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BUYING AUSTRALIAN

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IAESR Working Paper No. 7/1986
ISBN 085833 070 9
ISSN 0815-1679
August 1986

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Telephone: (03) 344 5330. Telex: UMIMEL AA35185.

The printing and distribution costs of this Working Paper Series
are partially met by a generous donation to the
Institute of Applied Economic and Social Research
from the Howard Norman Trust.

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I. "BUY AUSTRALIAN AND YOUR MONEY COMES BACK TO YOU"?

Governments use various means to induce their citizens to purchase locally produced goods and services rather than imports. These include price incentives operating directly through taxes on imports and/or subsidies for domestic goods, price incentives operating indirectly through quantitive restrictions on imports, and non-price inducements such as moral persuasion. The moral persuasion typically draws on the popular presumption that purchasing locally produced goods and services rather than imports is beneficial for the domestic economy in general and for employment in particular. In their own purchasing behaviour governments also commonly give preference to locally produced goods and services over imports.

All of these policies are currently being pursued in Australia. A major component of the Advance Australia Campaign, the extension of which was announced by the incoming Labor Party federal government in April 1983, was a publicity drive with the slogan "Advance Australia: Buy Australian". This announcement was supported enthusiastically by both trade union and business groups and, in an opinion poll conducted in Melbourne and Sydney soon after the new government took office, 86 per cent of those polled

thought the "Buy Australian" campaign would have a direct beneficial effect on the economy within a year.[1] Similarly, preference for Australian goods in government procurement continues to be a policy of federal and state governments. This aspect of Australia's overall system of industry protection was emphasised in the Communique of the incoming Labor federal government's National Economic Summit Conference in April 1983.

Comparable policies were pursued by the previous Liberal-National Party federal government. Indeed, policies of this kind have been a feature of the entire post-war economic history of Australia. An earlier slogan, promoted jointly by the government and the Australian Chamber of Manufacturers from the early 1960s onwards, was: "Buy Australian and Your Money Comes Back To You!". This message was reinforced by combining the slogan with the symbol of a boomerang. Is the message correct?

Mercantilist proposals to "keep the money at home" on the grounds that the necessity to pay for imports results in the loss of the nation's money to foreigners, reflect an elementary ignorance of the adjustment processes activated by disequilibrium in the balance of trade. Retricting our country's willingness to import some commodities implies domestic adjustments generating a combination of increased imports of others, and reduced exports, such as to restore balanced trade. Similar issues arise with other forms of protection, but the economic effects of "buy local" policies, versus other forms of protection, have not yet been studied adequately.[2] In this paper we look at the effects of these policies in the context of the Australian economy. We study the general-equilibrium effects of a publicity campaign which succeeds in inducing consumers to reallocate a portion of their expenditures from imported goods to domestically produced goods and services. The protective effects of this policy are then compared with the effects of tariffs. We focus in

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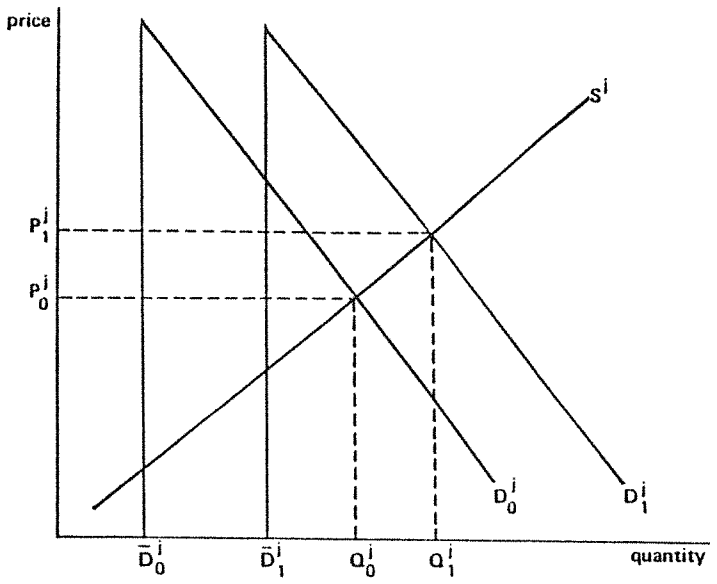

Figure 1: Partial Equilibrium Effects of a Shift in Demand

particular upon the effects of these policies on aggregate and sectoral employment within Australia. The analysis utilizes the ORANI general-equilibrium model of the Australian economy (Dixon, Parmenter, Sutton and Vincent, 1982).

Section II describes the simulation exercise we have performed. Section III presents the results of this exercise at the individual-commodity level and attempts to explain these results. In Section IV we analyse the effects of broad shifts in consumer purchases by aggregating the commodity-specific results discussed in the previous section. Finally, in Section V we compare the effects of "Buy Australian" policies as a protective device with the effects of tariffs.

II. THE SIMULATIONS

Simulations were conducted using the ORANI general-equilibrium model of the Australian economy to investigate the following two issues.

(a) What are the effects on aggregate employment of "buying Australian"?

(b) How do the employment effects of protecting domestic industries via "buying Australian" differ from the effects of tariff protection?

Our concern is with the roles of these policies in short-run macro-economic policy in a context of general unemployment, not with the long-run consequences for resource allocation. Consistent with this, the simulations assume that labour of all occupations is in excess supply at real wage rates fixed by full indexation of nominal wage rates to an index of consumer prices. A balance-of-trade constraint is imposed, with the aggregate spending of domestic households and the government forced to decrease (increase) to eliminate any movement to deficit (surplus) which

the policies would otherwise generate. The short-run focus was imposed by fixing capital availability in each industry in the model.

Because of the assumption of fixed real wage rates and excess labour supply the results have an explicit second-best interpretation. That is, we have simulated the effects of policies which protect domestic import-competing industries in the presence of an institutional impediment in the labour market which prevents wage rates from adjusting to full-employment levels.

The input-output data base for the simulations refers to 1974-75.[3] It distinguishes 115 commodity groups, 58 of which are import-competing in the sense that the import share in the domestic market is at least five per cent. Three basic computations were made with the model. These simulate:

(i) the effects of reducing domestic final demand for each imported commodity by $1m. (domestic currency); and

(ii) the effects of increasing domestic final demand for each of the domestically produced commodities by $1m. (domestic currency);

(iii) the effects of changing each commodity-specific ad valorem rate of protection by the amount necessary to generate in the protected industry the same change in employment as is generated by a $1m. exogenous switch in domestic final demand from imports to domestic output (i.e., by a combination of (i) and (ii) above, such as might be produced by a successful "Buy Australian" campaign).

