

WORKING PAPERS IN ECONOMICS

SUBSTITUTABILITY OF 'BUY LOCAL' POLICY FOR
TARIFF PROTECTION IN SMALL ECONOMIES

by

S.S. JOSON

No. 78

January 1985

DEPARTMENT OF ECONOMICS



The University of Sydney
Australia 2006

SUBSTITUTABILITY OF 'BUY LOCAL' POLICY FOR
TARIFF PROTECTION IN SMALL ECONOMIES

by

S.S. JOSON

No. 78

January 1985

National Library of Australia Card Number and ISBN

0 949269 80 8

ACKNOWLEDGEMENTS

An earlier draft of this paper was presented in a seminar at the University of Wisconsin, Madison. Helpful comments by the participants, especially by Professors Robert Baldwin and Rachel McCulloch are gratefully acknowledged. I am also grateful to Professors Peter Lloyd, Warren Hogan and Clem Tisdell for many valuable suggestions. Thanks are also due to Professor A.A. Powell, Director, IMPACT Project, who kindly gave me access to the project's data base. The necessary tapes were provided by the Industries Assistance Commission and the Australian Bureau of Statistics on his recommendation. The usual caveats apply.

SUBSTITUTABILITY OF 'BUY LOCAL' POLICY FOR TARIFF
PROTECTION IN SMALL ECONOMIES

1. Introduction

This study analyses a problem created by the combination of a falling tariff and an increasing protective element of government procurement policy especially in small economies characterised by their dependence upon foreign suppliers to meet government requirements. The problem stems from the special relationship existing between the tariff and the Implicit Nominal Protection Rate (INPR) of government purchases. According to that relationship a tariff duty applicable to private imports should be included in the foreign tender price when that price is compared with any local tender price for the purpose of awarding a government contract. A tariff duty is not normally payable by government departments and agencies. It is a notional duty solely used as a basis for giving local manufacturers the same protection accorded them by the tariff. In other words government procurement as a protective instrument should complement the tariff. Difficulties arise when government starts using procurement as a substitute for tariff protection.

Australian policy initiatives since the early 1970s provide some perspective on the issue. The average level of the tariff during this period has been declining due to pressures from within the economy and without. Nevertheless, successive governments have been observed to place a greater emphasis on government procurement as a protective measure to compensate local industry for reduced tariff protection. The GATT Agreement on Government Procurement, which came into effect on January 1, 1981 and seeks to lower the protective element of government purchases, has been signed by some 19 countries, large and small. But the Australian Government has not joined in this commitment thus signalling its wish to preserve a capacity to act unilaterally on government procurement devices.

Section 2 of this paper contains a theoretical exposition of the working of government procurement policy as a protective measure vis-a-vis the tariff in small countries. The model, which may be called the Response Curve model, should be applicable to small economies generally though it is developed primarily from the purchasing procedures followed in Australia and Canada. Empirical evidence based on simulation experiments and Australian input-output tables is presented in Section 3. This is followed by a section on policy implications and conclusions.

2. Response Curve Model

The response curve in this model is a curve depicting the relationship between the External/Internal (Ext/Int) procurement ratio and the Implicit Nominal Protection Rate (INPR) of government procurements. Ext/Int procurement ratio is simply a ratio of government purchases from foreign and domestic sources. Assuming government expenditure constant, a movement in the ratio reflects changes in government imports. The concept is also relevant to the private sector where once again the ratio represents a ratio of imports and the sector's purchases from the local industry. The INPR of government procurement policy is the percentage difference between the preferred domestic tender price and the duty-added lowest foreign tender price. It reflects the protective element of government procurements.

Having defined the concepts it is important to note the characteristic features of the response curve. The curve is downward sloping, indicating a reduction in ratio as the INPR increases. The INPR can be increased in a variety of ways. Firstly, the magnitude of preference for domestically produced supplies (at present 20 percent for Australian products) can be

increased. Secondly, supplies originating from less developed regions within the economy can be given additional preference. Thirdly, Quasi Autonomous Non Government Organisations (QANGOs) which normally enjoy varying degrees of freedom from government purchasing regulations, can be asked to give preferential treatment to local supplies in their purchases.

In addition to having a negative slope the curve is convex, implying a reduction in the fall of the ratio in response to an ever increasing INPR. The explanation for convexity is straightforward. Imagine, there is a limit to which local supplies can be substituted for government imports. For instance, nothing more can be done once all QANGOs have accepted government policy guidelines on preferential purchasing. Nor is there much manoeuvrability left after all local supplies from less developed areas have been given preference. Of course additional criteria for giving preference to local products can be created. But ultimately the rate of fall of the ratio will depend upon whether local substitutes for government imports are available at any one point in time. If not, the response curve will be convex.

The implications of using preferential government procurement policy (meaning a shift away from foreign to domestically produced goods) to maintain the employment of resources, released by a tariff cut and the consequential increase in imports, can now be examined.

The analysis rests on the following assumptions:

- i. The country's total import demand elasticity is given and the foreign supply elasticity is assumed to be infinity. As such, any lowering of the tariff in the short run can be expected to increase the flow of total imports, even if it is a small increase. Implicit are the

assumptions of the tariff being fully utilised and the elasticities being similar in the private and government sectors.

- ii. Total expenditure in both the private and the government sectors is held constant, so that, any change in the Ext/Int procurement ratio occurs because of the changing imports. This restricts our analysis to the short period.
- iii. The demand pattern in both sectors is similar; that is, all goods are demanded by both sectors.
- iv. Both sectors are of roughly equal size.

Assumptions (iii) and (iv) are obviously restrictive. However, they are only made initially to make the diagrammatic representation easier. They are relaxed later.

