

**A GUIDE TO ECONTECH'S INDUSTRY MODEL —
MURPHY MODEL 600 PLUS (MM600+)**

26 May 2002

Copyright (C) 2000, 2002 Chris Murphy

Econtech
P.O. Box 4129
KINGSTON ACT 2604
Phone: (02) 6295-0527
Fax: (02) 6295-8513
E-mail: office@econtech.com.au
Web-site: www.econtech.com.au

CONTENTS

1. Type of Model	1
2. Implementation of Model	3
3. Product Detail	4
4. Tax Detail	5
5. Economic Choices and Elasticities	6
6. Long-term Closure	10
7. Short-term Closure	11
8. Applications	12
Table Appendix: Industries, Products and Trade Elasticities in MM600+	15

1. Type of Model

This report provides a brief guide to Murphy Model 600 Plus (MM600+), which is Econtech's industry model. MM600+ can be compared with MM2, Econtech's economic forecasting model.

Econtech first forecasting model was MM, developed in 1987/88, followed by two versions of MM2, the first in 1994 and the second in 1996. These models are based on quarterly data. Comprehensive dynamic structures are used in generating quarter-by-quarter forecasts of the economy extending nine years into the future. Econtech distributes MM2 in MM Simulator for Windows software, which is widely used by businesses and governments to produce their own forecasts and scenarios for the Australian economy.

Econtech's first industry model, MM303, was developed in 1997/98. It was then upgraded to MM600+ in 1999/00 under a contract to the Australian Competition and Consumer Commission. These models are based on a very detailed picture of the industrial structure of the economy that can only be found in the input-output tables published by the ABS. MM600+ uses the unpublished version of these tables to distinguish the production of 672 products by 108 industries. MM600+ is currently implemented in Excel and is used by Econtech in project consulting engagements for businesses and governments.

In developing two different types of economic models for forecasting and industry work, Econtech has followed a "horses for courses" approach. The forecasting model, MM2, provides quarter-by-quarter results but only distinguishes 18 industries. The industry model, MM600+, distinguishes 672 products, but only provides short-term and long-term results. It is not practicable to integrate both models into a single "super" model that provides quarter-by-quarter results for 672 products because quarterly ABS data are not available at that fine level of product detail.

MM600+ can be compared with other industry models such as the PRISMOD model of the Department of the Treasury and the Monash Model of the Centre of Policy Studies at Monash University in three key areas:

- detail;
- coverage; and
- time dimension.

MM600+ has a high level of detail in terms of both products and indirect taxes.

In MM600+, 108 industries produce 672 products. The other two models distinguish about 110 products.

MM600+ distinguishes 24 types of existing indirect taxes plus a GST of any design. This is similar to PRISMOD, while Monash has less tax detail with three types of existing indirect taxes and no GST.

Turning to economic coverage, MM600+, like Monash, is a computable general equilibrium (CGE) model, giving it wide coverage of the Australian economy. While PRISMOD covers only industry costs and prices, MM600+ and Monash also cover industry production and employment.

The third and final area of model comparison is the time dimension. As explained in sections 6 and 7, MM600+ provides estimates of both short-term and long-term effects. By comparison, PRISMOD provides estimates of long-term effects only. While Monash does not provide estimates of long-term effects, it does provide estimates of year-by-year effects.

Table 1.1
Model Comparison

Model	MM600+	PRISMOD	Monash
Products	672	107	about 110
Indirect taxes	25	similar	3
Coverage	prices, production	prices	prices, production
Time dimension	short & long term	long-term	annual

CGE modelling is well-established in Australia due mainly to the pioneering work of Peter Dixon in developing the ORANI model and then the Monash Model.

While some Australian CGE models are adaptations of Dixon's ORANI model, MM303/MM600+ was developed from scratch. At the same time, there are similarities between the models.

This is partly because ORANI and MM600+ are both in the CGE family, and therefore model computable, market-clearing outcomes under optimising behaviour. Similarly they both inevitably rely on input-output tables published by the ABS.

It is also because Dixon's work, as reported in Dixon, Parmenter, Sutton and Vincent (1982)¹ and Dixon, Parmenter, Powell and Wilcoxon (1992)², was an important source of ideas for MM600+ such as:

- import demand for each commodity is modelled in three categories: intermediate goods, consumption goods, and investment goods; and
- there is a detailed treatment of distribution margins.