Commodity-specific results for simulations (i) and (ii) are reported in section III and Table 1. Aggregations of them are presented in section IV and Table 4. Comparisons between tariff protection and protection via "Buy Australian" policies are reported in section V and Table 5.

72	Scientific equipment	-0.26	-38.90	147.59
73	Electronic equipment	-0.03	-2.64	2.25
74	Household appliances	0.13	-2.75	3.60
75	Electrical Machinery	-0.01	-1.17	4.51
76	Agricultural Machinery	0.07	-2.61	61.81
77	Construction equipment	0.17	-1.13	22.67
78	Other Machinery	-0.01	-1.79	5.81
79	Leather products	-0.18	-2.79	51.96
80	Rubber products	0.03	3.25	5.45
81	Plastic products	-0.16	-2.89	3.89
82	Signwriting equipment	0.10	1.67	52.99
83	Other Manufacturing	-0.55	-14.13	26.43
95	Water Transport	0.05	0.00	n.a.
96	Air Transport	-0.32	0.00	n.a.

Table 5. Aggregate employment effects of protection via expenditure shifts and "equivalent" tariff protection

ORANI CODE	Industry Description	Change in Employment elsewhere per job created in protected industry: Expenditure shift	Change in Employment elsewhere per job created in protected industry: Tariff	Percentage change in advalorem rate of protection required to give protection equivalent to expenditure shift
7	Other farming IC	-1.20	n.a.	n.a.
11	fishing	-0.40	n.a.	n.a.
15	Crude Oil	-21.56	n.a.	n.a.
16	Non-metalic Minerals n.e.	-0.69	n.a.	n.a.
20	Fruit & Veg. Products	-0.24	-6.62	29.01
21	Marg. oils & Fats	-0.41	-5.69	24.05
24	Confectionary	-0.36	-4.77	37.10
25	Food products n.e.c.	-1.22	113.42	-112.22
28	Alcoholic drinks n.e.c.	-1.75	-7.89	36.28
29	Tobacco	-1.06	-8.41	88.42
30	Prepared fibres	4.29	-174.63	21717.37
31	Man-made fibres. Yarn	-1.01	-4.72	2.06
32	Cotton. Silk. Flax	0.11	-4.36	2.71
33	Wool and and worsted yarns	0.14	-9.29	75.61
35	Textile floor covers	0.47	-4.21	10.95
36	Textile products n.e.c.	-0.38	-2.38	13.30
37	Knitting Mills	0.15	-2.51	1.88
38	Clothing	0.07	-1.57	1.03
39	Footwear	0.02	-0.79	1.11
40	Sawmill products	0.10	-0.30	14.78
41	Plywood. Veneers	-0.05	-1.06	20.02
42	Joinery & wood products	0.13	-1.12	23.99
43	Furniture Mattresses	-0.15	-3.93	38.72
44	Pulp paper	-0.17	-7.68	20.41
45	Fibreboard	-0.33	-5.29	60.58
46	Paper products n.e.c.	-0.66	-8.80	37.12
47	Newspapers & Books	-0.27	-2.44	46.29
49	Chemical Fertilizers	-0.23	-2.97	536.15
50	Industrial chemicals	-0.32	-4.70	3.17
51	Paints. varnishes	0.04	-0.79	44.09
52	Pharmaceuticals	-0.40	-3.57	27.70
53	Soap and detergents	-0.02	-8.95	182.56
54	Cosmetics. Toiletry	-1.30	-6.54	109.26
55	Chemical products n.e.c.	-0.37	-2.06	10.01
56	Oil and coal products	-1.15	-72.68	51.10
57	Glass	-0.37	-2.84	51.28
58	Clay products	-0.00	-1.34	53.70
62	Non-metal Mineral products	-0.02	-0.94	46.85
63	Basic iron & steel	-0.34	1.94	-4.27
64	Other basic metals	-0.68	20.83	-66.54
67	Metal products n.e.c.	-0.05	-1.41	2.21
68	Motor vehicle Parts	-0.17	-1.27	0.16
69	Ship and boat building	0.06	0.78	147.40
71	Aircraft building	-0.32	-11.12	1136.34

III. COMMODITY-SPECIFIC EXPENDITURE SHIFTS

To represent the effects of "Buy Australian" policies, ORANI was used (as explained in the previous section) to project the effects of exogenously switching final expenditure from imports to domestic supplies. The effects on aggregate employment of such switches, the switches being made on a commodity-specific basis, are reported in columns (1) - (3) of Table 1. Results are reported only for commodities for which the import share in the domestic market is at least 5 percent according to the model's data base (relating to 1974-75). Column (1) of the table shows the percentage effects on an index of aggregate employment of reducing domestic final expenditure on imports of each of the commodities listed. The magnitude of this reduction is, in each case, one million Australian dollars ($1m.), at 1974-75 basic prices. Column 2 shows the effects of $1m. increases in domestic expenditure on domestic supplies of these commodities. Column (3), the sum of columns (1) and (2), shows the effects of the expenditure switches implied by the successful "Buy Australian" policy.

The employment index to which the results refer is an index of total persons employed which assumes that average hours worked per employee remain constant. The projected percentage changes in the index are to be interpreted as projections of percentage differences between the levels of aggregate employment which would obtain about two years (i.e., the ORANI short run) after the imposition of the expenditure shocks and the levels which would obtain at that time if the shocks were not imposed.

In order to explain the effects of the expenditure switches, we will explain first the effects of the reductions in expenditure on imports and then the effects of the increases in expenditure on domestically supplied commodities. For the discussion which follows it is important to realise

that the balance-of-trade constraint described in section II applies separately to the simulations of both reductions in demand for imports (column (1) of the table) and increases in the demand for domestically supplied goods (column (2)).

III.1. Reduced Spending on Imports

In ORANI, import prices are assumed to be independent of the level of Australian demand for imports (small-country assumption). Hence, exogenous reductions in the demand for imports (column (1), Table 1) feed back onto other variables in the model only via the required adjustment to the balance of trade. In the absence of a balance-of-trade constraint, the reductions in import demand would result merely in movements towards surplus in the balance of trade. Across commodities, the movements would vary only to the extent that tariff rates vary. The larger the tariff rate on a commodity the smaller is the decrease in the foreign-exchange import bill associated with a $1m. decrease in the domestic-currency expenditure on imports.