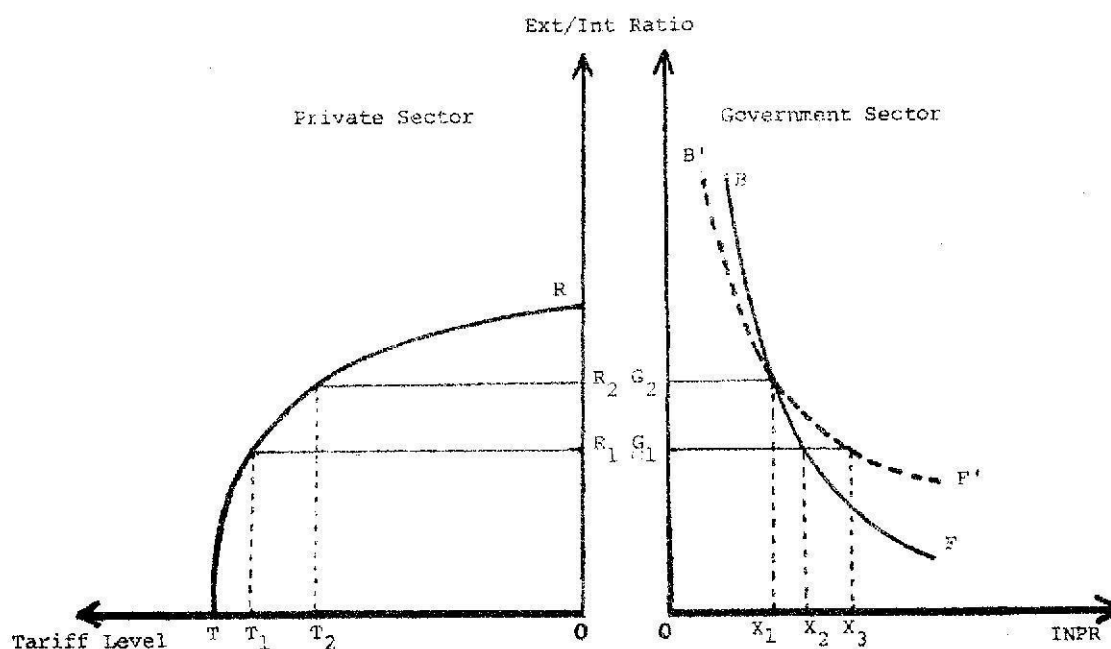


Figure 1

In Figure 1, BF is the response curve. RT represents the relationship between the tariff level and the ratio of Ext/Int purchases in the private sector, with OT being the prohibitive tariff and OR the free trade ratio. Concavity of RT means that from a high protection level the same percentage fall in tariff raises the ratio more than when the tariff level is low. The reason behind this is the likelihood that a high level of tariff is more effective than a low one in preserving the more marginal lines of production and the marginal producers. This will be especially true if the country's tariff structure is the result of a made-to-measure principle of providing assistance as has been followed traditionally in Australia.

Given these conditions, a fall in tariff from T_1 to T_2 raises the ratio from R_1 to R_2 in the private sector. In the government sector as well the ratio rises from G_1 to G_2 , though at first it may not be apparent, why? The reason lies in the procedural requirement that the relevant tariff duty be included in comparing the foreign with the local tender price in the award of government contracts. If the price preference given local product, net of the tariff level, is assumed constant, a reduction in tariff will reduce the overall preference, shifting some government contracts away from domestic to foreign supply sources, thus pushing the ratio upwards to G_2 . In order to bring the ratio back to G_1 , the INPR (net of tariff) will have to be increased from X_1 to X_2 .

However, the efficacy of the preferential government procurement policy as an alternative to tariff protection is not to be measured by its ability to simply bring the government sector ratio back to G_1 , but also, to bring the private sector ratio back to R_1 . Therefore, the extra INPR required cannot be read from BF. It may be recalled that BF was drawn on the basis of

local availability of substitutes for government import goods only; goods such as tanks and fighter aircraft. It does not take account of the fact that government sector demand may constitute different goods than the private sector demand. And, taking account of the dissimilarities between the two sector's demands means relaxing assumption (iii).

Relaxing assumption (iii) twists the response curve BF to $B'F'$ so that, within the range of R_2R_1 , the latter is more elastic than the former. Reading from $B'F'$, X_2X_3 is the extra INPR required to bring the private sector ratio back to R_1 . Obviously the size of X_2X_3 is determined by the excess of the elasticity of $B'F'$ over that of BF ; the factor which reflects the dissimilarity between the two sector's demand patterns. The greater the dissimilarity of the two sectors' demand, the greater the value of X_2X_3 . For instance, were the government's demand to constitute tanks only and the private sector's demand hair-pieces only, X_2X_3 could be infinitely large. Such a situation may be viewed as a structural adjustment problem, where, it is difficult to substitute government sector demand for a reduced demand for locally produced goods from the private sector when tariff is reduced. A reduced tariff decreases private sector's demand for locally produced hair-pieces which the government simply does not demand. Increasing INPR is therefore useless. Of course, in reality some goods are commonly demanded by both sectors while others may be demanded exclusively by one of the sectors. This keeps X_2X_3 finite but positive.

On relaxing assumption (iv), the difference in sizes of the two sectors becomes relevant. The government sector is generally known to be considerably smaller than the private sector. As well, it is a relatively small user of goods. Consequently, its potential for sustaining employment of resources released by the private sector due to tariff cuts is relatively small, though

it may possess considerable potential with respect to some individual industries.

The policy implication of the response curve model is noteworthy. It means as long as a country's response curve (BF or B'F') is convex, the potential of its government procurement policy as a measure of protection is likely to be weak; even weaker when preferential government procurements are used as a substitute measure to tariff protection. Increasingly greater amounts of INPR would be required to cause a given amount of reduction in the ratio. The situation manifests itself in an increase in the protection costs of government procurements without a corresponding decline in government imports.

3. Empirical Evidence

Substantial evidence, statistical or otherwise, has been available to suggest that both Canada and Australia may be facing a convex response curve (Board of Economic Development Ministers, 1979, pp. 1-2; Joson, 1979 and 1982). However, for our model to be useful we need to be able to empirically estimate a country's response curve. Moreover, if the curve turns out to be convex, we should be able to pin point industries which, due to their inability to produce government import substitutes locally, cause the convexity. The first of the following two experiments is designed to estimate the Australian response curve and to point out the convexity causing industries. The second investigates the potential of preferential government procurement policy as a substitute for tariff protection.

Experiment 1: Opportunity Costs

First of all, the opportunity costs of producing successively increasing proportions of government import substitutes domestically were estimated by simulating with the help of the Australian input-output table and the model:

$$C = [I - \{v[G] + [A]\}]^{-1} k[V]$$

$$C^* = [I - A]^{-1} k[V]$$

where C = opportunity cost;

[V] = government imports vector (net of complementary imports);

[G] = government imports matrix;

[A] = input-output coefficient matrix;

k = proportion parameter that assumes values from 0.1 to 1.0 in ten equal steps;

v = proportion parameter that assumes values from 0.0 to 0.9 in ten equal steps such that its value is always one step short of that of k;

C* = control cost.

The model provided industry requirements for producing successively increasing proportions of government import substitutes locally in ten iterations by exhausting [V] into the input-output structure as [G], re-estimating at each step the input-output structure which would have prevailed had the lower proportion been produced domestically (for the method used see Appendix). But because all government imports, intermediate or final, were treated as intermediate products the requirements computed could be looked upon as opportunity costs. Opportunity costs of producing

substitutes for government imports worth \$126.75m in Australia were thus estimated to be \$221.33m.

Of course an implicit assumption of the model is that the necessary technology was being acquired in stages. An important purpose of the exercise was to determine the constraints of the local industrial structure if the government decided to divert contracts for all its requirements from foreign to domestic suppliers over a given period of time in ten equal steps when the technological relationships in the economy were changing. The behaviour of costs under those circumstances was tested against what can be called "control costs" (to use the terminology of biological sciences). By definition, control costs are costs of producing successive proportions of government import substitutes locally with a fixed technological input structure.