The ORANI model also has some ideas not found in MM600+, including some refinements specific to agriculture. Equally, MM600+ has some ideas not found in ORANI/Monash, including an extended range of economic choices or behavioural responses, as discussed in section 5.

Beyond these similarities and differences in ideas, the main differences between the two models are in the areas of detail and time dimension, as already summarised in Table 1.1.

¹ Dixon, P.B., Parmenter, B.R., Sutton, J. and Vincent, D.P. (1982), *ORANI: A Multisectoral Model of the Australian Economy*, North-Holland, Amsterdam.

² Dixon, P.B., Parmenter, B.R., Powell, A.A. and Wilcoxon, P.J. (1992), *Notes and Problems in Applied General Equilibrium Economics*, North-Holland, Amsterdam.

2. Implementation of Model

Implementing MM600+ involved constructing a database, choosing a software environment, setting up a baseline simulation, and then putting the model into action performing simulations of actual or proposed economic shocks.

The main data source for MM600+ is the 1993/94 input-output database maintained by the ABS. The ABS is scheduled to release the 1996/97 input-output database in November 2000 after which MM600+ will be updated.

Econtech obtained a special series of the input-output tables from the ABS. In these unpublished tables, 107 industries produce about 1,000 products, compared with the published tables which only distinguish 107 products i.e. one product per industry. The unpublished tables also include a series of special tables containing extra detail on indirect taxes.

In constructing the database for MM600+, the ABS input-output data were manipulated to give an exactly-balanced, economically meaningful database. This included the following adjustments:

- aggregating from about 1,000 products to 672 products;
- treating "Sales by Final Buyers" as sales of used cars;
- constructing a travel composite commodity, used in modelling export demand for inbound travel in Australia;
- identifying household and business import demand for Australian travel overseas.
- balancing industry usage with product supply;
- imputing labour income to employers and self-employed; and
- allocating inventory investment.

Turning to the topic of software environment, MM600+ is implemented in Excel. The database is constructed in a series of workbooks linked backed to raw ABS data, which is also in the form of Excel workbooks. This implementation gives easy access to all model inputs, outputs and equations. Thus all inputs and equations can be altered and all outputs can be viewed.

MM600+ is specified in levels as a non-linear system, not in changes as a linear system, so model solutions are always exact. It is solved iteratively in Excel using Excel's standard iterative method for resolving "circular references". A model simulation in Excel under a very tight convergence criterion³ takes about 30 minutes and involves about 500 iterations of the model.

³ For example, for convergence, annual GDP, which is about \$500,000,000,000, can change by no more than \$1,000 from the previous iteration, implying a precision of 1 in 500,000,000.

To construct a baseline solution, key aggregate model inputs were updated to 1996/97 values and the model was solved. This had the effect of factoring up the overall level of economic activity and prices from 1993/94 levels to 1996/97 levels. In addition, tax rates were adjusted to specifically calibrate collections for each major category of tax to the actual levels recorded in “1996/97 Taxation Revenue Australia - ABS Cat No 5506.0”.

Simulations of economic shocks involve varying the values of one or more model inputs relative to their baseline values. With open access to all model inputs, a wide variety of shocks can be conducted. These can involve virtually any shift in technology, tastes, foreign demand or taxation.

To enable more sophisticated analysis of the welfare effects of taxation and other reforms, the model provides for positive/negative externalities in consumption for each product, the values for which can be set by the model user.

3. Product Detail

As noted in the previous section, in the input-output tables published by the ABS, 107 industries produce 107 products. These industries/products, which are the basis for other economic models, are listed in the left-hand column of the Table Appendix (attached).

In building MM600+, Econtech decided to incorporate a higher level of product detail than found in the published input-output tables. This is available in unpublished input-output tables that we obtained in electronic form from the ABS. The ABS derives the published tables by aggregating from these more detailed unpublished tables.

While the unpublished tables include about 1,000 detailed products, some aggregation was necessary because some data for detailed products are censored by the ABS to protect the confidentiality of individual companies. However, aggregation was kept to a minimum. This gave the 672 products that appear in MM600+ and are listed in the second column of the Table Appendix (attached). This is the maximum achievable level of product detail.

The high level of product detail in MM600+ has many advantages. In commissioning MM600+ as a further development of Econtech’s earlier CGE model, MM303, the ACCC requested the high level of product detail so that model estimates could serve as a more useful point of comparison in the ACCC's price monitoring work.