In our simulations we required that aggregate spending (household plus government) increase to prevent movements in the balance of trade which would otherwise result from reduced spending on imports. According to our simulations, changes in domestic aggregate demand, at fixed real wages, have only a minor impact on aggregate employment. An increase in demand stimulates employment in those sectors of the economy which supply the domestic market and do not face import competition. It also generates increases in domestic prices as expanding domestic producers move up their positively sloped short-run supply curves. Since wages are assumed to be fully indexed to the domestic CPI, the price increases are transmitted into cost increases in all sectors. Sectors which are subject to foreign

Table 4. Employment Effects of Shifts in Aggregate Consumer Spending

Reduced Spending on Imports		Increased Spending on Domestic Goods		Net Employment Effects of Expenditure Shift
Allocation across commodities	Aggregate Employment Effect	Allocation across commodities	Aggregate Employment Effect	
Average expenditure shares-imports	-0.15975	Average expenditure shares-imports	0.94533	0.78560
"	"	Average expenditure shares-domestic goods	-0.17546	-0.33519
"	"	Average expenditure shares-all sources	-0.07472	-0.23445
Marginal expenditure shares-imports	-0.16114	Marginal expenditure shares-imports	0.95564	0.79450
"	"	Marginal expenditure shares-domestic goods	-0.45769	-0.61883
"	"	Marginal expenditure shares-all sources	-0.28722	-0.12608

Table 3 Decomposition of the percentage effects of increases in demand for domestic output of selected commodities

Variable	Commodity		
	30	49	78
Consumer Price Index			
(1) Percentage change when trade balance is endogenous	0.007892	0.002635	0.001065
(2) Percentage effect of change in domestic demand required to offset change in the trade balance	-0.007643	-0.003949	-0.003143
(3) Percentage change when trade balance is exogenous [(1)+(2)]	0.000249	-0.001314	-0.002078
Aggregate Employment			
(4) Projections with trade balance endogenous			
(a) contribution of change in employment in own industry	0.000736	0.001264	0.001367
(b) contribution of employment changes in other industries	-0.001426	-0.000219	0.000149
(c) percentage change in aggregate employment [(a)+(b)]	-0.000690	0.001045	0.001516
(5) Percentage effect of change in domestic demand required to offset the change in the trade balance	0.000212	0.000110	0.000087
(6) Percentage change when trade balance is exogenous [(c)+(5)]*	-0.000478	0.00155	0.001603

*These results appear in the relevant rows at column (2) of Table 1.

competition lose market share and reduce their activity levels when they attempt to pass on cost increases. If we examine occupation-specific employment projections for the simulations of exogenous reductions in import demand we find that employment rises in occupations which are relatively concentrated in non-trading sectors (e.g., white collar occupations and building tradesmen) but falls in occupations concentrated in the trading sectors (e.g., metal tradesmen, process workers and rural workers). The net effect is small and its sign is ambiguous.

The results reported in Table 1 refer to an index of aggregate employment which uses numbers employed in each occupation as weights. This indicates that an increase in aggregate demand (necessary in column (1) of the Table to eliminate the movement to surplus in the balance of trade which would otherwise occur) leads to a fall in employment; but the net effect is quite small.[4] An alternative index of aggregate employment is one using occupational wage bills as weights. As compared with the former index this assigns relatively high weights to high-wage occupations (e.g., white collar) and relatively low weights to low-wage occupations (e.g., process workers, rural workers). Non-trading sectors are relatively intensive in the use of high-wage occupations and trading sectors are relatively intensive users of low-wage occupations. Hence, in the simulations supporting column (1) of the table, the latter index assigns lower weights to the occupations which lose employment and higher weights to those which expand. This is sufficient to reverse the sign of the employment elasticity.[5]

The variance across commodities in column (1) of Table 1 is explained entirely by variance in commodity-specific tariff rates. The share of the international-price component in the domestic price of an import determines

the degree to which reduced domestic spending on the import improves the balance of trade and this determines the size of the aggregate-demand adjustment required to restore external balance. For example, according to the ORANI data base, the share of the tariff in the domestic basic price of commodity 70 (motor vehicles and parts) is 0.235. Hence, the effect on total employment of reducing expenditure on imported motor vehicles is only 76.5 percent (100(-0.000143/-0.000187)) of the effect of reducing expenditure on imports of commodities against which no tariffs are levied (e.g., commodities 13,17,18,51 and 97).

III.2. Increased Spending on Domestic Goods

III.2.1 Economic mechanisms underlying the simulation results

Column (2) of Table 1 contains the aggregate employment effects of $1m. increases in domestic final demand for domestically produced commodities. We will first explain the economic mechanisms in the model which account for the results, especially their inter-industry variation. Next, using some explanatory regressions, we demonstrate that these mechanisms do explain the results quantitatively. Finally, for three selected industries, we show in detail the application of the explanatory mechanisms.

In the absence of a balance-of-trade constraint, an increase in final demand for a domestic commodity would tend to increase activity in the sector producing the commodity and in sectors having strong forward input-output links to that sector. This stimulation would be associated with an increase in the domestic price of the commodity, which, especially in the context of full wage indexation, would have adverse consequences for sectors facing international competition, particularly exporters, and hence for the balance of trade. Within our simulations, this tendency to deficit

Table 2. Regression results for equation (7)

Coefficient	β_0	β_1	β_2
Estimate	4.8×10^{-10}	-3.0×10^{-9}	$-9.7 \times 10.^{-10}$
T-statistic	7.0	13.2	11.7

$R^2 = 0.78$

69. Metal products n.e.c.	0.001047	-0.000153	0.000894	-0.00038
70. Motor vehicles and parts	0.000825	-0.000143	0.000682	-0.00023
71. Ship and boat building	0.001667	-0.000181	0.001486	+0.00251
73. Aircraft building	0.001295	-0.000182	0.001113	-0.01647
74. Scientific equipment	0.001166	-0.000170	0.000996	-0.05042
75. Electronic equipment	0.001268	-0.000151	0.001117	-0.00188
76. Household appliances	0.001226	-0.000150	0.001076	-0.00167
77. Electronic machinery	0.001115	-0.000157	0.000958	-0.00016
78. Agricultural machinery	0.001603	-0.000167	0.001436	-0.00216
79. Construction equipment	0.001154	-0.000155	0.000999	-0.00011
80. Other machinery	0.001424	-0.000156	0.001268	-0.00101
81. Leather products	0.000972	-0.000158	0.000814	-0.00178
82. Rubber products	0.001166	-0.000152	0.001014	-0.00248
83. Plastic products	0.000974	-0.000155	0.000819	-0.00184
84. Signs, writing equipment	0.001072	-0.000152	0.000920	-0.00069
85. Other manufacturing	0.000616	-0.000156	0.000460	-0.01354
97. Water transport	0.001436	-0.000187	0.001249	n.a.
98. Air transport	0.000939	-0.000187	0.000752	n.a.

in the balance of trade is averted by a contraction in aggregate demand. The results in column (2) can thus be understood as the sum of: (a) the net employment outcome of the process described above, for the case when a balance-of-trade constraint does not apply; and (b) the employment effect of the reduction in aggregate demand required to prevent the balance of trade from moving to deficit.