Changes in opportunity costs can be looked upon as marginal opportunity costs. Marginal opportunity costs in the control experiment were constant as expected. Marginal opportunity costs under changing technological conditions in the primary, mining and services sectors were observed to be decreasing. Manufacturing sector results were, however, revealing. Marginal opportunity costs for the sector as a whole were increasing. Within manufacturing the bulk of industries had decreasing marginal opportunity costs while some, such as pulp and paper, newspapers and books, motor vehicles, aircraft, scientific equipment, electronic equipment, construction equipment and other machinery were observed to have increasing marginal opportunity costs. That means opportunity costs in manufacturing were increasing because of the weight of this select group of industries. Since opportunity costs, as defined here, simply reflect resource requirements, these results indicate how local fostering of these industries is likely to impose increased real costs on rest of the economy.

From our viewpoint though it is important to note that since opportunity costs were estimated by imposing government import demand on the domestic industrial structure, these rising marginal opportunity cost industries are the ones unable to produce substitutes for government imports.¹ (For some contrasting studies done in the U.S. see Miller, 1978; Baumbusch, 1978). Incidentally, this is perfectly consistent with a situation where a local industry may be producing close substitutes of the imported product with respect to private sector's demand, but not, with respect to the government demand. Rising marginal opportunity costs observed in the motor vehicle industry is a good example. While local producers may be producing perfect substitutes of imported cars, they may not be producing v.i.p. limousines or military vehicles.

Response Curves

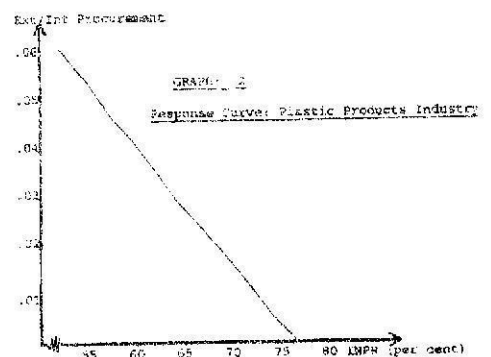
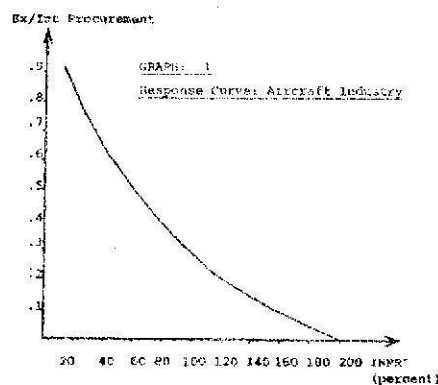
The model also provided estimates of the protection costs involved in diverting increasing proportions of government contracts from foreign to domestic suppliers. In this experiment, for every 10 per cent reduction in government imports, changes in import coefficients were noted. Under every changed set of circumstances the prevalent set of INPRs was estimated. Also, keeping government expenditure constant the new set of Ext/Int procurement ratios was computed. Ten iterations that exhausted the government imports vector thus produced at each step two corresponding values, one that of the Ext/Int procurement ratio and the other, that of the INPR required to bring about the necessary change in it. These values in effect were the co-ordinates of a point on the response curve.

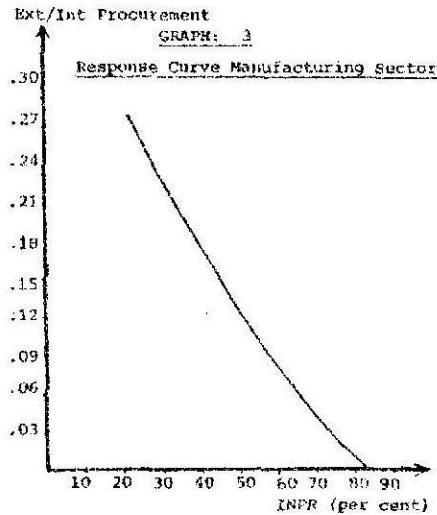
Some of the industries had negative INPRs.² A part of the response curve in those industries, that means, lay in the second quadrant. Although the full response curve did exist in all those cases, the interpretation of the negative

portion can be difficult and can vary from industry to industry. For instance, it cannot be determined whether an industry suffered negative protection because it lacked the necessary capability to produce government demanded goods or, because its tender prices were not competitive. Quite simply, as long as it is not known whether local suppliers offered any bids for government contracts at all, negative portion of the response curve for those industries cannot be interpreted with great confidence.

For the purpose of this study though, the interest mainly was in the shapes of the response curves. With that in mind, two typical industry curves were drawn on graph and are shown in Graphs 1 and 2. The aircraft industry curve is clearly convex, while that for the plastics industry more or less a straight line. These indicate that the INPR required to cause a marginal decline in Ext/Int procurement ratio is increasing in the aircraft industry, whereas, in the plastics industry it is almost constant.

There were no a priori expectations about the shape of the response curve for the manufacturing sector in aggregate, because government imports were supposedly free of any complementarity which is primarily responsible for imparting convexity to the curve. On the understanding that it could be any shape, the curve was estimated for the manufacturing sector (Graph 3). Apparently, it is convex though mildly so. That means the influence exerted on it by the constituent industries such as aircraft has been overwhelming.





Experiment 2: Tariff Reductions (Industry-by-Industry)

The potential of 'Buy Local' policy as a compensatory measure to tariff reduction for each industry was estimated by noting the increase in the industry's imports for a given tariff cut. That rise included a rise in private as well as government imports. The industry's government imports were then reduced by the equivalent of that increase. This operation implied the assumptions of similarity between the two sectors' demand patterns and the substitutability of the domestically produced and imported goods. All import coefficients and the consequent INPRs were re-estimated while holding government expenditure constant. The process was repeated to measure the effect of up to 20 per cent tariff cuts, though the results are presented for a few of the selected iterations.

Because government imports of the primary and mining sectors were negligible and for the services sector zero, the results presented in Table 1 are only those for the manufacturing sector. Besides, industries other than manufacturing are not protected by the tariff in Australia. Direct effects of tariff reductions in them, therefore, are almost zero.

For each industry the INPR is increasing as long as government imports are positive. No further compensatory reduction in them is possible once they have reached zero. Simultaneously, the INPR reaches its maximum and the potential of the government procurement policy slumps to zero. That position is depicted in the table by the entry "Max"; an abbreviation for a maximum of the INPR.

Apparently, in eight industries (identified by three asterisks) out of a total of 66, government imports could not possibly play a role as there were no government imports in them to begin with. The number of industries with positive government imports fell from 58 to a mere 10 for a tariff cut of 10 per cent, and to only seven for a 20 per cent cut. In other words, in about 85 per cent of the industries government procurement policy turns out to be a useless measure of protection if employed as an alternative to a 10 per cent reduction in tariff protection, and useless in another 5 per cent of industries if substituted for a 20 per cent tariff cut.

