy American' Act. In comparison the Canadian industry appears to have received a little less than its full potential assistance.

Sectoral level comparisons between Canada and Australia reveal that defence purchases on the user department definition in Canada impart 29.4 per cent assistance to local industry. In contrast protection available to Australian industry from defence procurements is -20.1 per cent. With civilian purchases however the position is reversed. Australian protection in that case is much higher; 53.6 per cent as compared to the Canadian figure of 42.0 per cent.

Replacing the user department definition with the more suitable industry capability definition and comparing the results under alternative definitions provided evidence to support the following propositions about the two countries' protective and industrial structures:

(i) Canada maintains some well developed and well protected defence support industries though the country does not enjoy self-sufficiency in its defence requirements. Moreover, this pattern of protection and industrial capability is indicative of a successful working of offsets or production sharing arrangements.

(ii) Inclusion of defence procurements in the calculations reduces the protection available to Australian industry by nearly half, i.e., from 42.5 per cent to 21.4 per cent. This is indicative of a lack of defence support capability in Australia.

(iii) An additional piece of information about the Canadian protection figures is that on the commodity basis classification the manufacturing sector protection stands at 29.9 per cent, but on the industry basis classification it is 34.0 per cent. That means to the extent purchasing officers talk about preference given local offers in terms of commodities and not industries, they are understating the protection available to local industry by roughly four percentage points.

Now an important question about the Australian policy can be asked. It arises from the Prime Minister's announcement of 5 August, 1981 that preferences to Australian goods in government purchases were to be eliminated except in respect of 'defence-strategic' industries. Admittedly in the light of the present investigation this apparent reversal appears to have given the Australian policy a correct direction. Moreover it seems quite consistent with GATT agreement commitments. It seems a correct policy especially as it has been shown that increasing implicit protection of government civilian procurements much beyond 42.5 per cent could prove counterproductive. That means the protective element of these purchases may have been at such a high level that it perhaps was proving quite costly to the government at a time when it was pursuing cost cutting exercises. Its consistency with the GATT agreement relates to its obvious objective of developing defence support industry within Australia. The agreement is certainly not forbidding to such pursuits by individual countries. If it was, Canada having signed the agreement would seem to have exposed its industry to unnecessary risks since the Canadian government procurements have been shown to protect local defence support capability. Given all this, the question is, should Australia still be reluctant to sign the agreement? Knowing that lowering of this trade barrier can cause Australian imports to increase by no more than roughly $86m at 1978 prices, it seems Australia's gains may outweigh its losses.

## APPENDIX 1: DATA SOURCES AND PREPARATION

The Canadian input-output table of medium aggregation (43 x 100) for 1974 is contained in The Input-Output Structure of the Canadian Economy, Catalogue 15-508E Occasional, Ottawa, Statistics Canada. The Australian table for 1974-75 was provided on tape by the Australian Bureau of Statistics, Canberra.

Import Coefficients ($m_i$): These were computed using the definition

$$m_i = \frac{M_i}{O_i + (M_i - X_i)}$$

where $O_i$, $M_i$ and $X_i$ are output, imports and exports respectively of the i-th sector products.

Hypothetical Government Imports ($M_h$):

Canada

Since the published tables show current government expenditure by all levels of government and since the present study focuses attention on procurement policy of only the federal government, a breakdown of the published figures was needed. Current expenditure of the federal government only and its further disaggregation into defence and civilian expenditures was especially provided by Statistics Canada on request.

Australia

Federal government expenditure was separated from the total public sector outlay as follows. The ratio of the Federal government procurements to that of the state and local authorities was calculated from the data provided by the DAS. The factor thus obtained was applied to government expenditure figures contained in sectors 71.01, $Q_2$, and $Q_5$. The underlying assumption in this method is that the procurement pattern of authorities of both levels is similar. Considering that their functions are not dissimilar it is not an unrealistic assumption. The same factor however could not be applied to Public Enterprises because the functions of Commonwealth enterprises like

Qantas and Telecom can be envisaged to involve different procurement patterns of goods and services than the state and local government enterprises. The factor applied to $Q_4$ therefore was derived from the expenditure patterns of both levels of enterprises. The data for the purpose was taken from Public Authority Finance: Federal Authorities 1977-78, No. 5502.0, Canberra, ABS, 1978; Public Authority Finance: State and Local Authorities, No. 5504.0, Canberra, ABS, 1977; and Senate Standing Committee on Finance and Government Operations, First Report 1978, Second Report 1979 and Third Report 1980, Canberra, AGPS, 1979-1980.