(a) Employment effects with aggregate demand constant

With aggregate demand constant, the employment effects of increasing demand for domestic commodities are a combination of direct and indirect effects. What we shall call the direct effect of increased demand for good j is the stimulation of employment in industry j itself. In addition, there are then several avenues of indirect effects, of which we shall discuss three, one quantity effect and two price effects. In all of this discussion we are holding aggregate demand fixed (exogenous) and the balance of trade endogenous.

Taking the direct effect first, the following partial equilibrium diagram (Figure 1) illustrates the central mechanisms. The shock is an increase in the exogenous component of final demand for commodity j, represented in the diagram by the shift in the exogenous demand curve from $\bar{D}_o^j$ to $\bar{D}_1^j$. This shifts the total demand curve for the commodity (the horizontal summation of the exogenous component and a price-responsive component) from D_o^j to D_1^j and changes the equilibrium quantity-price combination from (Q_o^j, P_o^j) to (Q_1^j, P_1^j). A stimulation of employment in sector j (and closely related sectors) is associated with the quantity shift $(Q_1^j - Q_o^j)$, whilst the price shift $(P_1^j - P_o^j)$, generates an increase in domestic costs and declines in employment in other trading sectors.

The magnitude of the horizontal shift in the demand curve is given

in percentage form as $x^j = 10^B/Q_o^j$, where Q_o^j is the original amount demanded in base period prices of final goods (all normalized at unity within ORANI) and the number 10^B represents a one million dollar shift in exogenous demand multiplied by 100 to give a percentage. Clearly the extent of the quantity and price responses depend on the elasticities of both the supply curve (S^j) and the total demand curve (D^j). The percentage changes in price and quantity, denoted p^j and q^j are

$$p^j = x^j/(E_s^j - E_d^j) \qquad (1)$$

and

$$q^j = x^j E_s^j/(E_s^j - E_d^j) = p^j E_s^j, \qquad (2)$$

where E_s^j and E_d^j are the familiar partial equilibrium price elasticities of supply and demand, respectively.

In ORANI simulations where industry capital stocks are fixed (as in the short-run environment utilised here), the labour employed by each industry is related to its output by

$$e^j = q^j/S_e^j, \qquad (3)$$

where e^j is the percentage change in labour employed by the industry and S_e^j is the share of labour in industry j's factor costs.

The more elastic is the supply curve the greater will be the quantity increase and the smaller will be the price rise for any given demand increase. Hence the greater will be the direct employment increase. The influence of the demand elasticity is more ambiguous. The more elastic is the demand curve the smaller will be the quantity response to any given horizontal shift (assuming that the elasticity of supply is greater than zero but less than infinite) but the smaller also will be the price rise

Table 1 Projections of the Effects on Aggregate Employment (Persons) of Commodity-Specific Switches of Demand from Imports to Domestic Supplies

Commodity	Projected percentage effect on aggregate employment (persons) of			
	(1) $1m increase in demand for domestic output	(2) $1m fall in demand for imports	(3) demand switch (1) + (2)	(4) tariff increase giving own industry protection equivalent to (3)
9. Other farming (import competing)	-0.000125	-0.000168	-0.000293	n.a.
13. Fishing	0.001156	-0.000187	0.000969	n.a.
17. Crude oil	0.000151	-0.000187	-0.000036	n.a.
18. Non-metallic minerals n.e.c.	0.000635	-0.000187	0.000448	n.a.
22. Fruit & vegetable products	0.000794	-0.000165	0.000629	-0.00465
23. Margarine, oils, fats	0.000480	-0.000167	0.000313	-0.00250
26. Confectionary	0.000774	-0.000143	0.000631	-0.00371
27. Food products n.e.c.	0.000164	-0.000181	-0.000017	+0.00884
30. Alcoholic drinks n.e.c.	-0.000478	-0.000136	-0.000614	-0.00565
31. Tobacco	0.000089	-0.000135	-0.000046	-0.00588
32. Prepared fibres	0.001330	-0.000169	0.001161	-0.03811
33. Man-made fibres, yarns	0.000139	-0.000146	-0.000007	-0.00305
34. Cotton, silk, flax	0.001163	-0.000149	0.001014	-0.00308
35. Wool, worsted yarns	0.001352	-0.000156	0.001196	-0.00868
37. Textile floor cores	0.001171	-0.000162	0.001196	-0.00221
38. Textile products n.e.c.	0.000625	-0.000163	0.000462	-0.00103
39. Knitting mills	0.001089	-0.000139	0.000950	-0.00125
40. Clothing	0.001073	-0.000131	0.000942	-0.00050
41. Footwear	0.001130	-0.000126	0.001004	+0.00021
42. Sawmill products	0.001457	-0.000179	0.001278	+0.00081
43. Plywood, veneers	0.001225	-0.000155	0.001070	-0.00006
44. Joinery & wood products	0.001198	-0.000162	0.001036	-0.00011
45. Furniture, mattresses	0.001018	-0.000152	0.000866	-0.00299
46. Pulp, paper	0.000921	-0.000174	0.000747	-0.00604
47. Fibreboard	0.000741	-0.000155	0.000586	-0.00373
48. Paper products n.e.c.	0.000390	-0.000153	0.000237	-0.00549
49. Newspapers, books	0.001155	-0.000184	0.000971	-0.00192
51. Chemical fertilizers	0.000706	-0.000187	0.000519	-0.00132
52. Industrial chemicals	0.000621	-0.000164	0.000457	-0.00247
53. Paints, varnishes	0.000995	-0.000148	0.000847	+0.00017
54. Pharmaceuticals	0.000743	-0.000156	0.000587	-0.00253
55. Soap and detergents	0.000213	-0.000156	0.000057	-0.00535
56. Cosmetics, toiletry	-0.000149	-0.000147	-0.000296	-0.00545
57. Chemical products n.e.c.	0.000814	-0.000160	0.000654	-0.00111
58. Oil and coal products	0.000145	-0.000186	-0.000041	-0.02040
59. Glass	0.001022	-0.000171	0.000851	-0.00240
60. Clay products	0.001492	-0.000160	0.001332	-0.00045
64. Non-metallic mineral products	0.001046	-0.000165	0.000881	+0.00005
65. Basic iron and steel	0.000445	-0.000171	0.000274	+0.00123
66. Other basic metals	0.000217	-0.000171	0.000046	+0.00277

FOOTNOTES

1. Canberra Times, April 25, 1983.

2. A recent paper which compares the "buy local policies" of a number of countries including Australia is McAfee and McMillan (1986).