Table 1, also reveals the marginal INPR required to compensate for every one per cent cut in an industry's tariff. This can be read by noting the difference between INPRs recorded in two consecutive columns up to the column indicating seven per cent cut. Let us call it the Marginal Rate of Protection Substitution between tariff and the government procurements. Of course, the marginal rate of protection substitution varies between industries depending, among other things, upon their level of tariff protection: *the higher the tariff protection enjoyed by an industry, ceteris paribus, the higher its marginal rate of protection substitution.* For instance, the aircraft and the scientific equipment industries both have the same elasticity of substitution. The tariff protection for the aircraft industry is 2.8 per cent while that for the scientific equipment industry, 10.0 per cent.

TABLE 1 INPR (per cent) Requirement to Offset Effects of Industry-by-Industry Tariff Cuts

I-C Code	Industry	For 1A		For 2A		For 3A		For 4A		For 5A		For 6A		For 7A		For 10A		For 15A		For 20A		
		Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	Tariff	Out	
21.01	Meat products	139.7		186.9		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.02	Milk products	***		***		***		***		***		***		***		***		***		***		***
21.03	Fruit and vegetable products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.04	Margarine, oils and fats	***		***		***		***		***		***		***		***		***		***		***
21.05	Fibur and cereal products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.06	Bread, cakes and biscuits	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.07	Confectionary products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.08	Food products n.e.c.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.09	Food drinks, cordials etc.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
21.10	Beer and malt	***		***		***		***		***		***		***		***		***		***		***
21.11	Alcoholic beverages n.e.c.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
22.01	Tobacco products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
23.01	Prepared fibres	***		***		***		***		***		***		***		***		***		***		***
23.02	Man-made fibres, yarns etc.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
23.03	Cotton, silk, flax yarns etc.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
23.04	Wool and worsted yarns etc.	194.1		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
23.05	Textile finishing	***		***		***		***		***		***		***		***		***		***		***
23.06	Textile floor covering	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
23.07	Textile products n.e.c.	36.8		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
24.01	Knitting mills	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
24.02	Clothing	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
24.03	Footwear	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
25.01	Sawmill products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
25.02	Plywood veneers and boards	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
25.03	Joinery and wood products	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
25.04	Furniture, mattresses, brooms	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
26.01	Pad, paper and paperboard	-202.5		+155.3		-168.2		-181.1		-174.0		-166.8		-155.7		-138.4		-102.8		-67.4		
26.02	Fibreboard, paper containers	14.6		21.4		57.3		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
26.03	Paper products n.e.c.	MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX
26.04	Newspapers and books	6.1		7.7		9.3		11.0		12.6		14.2		15.9		20.7		26.6		36.9		
26.05	Commercial and job printing	47.4		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX		MAX

Continued ...

TABLE 1 (continued)

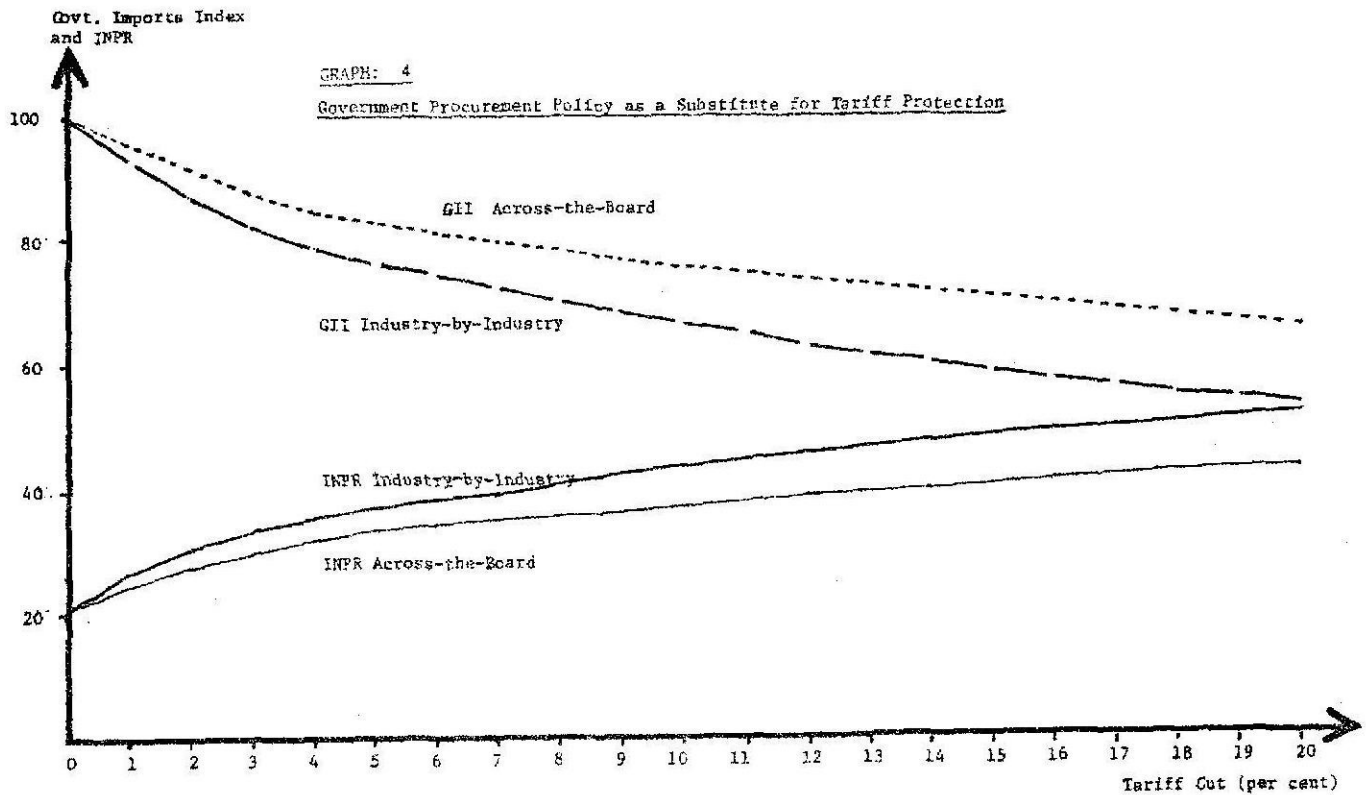
I-O Code	Industry	For 14		For 2A		For 3A		For 4A		For 5A		For 6A		For 7A		For 10A		For 15A		For 20A	
		Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX	Tariff Cut	MAX
27.01	Chemical fertilizers	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.02	Industrial chemicals n.e.c.	-237.1	-191.4	-145.8	-100.3	-54.7	-8.2	36.2	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.03	Paints, varnishes, lacquers	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.04	Pharmaceuticals, chemicals	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.05	Soap and other detergents	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.06	Cosmetic, toilet preparations	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.07	Chemical products n.e.c.	25.4	26.4	27.4	28.5	29.5	30.5	31.5	34.6	39.7	44.8	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
27.08	Petroleum and coal products	283.5	283.3	287.1	288.9	290.7	292.5	294.3	296.1	297.9	299.7	301.5	303.3	305.1	306.9	308.7	310.5	312.3	314.1	315.9	317.7
28.01	Glass and glass products	15.3	42.5	69.7	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
28.02	Clay products	-49.3	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
28.03	Cement	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
28.04	Ready-mixed concrete	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
28.05	Concrete products	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
28.06	Non-metallic min. products	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
29.01	Basic iron and steel	-381.1	-246.8	-110.7	25.4	161.3	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
29.02	Other basic metal products	-1244.3	-3058.5	-2872.8	-2687.2	-2501.7	-2316.4	-2131.1	-1945.8	-1760.5	-1575.2	-1390.0	-1204.7	-1019.4	-834.1	-648.8	-463.5	-278.2	-92.9	12.4	127.1
31.02	Structural metal products	-213.0	-161.3	-110.0	-58.9	-8.2	42.2	93.5	145.0	196.5	248.0	300.0	351.5	403.0	454.5	506.0	557.5	609.0	660.5	712.0	763.5
31.02	Sheet metal products	13.5	31.4	49.3	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
31.03	Metal products n.e.c.	41.8	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
32.01	Motor vehicles and parts	11.8	15.6	19.3	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
32.02	Ship and boat building	199.7	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
32.03	Locomotives, rolling stock	198.8	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
32.04	Aircraft building	11.6	11.8	12.0	12.2	12.4	12.6	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.2	14.4	14.6	14.8	15.0	15.2	15.4
33.01	Scientific equipment etc.	99.0	100.3	101.7	103.0	104.3	105.7	107.0	108.3	109.7	111.0	112.3	113.7	115.0	116.3	117.6	119.0	120.3	121.7	123.0	124.3
33.02	Electronic equipment	-47.0	-44.6	-42.2	-39.8	-37.5	-35.1	-32.7	-30.3	-27.9	-25.5	-23.1	-20.7	-18.3	-15.9	-13.5	-11.1	-8.7	-6.3	-3.9	-1.5
33.03	Household appliances n.e.c.	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
33.04	Electrical machinery n.e.c.	18.9	22.9	26.9	30.8	34.8	38.8	42.7	46.7	50.7	54.5	58.5	62.5	66.5	70.5	74.5	78.5	82.5	86.5	90.5	94.5
33.05	Agricultural machinery	193.4	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
33.06	Construction etc., equipment	152.4	153.8	155.1	156.5	157.9	159.2	160.6	162.0	163.4	164.7	166.1	167.5	168.9	170.3	171.7	173.1	174.5	175.9	177.3	178.7
33.07	Other machinery, equipment	170.5	173.7	176.9	180.1	183.3	186.5	189.7	193.0	196.2	199.4	202.6	205.8	209.0	212.2	215.4	218.6	221.8	225.0	228.2	231.4
34.01	Leather products	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
34.02	Rubber products	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
34.03	Elastic and related products	74.5	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
34.04	Signs, writing equipment etc.	0.4	19.6	38.7	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
34.05	Other manufacturing	52.9	78.3	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX

Source: Appendix

Consequently, the marginal rate of protection substitution for the two industries are 0.2 and 1.3 respectively.

The behaviour of the manufacturing sector as a whole has been summarized in Graph 4. The curve marked Government Imports Index (GII) shows the remainder of government imports after every compensating reduction for the corresponding tariff cut. Since the government expenditure has been held constant, the curve represents changes in the Ext/Int procurement ratio. But, the value of government imports had been converted into an index in order to facilitate its expression on the same axis as the INPR. This manipulation is harmless since at this aggregate level our interest lies mainly in the shapes of these curves.

The graph shows that GII falls at a much faster rate up to a tariff cut of about six per cent since the convexity of the curve is concentrated in the earlier portion of the curve than the latter. Correspondingly, the rate of rise in INPR, reflected by the concavity of the INPR curve, is also higher for cuts of up to six per cent than for the larger cuts. This can be interpreted to mean that the potential of government procurement practices to serve as a measure of protection in withstanding the effects of tariff cuts higher than six per cent is very small indeed, and is diminishing rapidly.



Tariff Reductions (Across-the-Board)

Under general equilibrium circumstances reallocation of resources in the economy occurs taking into account not only the direct effects of tariff reductions, but also, the indirect effects. The total impact on industry imports while it was always negative in the previous case can now be negative, neutral or positive. In some of the industries for instance, imports can now be immune to tariff cuts, in others they may even register a decrease. That means the potential of government procurements to nullify the impact of tariff reductions, which in the previous case was always converging to zero while the INPR was approaching its maximum, can now be increasing in some of the industries. The industries in which this is more likely to happen will have to be those for which tariff protection is either zero or very low,

because, in those circumstances, direct effects can be easily overpowered by the indirect effects.

The INPR in nearly 43 per cent of the industries in primary and mining sectors was observed to be decreasing instead of increasing. In manufacturing there were five industries (bread, cakes and biscuits; sawmill products; newspapers and books; glass and glass products; and aircraft) in that category. In almost all of those the phenomenon is explainable in terms of the very low direct tariff protection enjoyed by the industry and/or a close dependence on such industries. Across-the-board tariff reductions favour less protected industries by shifting resources out of highly protected industries and into them, thus reducing their cost structures and improving their international competitiveness. As a result, imports in them can decline instead of increasing. The aircraft industry can once again be singled out for comment. In this, the direct tariff effects are very low because the industry is protected through offsets instead, and, offsets protection is not included in the estimated protection measure applied in the experiment.

Even in industries in which the potential of government policy is still declining to zero, it may be declining at a different rate than that when the tariff cuts made were on an industry-by-industry basis. The differences in rates of decline will depend upon the relative height of the industry's own tariff and its relationship with other industries enjoying high or low tariffs. Generally speaking, the 'Buy Local' policy will retain potential longer under across-the-board cuts than under individual cuts for relatively highly protected industries and vice versa. Comparing the results of meat products, having a duty of 1.8 per cent, with that of signs and writing equipment, enjoying a tariff protection of 22.8 per cent, in both circumstances clarified the point. In the case of meat products the INPR did not reach its maximum

until the industry's own tariff was cut by three per cent. Its maximum was reached after only a one per cent cut in general tariff. The reverse was the case for the signs and writing equipment industry. The reason is that in a relatively highly protected industry the marginal increment in imports is greater when its only tariff is lowered by say one per cent, than when all duties are reduced by one per cent.

Overall, a comparison of the manufacturing sector in both situations showed that on the average there were six more industries in which government procurements could serve as a compensatory measure under general tariff cuts of a given magnitude, than under individual industry cuts of the same order. This also seems to indicate that there are more industries enjoying higher than average protection in Australian manufacturing. But the more interesting feature of the results for across-the-board cuts was that it underscored the industries in which the potential of government policy was increasing rather than decreasing.

For an easy comparison, the behaviour of the manufacturing sector in aggregate in this case is also traced on Graph 4. Curves marked GII and INPR once again show the same general pattern as before, although in this instance the convexity and the concavity of the two curves are less pronounced. This is because of the reversal in the potential behaviour of some of the industries. These results may be interpreted, though cautiously, to mean that government purchases now retain their potential a little longer, say for marginally higher tariff cuts than previously.