The high level of product detail also means that many policy changes can be analysed without the need for further disaggregation. For example, petrol and diesel are distinguished from other petroleum products, making it easier to accurately model the changes in fuel taxation under the New Tax System, as these tax changes are different for petrol, diesel and other fuels.

It also means that the gains from some micro-economic reforms can be more fully captured. For example, a finer level of disaggregation better reveals the diversity in rates of customs duty, leading to more reliable estimates of the gains from tariff reforms that produce benefits by reducing this diversity.

4. Tax Detail

The treatment of taxation is particularly detailed in MM600+. The model distinguishes 24 different indirect taxes on industry production and products, as listed below. These can each be varied either universally, or as they apply to each industry or product or end purchaser. In addition, MM600+ provides for a GST, under which each product/industry can be classified as taxable, input-taxed or GST-free.

<u>Production Taxes</u>	<u>Product Taxes</u>
Land Tax	GST
LGA Rates	Sales tax
Liquor & Gambling Taxes	Stamp Duty
Payroll Tax	Gambling Taxes; Former State Licence Fees
Taxes on Insurance	Primary Production Taxes
Motor Vehicle Taxes	Regulatory Service Fees
Stamp Duties	Excise Taxes
Taxes on use of goods etc	Motor Vehicle Taxes
Fringe Benefits Taxes	Financial Institution Duties
Departure Tax	Customs Duty on Exports
Other Indirect Taxes nec	Other Commodity Taxes
Total Subsidies	Commodity subsidies
	Customs Duty on Imports

This high level of indirect tax detail is only possible because MM600+ uses the unpublished input-output tables. While these unpublished tables distinguish 24 categories of indirect taxes, the published tables distinguish only three categories.

In modelling the changeover to the New Tax System, it was important to accurately represent the application to industries and products of sales tax, GST and fuel taxes.

The ABS 1993/94 input-output tables have significant shortcomings in their application of sales tax to products. For example, they do not allow for the “aids to manufacture” exemption on sales tax on inputs into the agriculture, mining, manufacturing and utilities industries. They also overstate sales tax collections on motor vehicles, which in 1993/94 was temporarily reduced to a rate of 15 per cent.

Also, obviously the input-output tables do not incorporate the just-introduced GST.

To address these sales tax and GST areas, Econtech commissioned a review by KPMG of the wholesale sales tax and GST treatments of each of the 672 products appearing in the model. We also built in the “aids to manufacture” exemption from sales tax. These tax assumptions were in turn reviewed by the ACCC in conjunction with the ATO.

The remaining significant complication in accurately modeling the changeover to the New Tax System is the complex nature of the changes to fuel taxation. MM600+ takes into account that changes in diesel fuel tax are different in each on the following areas:

- qualifying road use;
- non-qualifying road use;
- rail and marine transport;
- agriculture and fishing use;

- mining use; and
- other non-transport use.

MM600+ also takes into account that *ANTS* does not include any cuts to taxation of fuel used in air transport, including both aviation turbine fuel and aviation gasoline.

5. Economic Choices and Elasticities

MM600+ models how changes in relative prices affect economic choices, leading to changes in the industry pattern of production and employment. The main price-sensitive choices in the model involve:

- business choice between labour and capital;
- business choice between different types of capital;
- business choice between different forms of energy;
- business choice between road and rail freight transport;
- business choice of its size;
- choice between import and local sources of supply;
- business choice between local and export destinations for sales;
- consumer choice between broad commodity groups;
- consumer choice within broad commodity groups; and
- demand for Australian exports.

In modelling economic choices, values need to be assigned to the elasticities that govern the sensitivity of each choice to changes in relative prices. The following explains each of the economic choices listed above in more detail and also gives the associated values for the elasticities. The only elasticities not presented below are trade elasticities as these are provided separately in the Table Appendix.

Substitution between labour and capital

The elasticity of substitution between labour and capital in production in each of the 108 industries is set to 0.75 in MM600+, consistent with Econtech's econometric research for MM2.

Substitution between different types of capital inputs

MM600+ provides for substitution between different types of business capital e.g. motor vehicles, computers, buildings etc. Business holdings of motor vehicles and computers are price sensitive, making it important to allow for substitution between different forms of business capital.