3. Appendix A.1 provides further technical details on our simulations.

4. The elasticity of this employment index with repect to real current domestic demand is -0.0698.

5. According to this employment index, the elasticity of employment with respect to real current domestic demand is 0.0015.

6. In fact 106 of the 115 commodities were included in the subset. ORANI's modelling of the agricultural sector allows joint production of commodities 1 to 6. Our expository purpose required that each industry supply curve be related to a single commodity demand curve, and so these were excluded from the sample. Commodities 105 (Ownership of dwellings), 114 (Business expenses), and 115 (Non-competing imports) are three artificial categories requiring no input of labour. Thus equations (3) and (6) could not be implemented and these commodities were also excluded from the analysis.

7. R^2 is used as a measure of goodness of fit and is calculated as $R^2 = 1 - (e'.e)/SST$, where $e'.e$ is the sum of squared residuals and SST is the sum of squared deviations of actual values from their mean.

8. Table 5 is an extension of Table 1 from Warr and Parmenter (1984).

9. Since ORANI is solved in percentage changes, tariff protection is not available in our simulations for cases in which the base-period rate of protection was zero.

(unless the elasticity of supply is infinite). In the limiting case of perfectly elastic demand (e.g. a commodity which is a perfect substitute for an import available at a fixed price) an increase in the exogenous component of domestic demand will lead to no increase in price and no quantity response. A high demand elasticity for the commodity concerned therefore implies that both the stimulation of employment in the directly affected sectors and the squeeze on employment in sectors vulnerable to cost increases will be small.

We now briefly describe three indirect effects. The first of these depends on the direct quantity effect and tends to increase aggregate employment. The second and third follow from the direct price effect and tend to reduce employment.

(i) The first is a quantity effect, the stimulation of output and employment in other domestic industries via their input-output linkages to industry j. Both this and the direct effect above are a consequence of the increase in the output of industry j. Moreover, both imply an increase in aggregate employment, the magnitude of which depends on the degree to which output rises in industry j, its labour intensity, and that of the industries supplying its inputs.

(ii) To the extent that good j enters the consumer price index, an increase in its price will induce an increase in nominal wages and hence discourage output and employment in all industries.

(iii) To the extent that commodity j is used as an input in other industries the increase in its price will choke off production and employment in these industries.

(b) Employment consequences of the balance-of-trade constraint

In combination, these direct and indirect effects described above will imply a net change in aggregate employment which could in principle be positive or negative. With domestic aggregate demand fixed, they will also imply a change in the balance of trade. To the extent that good j has a close imported substitute, additional imports will be drawn in. The inputs required to produce good j will likewise include imports as well as domestically produced goods. Finally, the two indirect price effects described above will erode the international competitiveness of both the exporting and import competing sectors, again contributing to a balance-of-payments deficit. A reduction in aggregate demand will therefore be required to eliminate this deficit and the employment implications of this, operating throughout the domestic economy, must then be superimposed upon the results described above.

The reduction in aggregate demand required to restore external balance is spread across all 115 commodities. For any individual commodity it is far outweighed by the initial shift in expenditure. Similarly, the increase in costs in industry j, resulting from the indirect mechanisms (ii) and (iii) described above, seems likely to be small in relation to the rise in the price of that commodity. The ORANI results show that among traded goods this statement is true of import substitutes, a consequence of the relatively low elasticities of substitution between domestic and imported equivalents incorporated in ORANI, but less true for exporters facing relatively elastic foreign demand.

Appendix A2: Method for Computing the Aggregate Employment Effects of the Equivalent Tariff Shocks (Column (4) of Table 1)

For each commodity j we use ORANI to compute:

l_j; the percentage effect on employment in the domestic industry producing commodity j ("industry j-2") of a \$A1m. exogenous switch from imports of commodity j to domestic sources,

u_j; the percentage effect on aggregate employment of the same switch,

$\eta(L_j, T_j)$; the percentage effect on employment in industry (j-2) of a one percent increase in the ad valorem rate of protection enjoyed by commodity j,

$\eta(U, T_j)$; the percentage effect on aggregate employment of a one percent increase in commodity j's ad valorem rate of protection.

We then calculate the percentage tariff increase (t_j^*) equivalent in its effect on employment in industry (j-2) to the exogenous demand switch:

$$t_j^* = l_j/\eta(L_j, T_j) ,$$

Finally the aggregate employment effect (u_j^*) of the tariff increase, t_j^*, is:

$$u_j^* = t_j^* \eta(U, T_j).$$

(i) no distinction was made between the treatments of returns to fixed and working capital; and

(ii) duty collected on imports was adjusted to ensure consistency with data on nominal rates of protection supplied by the Industries Assistance Commission.

The simulations were computed on the ORANI 78 computing system maintained by the IMPACT Research Centre, University of Melbourne on CSIRONET.

For these simulations the model was closed by setting exogenously all the variables listed in Dixon, et al. (1982, Table 23.3) except real aggregate household expenditure (C_R). Instead of C_R, the balance of trade (B) was exogenous.

The exogenous shocks were:

(i) Percentage increases in final demand for domestic commodities ($f^{(5)}_{(i1)}$, i=1,...,115) and decreases in final demand for imports ($f^{(5)}_{(i2)}$, i=1,...,115) equivalent to \$1m. changes in expenditure on each commodity (1974-75 domestic prices). Results for these shocks appear in columns (1) and (2) of Table 1.

(ii) Changes in nominal rates of protection designed to have the same protective effect on domestic industries as \$1m. switches of final demand from imports to domestic production. (See Appendix A2.). Results for these shocks are given in column (4) of Table 1.

III.2.2 Regression results

(a) Employment effects in the directly affected industry

To see how well the simplified partial-equilibrium reasoning presented in subsection III.2.1 can explain the ORANI simulation results, we have compared the effect on employment within the directly affected industry - as predicted by equations (2) and (3) - with the corresponding results produced by ORANI itself.