Further, it was interesting to note that most of the industries in which there was still some potential left after compensating for a 10 per cent reduction in tariff were the same for which the marginal opportunity costs

had been observed to be increasing. Of the seven industries in which government imports were still persistent after a 20 per cent cut in tariff, six (i.e. pulp paper and paperboard, newspapers and books, aircraft, scientific equipment, electronic equipment and construction equipment) had increasing marginal opportunity costs.

4. Concluding Remarks

By developing the response curve model it has been shown that in an economy characterised by high tariffs and limited industrial capacity and/or capability to meet government demand, the implicit protection of government procurements is likely to be high. This follows from a procedural requirement, prevalent in many industrialised countries' policies, for a tariff duty to be included when comparing the foreign with the local tender price in the award of government contracts. Further, the analysis shows that such a country where the local industry does not produce government import substitutes is likely to be facing a convex response curve. In such an event, the efficacy of the country's 'Buy Local' policy may be very low. Government may be tempted to use, indeed it may actually use, the procurement policy as an alternative measure to tariff protection. But, it may then face a situation where the protection costs of its procurements were increasing while the External/Internal procurement ratio was not declining at the same rate as the INPR was rising. Those conditions may prove onerous when the government has fiscal constraints on spending possibilities.

Simulation experiments with the Australian input-output data suggest that Australia is faced with a convex response curve. Further, that the convexity stems from the inability of some eight industries to produce

substitutes for government imports. The model simultaneously gave opportunity costs of producing successively increasing proportions of government import substitutes domestically. The costs of producing substitutes for government imports worth \$126.73m in Australia were estimated to be \$221.32m.

The results presented in Table 1 show that even under extreme assumptions (e.g. perfect substitutability between government imports and domestically produced goods and a complete similarity between the government and the private sector's demand patterns) in the case of about 85 per cent industries the Australian government procurements turn out to be a useless alternative measure of protection to a 10 per cent cut in tariff, and useless in another five per cent industries to a 20 per cent cut. The Marginal Rates of Protection Substitution can be read from the same table. Estimates of these rates should go some way in enhancing the policy maker's ability to devise a co-ordinated programme.

For the manufacturing sector in aggregate, indications are that government procurements may be able to buffer the effects of up to six per cent tariff cuts on an industry-by-industry basis. Similar indications arise in the event of across-the-board reductions though in that case, procurements appear to be capable of compensating for marginally greater tariff cuts.

In sum, the empirical evidence suggests that the Australian policy pursuit, whereby, successive governments have tried to increase protection through government procurements as a compensatory measure for a lowering tariff protection may have had elements of an unco-ordinated industrial protection policy.

FOOTNOTES

1. At first sight the appearance of industries such as paper and paper products, and newspapers and books alongside high technology industries may seem unrealistic, especially as Australia is known to be lacking in the latter type industries with respect to government demand. But, it is equally well known that many Australian publishers have their printing done overseas in low wage countries such as Hong Kong. Under the circumstances, appearance of both types of industries as deficient is not surprising at all. Australian Financial Review, 7 August 1981.

2. For six industries (21.03, 23.01, 26.01, 27.02, 27.06 and 28.03) the results were anomalous either due to rounding differences or recording error.

APPENDIX: DATA SOURCES AND PREPARATIONInput-Output Data and Methodology

The Australian input-output tables for 1974-75 were provided on tape by the Australian Bureau of Statistics. Three different matrices from this tape were used in the process:

[L] = input by industry and final demand category and supply by commodity group at basic values with indirect allocation of competing imports;

[M] = imports matrix supply by commodity group and inputs by industry and final demand category;

[N] = industry-by-industry flow matrix at basic values with direct allocation of competing imports.

The input-output coefficient matrix was derived from [N]. Operation on that provided total requirements placed on domestic industry to meet additional demand equivalent to 10 per cent of government imports, that is, $0.1[V]$. In the next step, 10 per cent of the government imports were distributed into the imports matrix by using the import coefficients matrix, which was derived from [M]. The vector consisting of intermediate as well as final imports was thus reduced to imports of intermediate goods only. That matrix $[G']$, which was already transposed, was then added to [N], simulating a situation that those imports had been produced locally. The row depicting total Australian production had to be altered accordingly.

All input-output coefficients were re-estimated. The new matrix represented the input-output structure that would have prevailed had 10 per cent of government imports been produced by the local industry. This was then employed to estimate requirements for final demand constituting 20 per cent of the government imports vector. Successive iterations were thus run, so that, k was always one step ahead of v . In ten runs the government imports vector $[V]$ was exhausted into the input-output structure as imports matrix $[G]$.

INPR

Industry INPRs were calculated with the Baldwin-Richardson formula under the assumption of infinite supply elasticities. (For a discussion of the formula and the aggregate and sectoral level estimates of the INPRs see Joson, 1985).

Demand Elasticities

The source of elasticity of demand by industry was Dixon, et. al., 1977. The elasticity for the tobacco products industry however was changed from 0.001 to 2.0 after a telephone conversation with B.R. Parmenter on 12 November, 1981.

Imports Responsiveness to Tariff Changes

Data on imports responsiveness to tariff changes (industry-by-industry and across-the-board) was also provided by the IMPACT Project, Melbourne University.

REFERENCES

- Baldwin, R.E., (1970), Non-tariff Distortions of International Trade,
Washington, D.C.: Brookings Institution
- Baldwin, R.E. and J.D. Richardson, (1970), "Government Purchasing Policies,
Other NTB's, and the International Monetary Crisis", Obstacles to Trade
in the Pacific Area, ed., H.E. English and K.A.J. Hay, 243-63,
Ottawa: Carleton University
- Baumbusch, G.G., et al., (1978), Defense Industrial Planning for a Surge in
Military Demand, Santa Monica: Rand Corporation, R-2360-AF
- Board of Economic Development Ministers, (1979), Background Paper on the
Use of Federal Purchasing in Support of Industrial Development, Ottawa:
Board of Economic Development Ministers (mimeograph)
- Cline, W.R., et al., (1978), Trade Negotiations in the Tokyo Round: A
Quantitative Assessment, Washington, D.C.: Brookings Institution
- Commonwealth of Australia, (1980), Preference to Australian Goods (Commonwealth
Authorities), Act 1980, No. 113 of 1980, Canberra: AGPS
- Deardorff, A.V. and R.M. Stern, (1981), "A Disaggregated Model of World
Production and Trade: An Estimate of the Impact of the Tokyo Round",
Journal of Policy Modeling, 3(2): 127-52
- Department of Administrative Services, (1980), How to do Business with the
Commonwealth Government, Canberra: AGPS
- Department of Industry, Trade and Commerce, (1978), A Report by the Second Tier
Committee on Policies to Improve Canadian Competitiveness, Ottawa:
Department of Industry, Trade and Commerce
- _____, (1978), Action for Industrial Growth: A First Response. Ottawa:
Department of Industry, Trade and Commerce