In MM600+ the elasticity of substitution between different forms of business capital is set at 0.5. In modelling this substitution, the user cost of each form of capital is calculated by applying a required rate of return plus a depreciation rate to the price of new investment, where both the depreciation rate and the price of new investment vary from one form of capital to the next.

Substitution between different forms of energy

MM600+ allows for substitution by business between different forms of primary energy, including black coal, brown coal, LPG and natural gas. Allowing for these substitution possibilities is vital when assessing the economic effects of energy development projects, or in examining greenhouse gas emission issues.

For most industries, the elasticity of substitution between forms of primary energy is set to 4.5. The exception is the electricity industry, where the elasticity has been set to 6, to reflect the high sensitivity of the choice of type of electricity generation to the relative cost of different forms of energy.

Substitution between road and rail freight transport

MM600+ allows for substitution by industry between road and rail freight transport. It does this by drawing on earlier work by the Industry Commission, incorporated in the ORANI-HILMER model, on the elasticity of substitution between road and rail freight transport. For most products this elasticity is set to 2, but lower values are used for some products. Substitution between freight transport modes is modelled both for transport from business to business (or importer to business) and from business to export wharves.

Business choice of its size

In MM600+, the representative business in each industry selects its size to minimise unit costs. The small business exemption from payroll tax distorts this choice so that in each industry the selected size is less than the technically efficient size.

In modelling the technically efficient size, it is assumed that for the representative business in each industry the need for primary factors (i.e. capital and labour), F , depends on its level of output, Q , according to the following equation.

$$F = Q + a.(QC-Q) + a.Q.\ln(Q/QC)$$

For technical efficiency, $Q=QC$. The sensitivity of efficiency to variations in Q away from QC is given by the parameter a . Fuss and Gupta⁴, analysed 91 Canadian manufacturing industries and found that there was an average loss of efficiency of about 4 per cent from operating at one-half of the technically efficient scale. Using that result, in MM600+ the parameter a has been set to equal 0.13 in each industry.

In most states, payroll tax is calculated by applying the payroll tax rate to the business wage bill net of a tax-free threshold. This threshold provides a larger reduction in unit cost for smaller businesses than for larger businesses, distorting the choice of business size.

The technically efficient business size, QC , was then set separately for each industry so that the model correctly predicts industry payroll tax collections. This involves using the corollary of the fact that industries dominated by small businesses do not pay much payroll tax because of the tax-free threshold.

⁴ Fuss and Gupta (1981), "A Cost Function Approach to the Estimation of Minimum Efficient Scale, Returns to Scale, and Suboptimal Capacity: With an Application to Canadian Manufacturing", *European Economic Review*, 15(2), pp. 123-35.

The model has been used to examine the distorting effect of the small business exemption from payroll tax on business size in an Econtech report of 23 June 1998 for the Australian Chamber of Commerce & Industry on “Payroll Tax: Is it as Good as a VAT or as bad as sales tax?”.

Substitution between imports and local supply

As in the Monash Model, allowance is made for substitution between imported and local sources of supply for each importable commodity for each of three categories of end use. The categories of end use are: recurrent inputs; business investment; and other components of final demand. The values of the Armington elasticities governing this substitution were originally based on those used in the Monash Model in 1997, but some have been modified in the light of experience with MM600+. All trade elasticities used in MM600+ are reported in the Table Appendix.

Substitution of local producers between supplying the export and home markets

In modelling export supply, MM600+ distinguishes between the production of a commodity for the home market and production for the export market. For each commodity, an elasticity of transformation links production for the two markets.

To the extent that a commodity’s transformation elasticity is set to less than infinity (the value implicit in the ORANI model), an allowance is made for some friction in switching supply between the two markets. This friction may arise because some exported commodities are tailor made for export, or are more narrowly defined than the corresponding home commodity e.g. Australian consumers may eat all types of apples while we may only export Fuji apples to Japan — this affects the ability to switch supply between the two markets.

Based on model simulation experiments, the exports elasticity of transformation has been set to 0.5 for water transport and black coal, 1.5 for other minerals, and 2.5 for all other exports. These and all other trade elasticities in MM600+ are reported in the Table Appendix.

Substitution between broad consumption groups

Substitution between broad consumption groups is modelled in a linear expenditure system of consumer demand. The parameters of this system were estimated by Econtech using quarterly national accounts data extending from 1974-75 to 1996-97 and are set out in Table 1. Implied price and income elasticities are also presented in Table 1.