First, it was necessary to specify values for E^j_s and E^j_d. The industry supply elasticities may be calculated as:

$$E^j_s = \sigma^j_{ke} S^j_e / [S^j_v (1-S^j_e)] \qquad (4)$$

where σ^j_{ke} is the elasticity of substitution between capital and labour, S^j_e is (as before) the share of labour in factor costs and S^j_v is the share of factor costs in all input costs. ORANI does not specify E^j_d, as the response to a price rise varies amongst the 229 potential users of each commodity (i.e., 113 producers, 113 investors, households, the government and export). These responses are in turn a combination of (i) substitution towards the foreign produced equivalent, and (ii) reduction of total input requirements as input-price rises cause industry supply curves to shift upward. For the present task we used a proxy for E^j_d which captures only effect (i). For each good, the proxy η^j was calculated as:

$$\eta^j = \sum_{k=1}^{3} S^j_k \sigma_j S^j_{mk} + S^j_x / \gamma_j \qquad (5)$$

where, in the first term on the RHS, successive values of k represent industry as a whole, capital creators as a whole and the household sector, S^j_k is the share of the total domestic output of good j going to user group k, S^j_{mk} is the share of imports in the total usage of the commodity j by user group k, and σ_j is the elasticity of substitution between imported and

domestic supplies of the commodity (the same for all users). In the second term on the RHS of (5) S_x^j is the share of domestic production of good j going to exports and $1/\gamma_j$ is the export demand elasticity from the ORANI parameter file. Note that according to ORANI's modelling of substitution behaviour, the elasticity of demand by domestic user k for domestic supplies of good j, holding total usage of all commodities constant, is $-\sigma_j S_{mk}^j$.

Using (2), (4) and the proxy (5), equation (3) reduces to:

$$e^j = x^j E_s^j / [S_e^j (E_s^j - \eta^j)] \qquad (6)$$

Equation (6) was used to predict values of e^j over a large subset of the ORANI commodities.[6] The fit between predicted and actual values was good ($R^2=0.91$), indicating that our partial-equilibrium account provides a good explanation of the change in employment in the directly affected industries.[7]

(b) Employment effects in the rest of the economy

The change in employment in sectors of the economy other than that confronted with an exogenous increase in demand depends on many chains of general-equilibrium effects. As explained in subsection III.2.1, these are triggered by changes in the output level and selling price of the directly affected sector and they include the effects of satisfying the balance-of-trade constraint (see especially sub-section III.2.1(b)).

demand for domestic commodities is the same as that of the decrease in the demand for imports. In these cases, net increases in employment are generated. In other cases, which we include and in which domestic consumers replace imports partially with non-traded domestic commodities, the sign of the net employment effect can be negative. This is explained by the inclusion of spending on housing in domestic expenditures. In the short-run environment to which our simulations refer (roughly a two year time horizon), an increase in demand for housing has a negligible direct employment effect (i.e. (i) above) but adversely affects employment in the trading sectors because of its inflationary indirect consequences.

The final part of our analysis is a comparison between the employment effects of protection via a "Buy Australian" campaign and protection via tariffs. The latter form of protection is shown to be the less favourable for domestic employment. This is so because it increases import prices in the domestic economy as well as the prices of the protected domestic commodities. Hence, the negative indirect price effects of tariff protection (i.e. (iii) and (iv) above) are more severe than is the case for the "Buy Australian" policy.

Appendix A1: Technical description of the ORANI simulations

The simulations described in the text were conducted using the standard version of ORANI, the theoretical structure of which is described in Dixon, et al. (1982, ch.3). Input-output data for the simulations was based on the 1974-75 input-output tables of the Australian Bureau of Statistics (ABS, 1980). The input-output data base differed from standard ORANI data bases (see Dixon, et al. ch. 4) in two respects:

At the commodity-specific level, we identify six mechanisms in the model by which the switches in expenditure can affect domestic employment:

(i) the positive effect on employment in the domestic industry directly experiencing an increase in demand for its product;

(ii) the positive effects on employment in industries with strong forward input-output links to the directly affected industry;

(iii) negative employment effects in industries with strong backward input-output links to the directly affected industry, arising because the demand increase forces up the price of the directly affected domestic commodity.

(iv) negative employment effects outside the directly affected industry generally, especially in trading sectors, arising from the tendency of a price rise in the directly affected industry to raise the CPI and thus to raise nominal wages;

(v) the effect (shown to be of ambiguous sign) of the increase in aggregate domestic absorption required to prevent the reduction in demand for imports from generating a balance-of-trade surplus; and

(vi) the effect (also of ambiguous sign) of the reduction in domestic aggregate expenditure required to prevent the rise in demand for domestic commodities from

According to our simulations, the combination of these effects yields net employment effects which are positive for most commodity-specific expenditure switches but negative for some. Moreover, our results show that the signs of the aggregate employment effects of across-the-board switches of expenditure from imports towards domestic commodities depend on the commodity composition of the increase in demand for domestic commodities. We present results for cases in which the composition of the increase in

The regression equation which we have used to give a (partial-equilibrium) rationalisation of these effects is:

$$n_j = \beta_o(\Delta Q_j S_m^j) + \beta_1(\Delta P_j Q_o^j S_c^j) + \beta_2(\Delta P_j Q_o^j(1-S_c^j)),$$
$$j = 7,\ldots,104,106,\ldots,113, \qquad (7)$$

where n_j is the percentage change in employment outside industry j induced by a \$1m. exogenous increase in domestic final demand for industry j's output. (The choice of the subset of ORANI industries to which (7) was applied is explained in footnote 6.)

In (7), S_m^j is the share of the base-period value of the output of commodity j accounted for by the cost of intermediate inputs. Recalling that in ORANI all base-period prices are set to unity, the bracketed part of the first term on the RHS of (7) is the value at base-period prices of the change in demand for intermediate inputs generated by the quantity response in industry j to a \$1m. exogenous increase in final demand for its output. Hence, β_o is to be interpreted as the percentage change in employment generated by a dollar's worth (base-period prices) of additional demand for an "average" bundle of intermediate inputs. A first guess at the value of β_o may be made by observing that the mean effect (over all commodities) on employment of \$1m. additional exogenous final demand was 0.00074. Assuming that commodities are equally represented in an "average" bundle of intermediate inputs, our preliminary guess at the value of β_o is therefore $7.4(10^{-10})$.

The share of the output of industry j which goes directly to final consumption is denoted S_c^j in (7). Hence, the bracketed part of the second term on the RHS is the impact effect on the CPI of the price response in industry j to a \$1m. exogenous increase in final demand. Hence, β_1 shows the percentage effect on aggregate employment of a one-dollar increase in

the total cost of the component of household consumption contributed by industry j. This cost increase affects employment primarily because of the role of the CPI in wage indexation. Therefore, we expect β_1 to be negative.

The bracketed part of the final term on the RHS of (7) shows the rise in the cost to non-household users of their base-period purchases of the output of industry j, the cost increase being generated by a $1m. exogenous increase in final demand for the industry's output which drives up the output price. We interpret this term, and the associated coefficient β_2, as capturing mainly the effect on employment of increases in the costs of intermediate inputs. Again, β_2 should be negative.