- Dixon, P.B., et al., (1977), ORANI, A General Equilibrium Model of the Australian Economy: Current Specification and Illustrations of Use for Policy Analysis, Canberra: AGPS
- Hindley, B., (1972), Britain's Position on Non-Tariff Protection, London: Trade Policy Research Centre
- _____, (1978), "The Economics of an Accord on Public Procurement Policies", The World Economy, 1, 279-88
- Joint Committee on Foreign Affairs and Defence, (1978), Industrial Support for Defence Needs and Allied Matters, Canberra: The Commonwealth Government Printer
- _____, (1979), Australian Defence Procurement, Canberra: AGPS
- Joson, S.S., (1979), "Implications of the Government Procurement Policy for Structural Change", The Economics of Structural Change and Adjustment, ed., C.J. Aislabie and C.A. Tisdell, 377-97, Newcastle N.S.W.: University of Newcastle
- _____, (1982), "Australia: Government Procurement Policies", Industrial Economics: Australian Studies, ed., L.R. Webb and R.H. Allan, Sydney: George Allen & Unwin
- _____, (1985), "The GATT Agreement on Government Procurement: Canada and Australia", (forthcoming), Australian Economic Papers
- Lloyd, P.J., (1978), "Buy Australian Made: An Inappropriate Instrument for a Legitimate Objective", A paper presented to the seminar on Buy Australian Made sponsored by the Institute of Purchasing and Supply Management at Australian National University on 23 June 1978 (mimeograph)

- Lowinger, T.C., (1976), "Discrimination in Government Procurement of Foreign Goods in the U.S. and Western Europe", Southern Economic Journal, 42, 451-60
- Miller, M.D., (1978), Measuring Industrial Adequacy for a Surge in Military Demand: An Input-Output Approach, Santa Monica: Rand Corporation, R-2281-AF
- Organisation for Economic Co-operation and Development, (1976), Government Purchasing, Paris: OECD
- Powell, A.A., (1977), The Impact Project: An Overview, Canberra: AGPS
- Scott, W. (Chairman), (1975), Report of the Committee of Inquiry into Government Procurement Policy, Canberra: AGPS
- Treasury Board, (1975), Policy and Guidelines on Contracting in the Government of Canada, Ottawa: Administrative Policy Branch

Working Papers in Economics

- * 1 I.G. Sharpe A Framework for Analysis of the Money Supply Process in Australia
- * 2 I.G. Sharpe Asset Revaluation and Stock Market Prices
F.G. Walker
- * 3 H.V. Lam Incidence and Stabilization Impact of Tin Export Taxation in West Malaysia
- * 4 V.B. Hall & Inflationary Expectations in New Zealand: A Preliminary Study
M.L. King
- * 5 A.J. Phipps Strike Activity and Inflation in Australia
- 6 H.V. Lam Incidence of the Rice Export Premium in Thailand
- * 7 I.G. Sharpe Secondary Reserve Requirements, the Monetary Base and the Money Supply in Australia
- 8 P. Saunders Labour Demand Functions and the Quasi-Fixity Hypothesis: Some Empirical Results for U.K. Manufacturing Industries, 1963-1974
- 9 W.P. Hogan Economic Strategies for Recovery
- 10 T.P. Truong Asset Revaluation and Share Prices: A Study using the M.S.A.E. Regression Technique
- *11 S. Kim Instability of Primary Exports, Income Stabilization Policies and Welfare
- *12 I.G. Sharpe & Institutional Change, Specification Error, Inflation and the Stability of the Demand for Money Function in the United States, 1901-1974
P.A. Volker
- *13 I.G. Sharpe & The Impact of Institutional Changes on the Australian Short-Run Money Demand Function
P.A. Volker
- *14 H.P. Hogan The Connections Between Foreign Trade and Economic Development: An Empirical Study
- *15 F. Gill The Case of the Black Exodus from the Southern U.S., 1910-1970: Some Lessons for Theory and Applied Theory
- *16 A.J. Phipps The Impact of Wage Indexation on Wage Inflation and Strike Activity in Australia
- *17 V.B. Hall Pricing Behaviour in Australia: A Data Evaluation Study
- *18 I.G. Sharpe Australian Money Supply Analysis: Direct Controls and the Relationship between the Monetary Base, Secondary Reserve and the Money Supply
- *19 L. Haddad Economic Systems: Towards a New Classification
- 20 G. Lewis A Strategy for Winning at Roulette
- 21 R.L. Brown A Test of the Black and Scholes Model of Option Valuation in Australia
- *22 V.B. Hall Pricing Behaviour in Australian Manufacturing Industry: Hypothesis Testing 1955-1966 to 1967-1968
- *23 I.G. Sharpe & The Selection of Monetary Policy Instruments: Evidence from Reduced Form Estimates of the Demand and Supply of Money in Australia
P.A. Volker
- *24 V.B. Hall Excess Demand and Expectations Influences on Price Changes in Australian Manufacturing Industry
- *25 I.G. Sharpe & The Tradeoff Between Improved Monetary Control and Market Interest Rate Variability in Australia: An Application of Optimal Control Techniques
P.A. Volker
- *26 Evan Jones with An Examination of Earnings Differentials in Australian Manufacturing Industry
the assistance
of Mary Macdonald
- 27 H.P. Hogan Questions on Structural Adjustment Policies
- *28 P. Saunders Price and Cost Expectations in Australian Manufacturing Firms
- *29 W.P. Hogan, Regulation, Risk and the Pricing of Australian Bank Shares 1957-1976
I.G. Sharpe &
P.A. Volker
- 30 H.P. Hogan Quicksands of Policy-Making
- 31 C. Emerson Taxing Natural Resources Projects
- 32 R.W. Bailey, A Small Model of Output, Employment, Capital Formation and Inflation, applied to the
V.B. Hall &
P.C.B. Phillips New Zealand Economy
- 33 W.P. Hogan Eurofinancing: Currencies, Loans and Bonds
- 34 S. Adee The Growth of Foreign Investment and Economic Nationalism in Post Independence Ghana 1957-1975