As expected, consumer demand for the following groups is income inelastic: food; cigarettes & tobacco; gas, electricity & fuel; fares; and operation of motor vehicles. Equally, consumer demand for the following groups is income elastic: financial services; other services; and personal travel imports (i.e. overseas holidays);

Table 1
Consumption Group Parameters and Elasticities
Estimation Period: 1974.3-1997.2

		β	γ	Budget share	Income elast.	Price elas.	v
A	Food	0.078	1320	14.5%	0.54	-0.34	-1.0
B	Cigarettes and tobacco	0.011	164	1.9%	0.57	-0.39	-0.5
C	Alcoholic drinks	0.040	187	4.1%	0.97	-0.65	-1.0
D	Clothing, fabrics and footwear	0.041	342	5.2%	0.78	-0.52	-0.5
E	Household appliances	0.031	93	2.9%	1.10	-0.73	-0.5
F	Other household durables	0.032	233	3.8%	0.83	-0.55	-0.5
G	Health	0.084	268	7.8%	1.08	-0.68	-0.5
H	Dwelling rent	0.208	531	18.4%	1.13	-0.62	-0.5
I	Gas, electricity and fuel	0.012	205	2.2%	0.52	-0.36	-1.0
J	Fares	0.010	160	1.8%	0.54	-0.37	-1.0
K	Purchase of motor vehicles	0.042	119	3.8%	1.11	-0.73	-0.5
L	Operation of motor vehicles	0.045	440	6.2%	0.72	-0.48	-0.1
M	Postal and telephone services	0.019	72	1.8%	1.03	-0.70	-0.5
N	Entertainment and recreation	0.038	314	4.9%	0.79	-0.52	-0.75
O	Financial services	0.054	1	3.9%	1.40	-0.92	-0.5
P	Other goods	0.093	67	7.1%	1.31	-0.82	-0.5
Q	Other services	0.130	-161	8.2%	1.59	-0.96	-0.5
R	Personal Travel Imports	0.032	-103	1.6%	2.03	-1.36	-0.5

Substitution within broad consumption groups

MM600+ also allows for substitution within broad consumption groups. Alcoholic drinks serves as an example. Clements et al.⁵ conclude that “the price elasticity of alcohol as a whole is about $-1/2$ ” (p.77). However, because of substitution between different forms of alcohol, price elasticities for individual alcoholic beverages are larger at -0.8 , -0.7 and -1.9 for beer, wine and spirits respectively (p. 78). Thus it is important to allow not only for substitution between broad consumption groups, but also for substitution within consumption groups.

To allow for substitution within consumption groups, the consumer demand system in MM600+ is derived from a generalisation of the indirect utility function associated with the linear expenditure system. In this two-level generalisation, an intra-group substitution parameter,

v ,

appears which can take different values for different groups, as shown in the last column of Table 1. This parameter is set to -0.5 for most groups (zero equates to no intra-group substitution, as in the Monash model). This value implies that the price elasticity for an individual consumption commodity is up to 1.5 times the size of the price elasticity for the consumption group in which it belongs.

⁵ Clements, K.W., Selvanathan, A. and Selvanathan, S. (1996), 'Applied Demand Analysis: A Survey', *The Economic Record*, Vol. 72, No. 216.

Under this approach, consumer demand for consumption of commodity k in group i is given by the following equation.

$$X_{ik} = \alpha_{ik} \cdot \gamma_i + \phi_{ik} \cdot (\beta_i / P_{ik}) \cdot (C - \sum P_j \cdot \gamma_j) \cdot (Q_i / P_{ik})^{-\nu_i}$$

where:

$$P_i = \sum \alpha_{il} \cdot P_{il} \text{ for all } i$$

$$Q_i = [\sum \phi_{il} \cdot P_{il}^{\nu_i}]^{1/\nu_i} \text{ for all } i$$

$$\sum \alpha_{il} = 1 \text{ for all } i$$

$$\sum \phi_{il} = 1 \text{ for all } i$$

$$\sum \beta_i = 1$$

Export demand

Export demand elasticities in MM600+ range from -4 for wool, where Australia has market power, and tourism, where product differentiation is important, to -12 for a broad range of exports. The pattern of elasticities for minerals and minerals processing were developed in 1998 in consultation with Malcolm Gray, a commodities consultant engaged by the Minerals Council of Australia. All trade elasticities used in MM600+ are reported in the Table Appendix.