In (7), the terms ΔQ_j and ΔP_j can be estimated using equations (1) and (2). Thus our regression of (7) attempts to explain the n_j solely by reference to features of the database. The results are given in Table 2. The good fit, the negative estimates of β_1 and β_2, the high t-values, and the approximate similarity of β_o to our previous guesstimate, confirm the general validity of the simplified explanation above. The smallness of the coefficients stems from the definitions of the β's as the percentage change in aggregate employment due to mere one dollar changes. The estimated value of β_1 is roughly three times that of β_2, confirming that wage costs are a more important avenue of indirect effects than direct cost effects.

III.2.3 Commodity-specific illustrations

Finally, it is helpful to illustrate the economic mechanisms we have described by detailed discussion of the results for a few specific commodities. Table 3 illustrates the operation of these mechanisms for three commodities: Alcoholic beverages n.e.c (30), Newspapers and books (49) and Agricultural machinery (78). From Table 1 it can be seen that

Five industries (viz, 30,56,71,72 and 83) stand out in column (2) of Table 5 as having high negative ratios of employment change outside the protected sector per job created within. Industry 30 (Prepared fibres) is a special case. Once again it is an industry for which exports are endogenous but, because it faces a relatively low export-demand elasticity the mechanisms described in the cases of industries 25,63 and 64 do not apply. From column (3) of the table, it can be seen that a very large percentage tariff increase is necessary to give the required degree of protection. The effect of the consequent rise in import prices on the CPI and on wages is sufficient to generate relatively large employment falls in trading industries other than prepared fibres. Industries 56,71,72 and 83 are all examples of industries selling in markets characterised by large import shares but with low substitution elasticities between imports and domestic output. Hence, quite large tariff increases are required and these have large effects on the CPI and on wages. Again the wage effects reduce employment sharply in other trading industries.

VI SUMMARY AND CONCLUSIONS

In this paper we use a detailed general-equilibrium model of the Australian economy to simulate the operation of a "Buy Australian" advertising campaign which persuades domestic residents to reduce their expenditure on imports and to increase their spending on domestic commodities. The results cast doubt on the common presumption that such a policy will necessarily increase domestic aggregate employment.

industry. Because the export demand elasticities incorporated in ORANI are high, the expansionary effect of the supply shift dominates the contraction in domestic demand for the three industries under discussion. In the limiting case of infinite export demand elasticity it is clear that this will be the result whatever is the elasticity of subsititution between imports and domestic supplies. Positive ratios for these industries occur in column (2) of the table because the reduction in the CPI associated with the tariff cuts stimulates employment in other sectors. The only other industry for which the ratio in column (2) of the table is positive is industry 69 (Ship and boat building). This industry produces primarily investment goods, hence increasing tariffs on its competing imports has only a small effect on the CPI. Stimulation of employment in sectors with input-output links to the ship and boat building industry dominates the adverse consequences of the small price effects, yielding a positive net indirect employment change.

For four other industries (39,40,51 and 62) the net employment effects of tariff protection are positive, although there is some destruction of jobs outside the protected industries - i.e., the ratios in column (2) are negative but less than one. In each case the required tariff increase has only a small effect on the CPI. In the case of industry 39 (Footwear) this occurs because only a small tariff increase is required (see column (3) of Table 5), the elasticity of substitution between imported and domestic footwear being very large. Large increases are required for industries 40,51 and 62 (see column (3)) but these are industries producing mainly investment goods - in each case the tariff increase has a larger impact on the investment price index than on the CPI. Because the CPI effects of tariff increases are small for these four industries, the adverse employment effects outside the protected sectors are also relatively small.

increasing domestic demand for domestic output of the first of these (Alcoholic beverages n.e.c) produces a negative effect on aggregate employment. In fact, this result is the largest of the negative elements in column (2) of Table 1. Agricultural machinery is a commodity at the other extreme i.e., an increase in demand for domestically produced agricultural machinery increases aggregate employment, the increase being the second largest in column (2) of Table 1. Newspapers and books occupies an intermediate position. An increase in aggregate employment is generated by an increase in demand for domestic supplies of this commodity, the size of the employment increase being roughly typical of the increases recorded in column (2) of Table 1.

Production of commodity 30 is relatively capital intensive. (The share of capital in value added in the relevant industry is 0.42 in our data). Hence, its supply elasticity is relatively low (c.f. equation (4)) and the demand increase generates a relatively small expansion in own industry employment in the short run (see equations (2) and (3) and row (4)(a) in Table 3). On the other hand, there is a strong tendency for the domestic price of the commodity to rise. Import competition implies a relatively high demand elasticity (c.f.(5)) which mitigates the price rise (c.f(1)). However, since Alcoholic beverages have a large weight in the CPI, the induced rise in the index is relatively large (row (1)). Primarily because of the wage effects of the rise in the CPI, the contraction in employment generated in the rest of the economy is relatively large (row (4)(b)). Finally, we note that the deterioration in the trade balance caused by the demand increase for commodity 30 is relatively severe because of the inflationary effects and the fact that imports compete strongly with domestic supplies of the commodity. The trade-balance effect is shown in Table 3 by the relatively large

depreciation of the real exchange rate required to remove it (row (2)). As noted above, this real depreciation is achieved in our simulations by a reduction in real aggregate demand, resulting in a small positive effect on our index of aggregate employment (row (5)).

Commodities 49 and 78 are both more labour intensive than is commodity 30. (The shares of capital in value added are 0.16 and 0.02, respectively, in our data.) Hence, own-industry expansions in employment are larger (row (4) (a)). CPI effects are smaller (row (1)) especially, in the case of commodity 78 which faces significant import competition and has a very low direct weight in the CPI. For commodity 49 small reductions in employment elsewhere are generated (row (4)(b)) but for commodity 78 there is a net expansion. That is, the positive indirect quantity effects more than outweigh the adverse price effects. As row (2) suggests, relatively small deteriorations in the trade balance are generated by increases in demand for commodities 49 and 78, the deterioration in the case of commodity 78 being larger than would be expected on the basis of the CPI effects (row (1)) because of the strong import competition faced by this commodity.

IV. EFFECTS OF AGGREGATE EXPENDITURE SHIFTS

The "Buy Australian" policy is intended to induce consumers to shift their expenditures from imported to domestically produced goods. In this section we study the possible effects of such shifts in expenditure by aggregating the commodity-specific results discussed in the previous section. From the earlier results, it is apparent that the employment effects of reduced spending on imports are much less variable across commodities than the effects of increased spending on domestic goods. It follows that the way increased spending on domestic goods is distributed

1). Also included (column (3)) are the required percentage changes in commodity-specific ad valorem rates of protection .