*35	W.P. Hogan	The 40 Per Cent Investment Allowance
*36	W.P. Hogan	Controlling Eurofinance Markets
37	R.T. Ross	Disaggregate Labour Supply Functions for Married Women: Preliminary Estimates in New Zealand
38	U.R. Kohli	Beginning and End-of-Period Specifications of Asset Market Equilibrium in Balance-of-Payments
39	G. Mills	Government Incentive Contracts with Private Companies: Some Lessons from the Channel Tunnel
40	C.G.F. Simkin	Closer Economic Relations Between Australia and New Zealand
41	U.R. Kohli	Relative Price Effects and the Demand for Imports
42	W.J. Merrilees	Alternative Models of Apprentice Recruitment: with Special Reference to the British Engineering Industry
*43	P. Saunders	Price Determination in Australian Manufacturing Firms: A Cross-Section Study
*44	W.P. Hogan	Immigration Policies and Issues
45	W.J. Merrilees	Labour Market Segmentation in Canada: A Translog Approach
46	W.J. Merrilees	Pricing Strategies in the Newspaper Industry
47	J.L. Whiteman	The Micro-Foundation of Layoffs and Labour-Hoarding
48	U.R. Kohli	On the Duality between Fixed and Flexible Exchange Rates
49	U.R. Kohli	Nonjoint Technologies
50	P. Saunders	Price Determination, Expectations Formations and some Tests of the Rationality of Australian Price Expectations
51	J.L. Whiteman	Rational Choice, Learning-by-Doing and the Personal Distribution of Income
52	J.L. Whiteman	Firm-Specific Human Capital, Experience and the Differential Incidence of Unemployment
52	J. Yates	An Analysis of Asset Holdings in Australia by Income Class
54	J. Yates	An Analysis of the Distribution Impact of Imputed Rent Taxation
55	G. Mills	Investment in Airport Capacity - A Critical Review of the MANS Study
56	Y.B. Hall & P. Saunders	Pricing Models in Australian Manufacturing - The Evidence from Survey Data
57	P. Saunders	How Rational are Australian Price Expectations?
58	F. Gill	The Costs of Adjustment and the Invisible Hand with Special Reference to the Labour Market
59	G. Mills & W. Coleman	Peak Load Pricing and the Channel Tunnel: A Re-Examination
60	J. Yates	Access to Housing Finance and the Campbell Report: the Implications of Implementing the Recommendations of Chapter 37
61	S.S. Joson	The Gatt Agreement on Government Procurements: Canada and Australia
*62	R.T. Ross	General Report of the 1980 Survey of Work Patterns of Married Women in the Sydney Metropolitan Region
63	W.J. Merrilees	Pension Benefits and the Decline in Elderly Male Labour Force Participation
*64	W.P. Hogan	Industry, Employment and Inflation
*65	A.J. Phipps	Australian Unemployment: Some Evidence from Industry Labour Demand Functions
*66	E.M.A. Gross & W.P. Hogan	Short Term Management of the Australian Exchange Rate, 1977-82
67	V.B. Hall	Industrial Sector Interfuel Substitution following the First Major Oil Shock
68	J. Yates	Access to Housing Finance and Alternative Forms of Housing Loans in the 1980's
69	V.B. Hall	Major OECD Country Industrial Sector Interfuel Substitution Estimates: 1960-79
70	F. Gill	Inequality and Arbitration of Wages in Australia; An Historical Perspective
*71	W.J. Merrilees	Do Wage Subsidies Stimulate Training? An Evaluation of the Craft Rebate Scheme
72	Michael C. Blad	Economic Policy and Catastrophe Theory

73	C.G.F. Simkin	Does Money Matter in Singapore?
74	J. Yates	Home Purchase Assistance for Low Income Earners
*75	C.G.F. Simkin	Long-Term Aspects of New Zealand's External Deficits
76	C.G.F. Simkin	Methodological Scepticism
77	V.B. Hall	Industrial Sector Fuel Price Elasticities of Demand Following the First and Second Major Oil Shocks
78	S.S. Joson	Substitutability of 'Buy Local' Policy for Tariff Protection in Small Economies

Papers marked with an asterisk are out of stock. Copies of the others are available upon request from:

Department of Economics
The University of Sydney
N.S.W. 2006

Working Papers in Economics Published or Accepted for Publication Elsewhere

- 2 I.G. Sharpe & R.G. Walker Journal of Accounting Research, Fall, 1975, 293-310
- 3 N.V. Lam Journal of the Developing Economies, vol. 17, No. 1, March, 1979
- 4 V.B. Hall & M.L. King New Zealand Economic Papers, 1976
- 5 A.J. Phipps Economic Record, September 1977, 297-319
- 6 N.V. Lam Journal of Development Studies, vol. 14, No. 1, October 1977
- 7 I.G. Sharpe Australian Journal of Management, April 1976, 85-106
- 9 W.P. Hogan Economic Papers, No. 55, The Economic Society of Australia and New Zealand, 29-57
- 12 I.G. Sharpe & P.A. Volker Economics Letters, 2, 1979, pp.45-49
- 13 I.G. Sharpe & P.A. Volker Kredit und Kapital, vol. 12, No. 1, 1979
- 14 W.P. Hogan Some Calculations in Stability and Inflation, A.R. Bergstrom et.al. (eds), John Wiley and Sons, 1978
- 15 F. Gill Australian Economic Papers, vol. 19, No. 35, December 1980
- 18 I.G. Sharpe Journal of Banking and Finance, 4, 1980, pp. 283-300
- 21 R.L. Brown Australian Journal of Management, vol. 3, No. 1, April 1978, 17-36
- 23 I.G. Sharpe & P.A. Volker The Australian Monetary System in the 1970s, M. Porter (ed.), Supplement to the Economic Record, 1978
- 24 V.B. Hall Economic Record, vol. 56, No. 152, March 1980, 69-81
- 25 I.G. Sharpe & P.A. Volker Australian Journal of Management, October 1979, pp. 119-134
- 27 W.P. Hogan Malayan Economic Review, vol. 24, no. 1, April 1979
- 28 P. Saunders Australian Economic Papers, vol. 12, No. 34, June 1980
- 29 W.P. Hogan, I.G. Sharpe & P.A. Volker Economic Letters, 6, 1980, 373-379
- 29 W.P. Hogan, I.G. Sharpe & P.A. Volker Economics Letters, 7, 1981, 69-74
- 30 W.P. Hogan Australian Economic Papers, vol. 18, No. 33, December 1979
- 38 U.R. Kohli Australian Economic Papers, vol. 21, No. 39, December 1982, 332-344
- 39 G. Mills Journal of the Operational Research Society 33 (1982), 505-514
- 41 U.R. Kohli Canadian Journal of Economics, vol. XV, No. 2, May 1982, 205-219
- 42 W. Merrilees Applied Economics, vol. 15, February 1983, pp. 1-22
- 43 P. Saunders Australian Economic Papers, vol. 19, No. 35, December 1981
- 45 W. Merrilees Canadian Journal of Economics, vol. XV, August 1982, pp. 458-473
- 46 W. Merrilees Journal of Industrial Economics, vol. XXXI, March 1983, pp. 291-311
- 49 U.R. Kohli Review of Economic Studies, vol. L(1) No. 160, January 1983, 209-219
- 50 P. Saunders Economic Record, vol. 57, December 1981, 368-378
- 55 G. Mills Seventh Australian Transport Research Forum-Papers Hobart, 1982, pp. 171-210
- 56 V.B. Hall & P. Saunders Economic Record, vol. 60, March 1984, 68-84
- 59 G. Mills & W. Coleman Journal of Transport Economics and Policy, vol. XVI, No. 3, September 1982
- 65 A.J. Phipps Australian Economic Papers, vol. 22, No. 41, December 1983
- 67 V.B. Hall Economics Letters, 12, 1983, 377-382