6. Long-term Closure

MM600+ has two different closures frames — a short-term closure and a long-term closure — so that it can provide results from an economic shock for two different time frames. The long-term closure is described in this section while the short-term closure is described in the next section.

The long-term closure models a long-run equilibrium. For most economic shocks, the long run is likely to be attained in five to ten years.

In the long-run, economic agents optimise, all markets are in equilibrium, and assets and liabilities follow sustainable paths. Some of the key assumptions involved are:

- *profit maximisation*: the representative business in each industry chooses inputs and outputs to maximise profit subject to prices and a production function exhibiting constant returns to scale. This involves choosing inputs of capital and labour and outputs for the local and export markets;
- *labour market equilibrium*: in the long-run the labour market is assumed to attain equilibrium, so that an economic shock has no lasting effect on total employment. This assumption is implemented by fixing the level of total employment;

- *external balance*: in the long-run net liabilities to the foreign sector must follow a sustainable path. This assumption is implemented by setting the trade balance equal to the cost of servicing payments on foreign-owned capital — the real exchange rate needed to achieve this outcome is determined by the model;
- *budget balance*: in the long-run the budget balance must be sustainable. Specifically, in MM600+ the government budget is assumed to be in balance. It is necessary to designate a swing fiscal policy instrument to achieve that outcome. Generally, the rate of tax on labour income is used as the swing fiscal policy instrument; and
- *private saving*: in the long-run the level of private sector saving and associated asset accumulation must be sustainable. Further, one potential problem with long-run models is that saving (i.e. sacrificing present consumption for future consumption) can appear artificially attractive, because the model results show the gain in future consumption but not the sacrifice of present consumption. To address both of these issues, saving is held constant in MM600+ by fixing the quantity of capital that is owned locally.

MM600+ pays particular attention to the correct measurement of changes in national economic welfare. It uses the compensating variation and equivalent variation from welfare economics. These are alternative measures of the gain in real consumer spending.

More specifically, under a linear expenditure system model of consumer demand, these measures of welfare change virtually equate with changes in real supernumerary (or non-essential) consumption. Real supernumerary consumption is calculated by subtracting nominal “essential” consumption from nominal total consumption to obtain nominal supernumerary consumption, before deflating using the ideal price index for supernumerary consumption.

In MM600+ effects on vertical equity can also be measured. This is done by calculating movements in real supernumerary consumption for consumers at different income levels. In the results, the benefits of an economic reform are tilted towards low-income earners if the ideal price index for essential consumption falls by more than the ideal price index for supernumerary consumption.

7. Short-term Closure

The long-term closure factors in full adjustment of industry capital stocks to economic shocks, which is a protracted process that may take five to ten years.

Because of this lengthy capital stock adjustment process, short-term closures have been developed for economic models. These short-term closures hold industry capital stocks fixed.

In the case of MM600+, the short-term closure is different because it was developed under a contract to the ACCC to mimic the price exploitation guidelines issued by the ACCC in March 2000. Under these guidelines, businesses:

“should not increase the net dollar margins on their goods and services as a result of the New Tax System changes alone”.

While this rule applies to June 2002, the short-term closure is only designed for the introduction year of the New Tax System, 2000/01.

Under this short-term closure, the long-term closure is modified by holding fixed the price of capital services in each industry. This means that changes in the cost of non-capital inputs flow through fully into prices, but changes in the cost of capital inputs have no effect on prices.

This is a reasonable representation of the ACCC guidelines as they apply in 2000/01.

Under the guidelines, savings in the cost of capital inputs only need to be passed on into prices as existing capital is replaced. This would not occur to a significant extent in 2000/01, so it is reasonable to model the guidelines by holding fixed the cost of capital inputs.

Equally, the ACCC guidelines require that savings in the cost of non-capital inputs are passed on fully into prices, and this is also captured in the short-term closure.

The short-term closure is only designed to mimic the ACCC guidelines, not other short-term applications, where a more conventional short-term closure based on fixed capital stocks would need to be used.

A conventional short-term closure is similar in that changes in the cost of capital inputs would have no effect on prices. However, it differs in that only part of changes in the cost of non-capital inputs would flow through into prices, with the proportion varying from one product to the next depending on supply and demand elasticities in each market.

8. Applications

MM303/MM600+ has been used in modelling the changeover to the New Tax System as well as many other applications.