In columns (1) and (2) of Table 5, negative ratios indicate that protecting jobs in the target industries destroys jobs elsewhere. Negative ratios greater than one indicate that more jobs are destroyed outside the protected industry than are created within it (i.e., they correspond to negative values for the aggregate employment results in columns (3) and (4) of Table 1). Shifts in expenditure usually result in net gains in employment. For this not to be the case, the adverse effects of reducing demand for imports and the adverse indirect price effects of increasing demand for domestic commodities must be large enough to outweigh the positive direct and indirect quantity effects of domestic purchases. Alcoholic drinks n.e.c. (industry 28) is an example which we have discussed above.

In the case of tariff protection net losses in aggregate employment predominate. For all except four of the cases in which tariff protection is available,[9] the destruction of jobs outside the protected sector per job created within it is greater with tariff protection than with an "equivalent" shift in expenditure. Three of the four exceptions (viz., industries 25,63 and 64) are sectors for which exports are endogenous in the simulations. Note from column 3 of the table that in these cases cuts in rates of protection are required to increase employment within the target sector. The tariff cut reduces import prices but the effect of this on demand for domestic supplies is small owing to low elasticities of substitution between imports and domestic output of the relevant commodities. Via its effect on the CPI and on wages, the reduction in import prices also shifts downwards the supply curve of the target

on commodities from both imported and domestic sources are used to allocate increased spending on domestic goods (the third and sixth rows of the table), the above effects are still sufficient to cause the net employment effect of an expenditure shift to be negative.

V. "BUY AUSTRALIAN" VERSUS TARIFFS

In an earlier paper (Warr and Parmenter, 1984) we argued that protection through government procurement (or other expenditure-shifting policies, such as a "Buy Australian" campaign) would have more favourable consequences for aggregate employment than tariff protection. The basic reason is that tariff protection raises import prices as well as the prices of the protected domestic commodities. Hence, in the context of full wage indexation the adverse cost effects in the rest of the economy (especially in the export sectors) are more severe in the case of tariff protection. In the earlier paper some examples were given of the comparative employment effects of the two types of protection on a commodity-specific basis. Column (4) of Table 1 completes the comparison for the whole of the import-competing sector. As can be seen, whereas for most commodities protection via "buying Australian" (column (3)) generates a net increase in aggregate employment, the aggregate employment effect in the case of tariff protection is usually negative.

Table 5 provides an explanation for these differences.[8] It gives ratios of the change in employment outside the protected sector to the change in employment within the sector. These ratios are given for both the $1m. commodity-specific switches in expenditure (column (1), equivalent to column (3) of Table 1) and for commodity-specific tariff changes which have the same employment-generating effects within the protected sectors as do the expenditure switches (column (2), equivalent to column (4) of Table

across commodities is far more important than the commodity distribution of reduced spending on imports. We shall thus focus on the former.

The effects of broad shifts in consumer spending are analysed by aggregating the results obtained earlier at a commodity level using weighting systems which reflect: (i) the shares of commodities in total consumer spending on imported and domestically produced goods (i.e., average budget shares); and (ii) marginal propensities to spend on imported and domestically produced goods (i.e., marginal budget shares). The results are reported in Table 4 and relate to expenditure shifts of 100 million dollars allocated in the proportions indicated.

By using average budget shares we are supposing that a "Buy Australian" campaign induces a change of tastes which shifts expenditures across commodities in uniform proportional amounts. This is illustrated in the first three rows of Table 4. By using marginal budget shares we imagine that the shift in tastes is the decision to reallocate a given amount of expenditure away from imports (in proportion to the marginal budget shares of imported comodities) and towards domestic goods. Each row of the table is to be thought of as showing the simulated effects of a given expenditure shift from imports to domestic goods. First we show the simulated effects of reduced spending on imports (with balanced trade, etc., as described in section II above), then the effect of increased domestic spending, and finally the net effect of the two combined.

The table brings out the striking degree to which the net employment effects of a shift of consumer spending depend on the way the increased expenditure on domestic goods is allocated across commodities. When increased spending on domestically produced goods and services is allocated among commodities according to shares (average or marginal) of consumer

spending on imports the net employment effect is positive; but when the allocation is based on shares of consumer spending on domestic goods, this sign is reversed. We shall turn to the explanation for this outcome, but first it is useful to review the economic issues that the allocation of expenditure across commodities subsumes.

Suppose the effect of a successful "Buy Australian" advertising campaign was that each time consumers shifted a dollar of expenditure away from a particular imported commodity they then purchased exactly a dollar's worth of that commodity's domestically produced substitute. To simulate this, we should presumably allocate both reduced spending on imports and increased spending on domestic goods according to the household-budget shares (average or marginal) of imports. This is the case in the first and fourth rows of the Table.

However, the shift in consumer expenditure need not take this form. There is nothing to prevent some of the increased spending on domestic commodities from including goods and services which have no imported substitutes at all. The consumer's initial allocation of expenditure among imports and domestic goods is assumed to be such that a dollar spent on each yields equal marginal utility value. Hence, at the margin, consumers are indifferent between all possible combinations of small expenditure reallocations.

If the effect of a "Buy Australian" campaign was to create a dichotomy in the consumer's mind between imports as a whole and domestically produced goods, it could induce him/her to reduce spending on all imports proportionately and to increase spending on all domestically produced goods proportionately. To simulate this, we should allocate the reduced spending on imports according to their shares of total spending on imports, and then allocate the increased spending on domestic goods according to the shares

of total spending on domestic goods. This simulation is represented by the second row of the table. If marginal expenditure shares are substituted for average shares in this discussion we have the fifth row.

The results in Table 4 can be understood by recalling that, for the reasons given in the previous section, the effect on aggregate employment of an increase in demand for domestic commodities can be positive or negative. In fact, as Table 1 shows, there are several domestic import-competing commodities for which increased demand has a negative net employment effect. This phenomenon is also important for some non-traded commodities. "Ownership of dwellings" is an especially important example. This commodity represents the consumption of the domestic housing stock. In the short-run simulations, the size of the stock is assumed fixed (i.e., its elasticity of supply is zero) and an increase in demand for it just bids up house rentals (actual and imputed). Housing costs have a heavy weight in the CPI. Rises in rentals, therefore, have significant adverse effects on employment via their consequences for money wages. The average budget share of this input-output category among domestically produced goods is 0.154 and its marginal budget share is 0.285. The significance of this commodity for our results can be seen if we conduct the conceptual experiment of assigning it a zero marginal budget share and then inflating all other marginal shares such that their sum is again unity. The net employment effect of an expenditure shift then changes sign: from -0.335 as indicated in the second row and final column of the table to 0.702.

Domestically produced commodities having this characteristic of highly inelastic supply (see the previous section) receive a high weighting when budget shares of domestically produced goods are used, but not when the weights are based upon spending on imports. When weights based on spending