Actual Government Imports ($M_a$):

Canadian data on actual government imports was provided by the Department of Supply and Services (DSS). These figures had been collected on Federal Supply Classification (FSC), and therefore had to be regrouped. A key for the purpose was devised in meetings with the officers concerned from the DSS (Mr. S. Sourani) and Statistics Canada (Dr. P.K.S. Murty). All data from FSC were thus apportioned to commodities in input-output cells.

Australian government imports data on ASIC classification (four digits) was provided on tape by the ABS and the IAC. This data was regrouped on an input-output basis. Imports in the ASIC class 9999 consisting of non-classifiable items were redistributed into the 80 primary and manufacturing industry sectors in proportion to the sector's identified imports.

$\Delta M = M_h - M_a$:

The source of estimates for countries other than Canada and Australia is (Lowinger, 1976). Values of $\Delta M$ at 1978 prices were estimated by inflating with the U.S. wholesale price index for industrial goods. For the index, see International Monetary Fund, International Financial Statistics Yearbook, Vol. 32, 1979.

Import Demand Elasticities ($e_b$):

The 'best estimates' of elasticities are approximate median values for manufactured goods (SITC 5-9), and are based on several available studies reported in (Stern, 1976, p.20). The Australian estimate is derived by averaging various estimates based on studies reported in (Macfarlane, 1979, p.6).

Estimated Limit Hypothetical Imports ($\hat{M}_h$):

Values of $\hat{M}_h$ in 1978 are based on initial indications of possible offers (in U.S. dollars) of coverage given by the countries participating in the GATT Government Procurement Agreement. These data are not available for all the countries. The Canadian figure was obtained from the DSS officers during interviews on 22 and 23 November, 1979. The U.S. figure was taken from the Australian Financial Review, 2 January, 1981.

Estimated Actual Government Imports ($\hat{M}_a$):

Values of $\hat{M}_a$ in 1978 have been estimated by applying the Volume of Imports Index for each country to actual government imports figure in the base year. The source of the index is IMF, op.cit.

FOOTNOTES

1. These are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Holland, Hong Kong, Ireland, Italy, Japan, Luxembourg, Norway, Singapore, Sweden, Switzerland, United Kingdom and United States.

2. Items included in the definition were ADP, telephone, telegraphic equipment, electrical circuit, machinery, tanks, aircraft, aircraft parts, bombs, missiles, weapons and general military stores (Department of Administrative Services, 1977).

3. Addition of ships to the DAS definition was necessitated because data on that definition for 1968-69 was not available and therefore had to be estimated. Extending DAS definition to 1968-69 revealed that even the civilian INPR was negative which meant that industries generally patronized by the Defence Department had been reclassified into the civilian sector while the department had been sourcing its supplies from overseas perhaps in continuation to its normal practice. Closer examination of government imports revealed that lumpy imports of the shipbuilding industry had caused the anomaly.

4. A decline in local industry capability to meet government civilian demand may be observable if many public enterprises with unusual demands were set up by a government in a short period. In that event local industry would be flooded with the types of demand that it had not had to fulfil before and was therefore not geared to meeting them. This would result in government contracts being placed overseas, indicating a decline in local industry capability. During 1968-75, of the 50-odd public authorities created by the Australian government, only one (the Pipeline Authority) could be expected to have had such an effect. In terms of the expenditure on fixed assets the demand for pipelines on the industry are known to have jumped from 1.7 per cent of the total public authority expenditure in 1972-73 to 5.8 per cent in 1974-75. However, an isolated case like that can hardly be expected to have had so great an impact as to result in a general decline in the local industry capability. Details on the growth of public authorities in Australia are in (Senate Standing Committee on Finance and Government Operations, 1979, pp.25-50,142).

5. A closer scrutiny of the list of entities shows that some 55 items such as tractors, tyres and tubes, furniture, refrigeration and air conditioning equipment etc., which are not classified security items, but are purchased by the Department of National Defence, are presumably included in the offers. (General Agreement on Tariffs and Trade, 1979, Annex I, Article I, Paragraph I(c), pp.84-6).

6. A point about these projected estimates deserves mention. At the time of the Australian Prime Minister's announcement in August 1981 eliminating preference for domestic products in government purchases the government sources pointed out that the move was likely to increase the flow of imports into Australia by roughly $100m a year. It is noteworthy the figure estimated in this study is $86m in 1978 prices. Projected to 1981 prices it is likely to be quite close to the government quoted figure. This indicates that the underlying assumptions of the projections made in this study may be quite realistic. For the government quoted figure see <u>Australian Financial Review</u>, 7 August 1981.

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