The changeover to the New Tax System has been modelled for:

- companies
- industry associations
- governments; and
- the ACCC.

Companies

MM303/MM600+ is the most widely used model for estimating the effects of the New Tax System on company costs. MM600+ services have been supplied to companies by Econtech itself as well as through Ernst & Young, KPMG and Firmstone & Feil. These taxation services have been used by major companies in each of the following industries.

- mining
- pharmaceuticals
- other manufacturing
- media
- water

- retailing
- hotels
- road transport
- rail transport
- communications
- banking
- insurance
- professional services

Industry Associations

Econtech has used MM303/MM600+ to analyse the effects of the New Tax System for the following industry associations.

- Australian Automobile Association
- Australian Chamber of Commerce & Industry
- Australian Bankers Association
- Australian Hotels Association
- Australian Pharmaceutical Manufacturers Association
- Distilled Spirits Industry Council of Australia
- Housing Industry Association
- Master Builders Australia
- Minerals Council of Australia
- Plastics and Chemicals Industry Association
- Printing Industry Association of Australia
- Water Services Association of Australia

Governments

Econtech developed the Econtech ANTS Savings Calculator, which has been used by the following governments for estimating the effects of the New Tax System on the costs of their agencies.

- Commonwealth Government
- New South Wales Government
- Victorian Government
- Queensland Government
- WA Government
- SA Government
- Tasmanian Government
- ACT Government
- NT Government

ACCC

- Under contract to the ACCC, Econtech further developed its MM303 model to produce MM600+.
- The ACCC has used the results from MM600+, together with industry information, in its Shopping Guide covering the likely effects of ANTS on about 200 consumer prices.
- The ACCC Small Business Cost Savings Estimator - a tool to help small business comply with the ACCC price exploitation guidelines - was developed for the ACCC by Econtech.

Other Applications

MM303/MM600+ was also used in the following industry policy consultancies.

- a study for Chevron of its proposed natural gas pipeline from PNG to Gladstone
- a study for a major corporation of a proposed shale oil project
- a study for an oil company of a possible business decision with major implications for the oil industry
- a study for the Australian Greenhouse Office on National Average Fuel Consumption
- a study for two oil companies of a proposed merger of their oil refining operations

**Table Appendix:
Industries, Products and Trade Elasticities in MM600+**

MM600+ contains 108 industries producing 672 products, as detailed in the table. Trade elasticities for each product are also shown.

The column headed “import demand” contains Armington import elasticities. These refer to the elasticity of substitution between imported and locally produced product.

The column headed “export demand” contains export demand elasticities.

The column headed “export supply” contains elasticities of transformation. These refer to the elasticity of transformation of local producers between supplying product to the local and export markets.

See section 5 for further discussion of these trade elasticities.

Industry	Product	Import Demand	Export Demand	Export Supply
Sheep	Sheep and lambs (incl 0122 part, 0123 part)	0.50	-12.0	2.5
	Wool (shorn and dead) (incl 0122 part, 0123 part)	0.50	-4.0	2.5
Grains	Wheat (incl spelt) and meslin, unmilled (incl 0122 part)	0.50	-12.0	2.5
	Oats, unmilled (incl 0122 part)	0.50	-12.0	2.5
	Rice, in the husk (incl 0122 part)	0.50	-12.0	2.5
	Oilseeds (incl 0122 part)	0.50	-12.0	2.5
	Cereal grains nec (incl 0122 part)	0.50	-12.0	2.5
	Misc. grains	0.50	-12.0	2.5
	Cattle and calves (incl 0122 part, 0123 part)	2.00	-12.0	2.5
Beef cattle	Cattle and calves (incl 0122 part, 0123 part)	2.00	-12.0	2.5
Dairy cattle	Whole milk, chilled but otherwise untreated	2.00	-12.0	2.5
Pigs	Pigs	2.00	-12.0	2.5
Poultry	Poultry, for slaughtering	2.00	-12.0	2.5
	Eggs	2.00	-12.0	2.5
Other agriculture	Plant nurseries	2.00	-12.0	2.5
	Cut flower and flower seeds	2.00	-12.0	2.5
	Potatoes	2.00	-12.0	2.5
	Beans, french and runner; peas, green or blue	2.00	-12.0	2.5
	Cabbages, brussels sprouts, cauliflowers and headed broccoli	2.00	-12.0	2.5
	Carrots	2.00	-12.0	2.5
	Lettuces	2.00	-12.0	2.5
	Onions - white and brown	2.00	-12.0	2.5
	Tomatoes	2.00	-12.0	2.5
	Vegetables nec	2.00	-12.0	2.5
	Grapes - table	2.00	-12.0	2.5
	Grapes - wine	2.00	-12.0	2.5
	Currants, raisins, lexias and sultanas	2.00	-12.0	2.5
	Apples - fresh and sun-dried	2.00	-12.0	2.5
	Pears and quinces - fresh and sun-dried	2.00	-12.0	2.5
	Stone fruit - fresh and sun-dried	2.00	-12.0	2.5
	Kiwi fruit	2.00	-12.0	2.5
	Bananas - fresh and sun-dried	2.00	-12.0	2.5
	Pineapples - fresh and sun-dried	2.00	-12.0	2.5
	Plantation fruit nec - fresh and sun-dried	2.00	-12.0	2.5
Citrus fruit - fresh and sun-dried	2.00	-12.0	2.5	

	Edible nuts (excl peanuts)	2.00	-12.0	2.5
	Strawberries	2.00	-12.0	2.5
	Berries, orchard fruit and small fruit nec - fresh and sun-dried	2.00	-12.0	2.5
	Horse studs	2.00	-12.0	2.5
	Deer farming	2.00	-12.0	2.5
	Honey	2.00	-12.0	2.5
	Pet breeding and live animals nec	2.00	-12.0	2.5
	Sugar cane	2.00	-12.0	2.5
	Cotton (excl ginned)	2.00	-12.0	2.5
	Mushrooms	2.00	-12.0	2.5
	Tobacco	2.00	-12.0	2.5
	Hops	2.00	-12.0	2.5
	Grass, lucerne and clover seed	2.00	-12.0	2.5
	Hay, cereal grasses and fodder	2.00	-12.0	2.5
	Agriculture nec	2.00	-12.0	2.5
	Raw coffee and chicory	0.00	-12.0	2.5
	Cocoa beans (excl roasted)	0.00	-12.0	2.5
	Natural rubber	0.00	-12.0	2.5
Services to agric.; hunting	Cotton, ginned	0.00	-6.0	2.5
	Cotton seed	0.00	-6.0	2.5
	Sheep shearing services	0.00	-12.0	2.5
	Aerial agricultural services	0.00	-12.0	2.5
	Services to agriculture nec	0.00	-12.0	2.5
	Skins and pieces, raw	0.00	-12.0	2.5
Forestry and logging	Forestry and services to forestry	2.00	-12.0	2.5
	Softwoods - conifers	2.00	-12.0	2.5
	Hardwoods, brushwoods, scrubwoods, etc, hewn timber and timber nec (incl firewood)	2.00	-12.0	2.5
	Forest products nec	2.00	-12.0	2.5
Commercial fishing	Rock lobsters	0.50	-12.0	2.5
	Prawns	0.50	-12.0	2.5
	Finfish trawling	0.50	-12.0	2.5
	Squid jigging	0.50	-12.0	2.5
	Line fishing	0.50	-12.0	2.5
	Crustaceans and molluscs (saltwater); seaweed; beche-de-mer; shell gathering	0.50	-12.0	2.5
	Fish, crustaceans and molluscs farming; freshwater fishing	0.50	-12.0	2.5
	Services to fishing nec	0.50	-12.0	2.5
Coal; oil and gas	Black coal (all types incl briquettes)	0.50	-6.0	1.5
	Brown coal-lignite (incl briquettes)	2.00	-6.0	1.5
	Crude oil (incl. condensate)	7.00	-12.0	1.5
	Natural gas	2.00	-12.0	1.5
	Liquefied natural gas; liquefied natural petroleum gases; oil and gas nec	2.00	-6.0	1.5
Iron ores	Iron Ore Mining	0.50	-6.0	1.5
Non-ferrous metal ores	Gold Ore and Copper Ore Mining	0.50	-12.0	1.5
	Lead ores and concentrates (excl silver-lead-zinc ores)	0.50	-6.0	1.5
	Silver and zinc ores	0.50	-6.0	1.5
	Uranium concentrates	0.50	-6.0	1.5
	Misc. Non-ferrous metal ores	0.50	-6.0	1.5
Other mining	Gravel	2.00	-12.0	1.5
	Sand	2.00	-12.0	1.5
	Dimension stone	2.00	-12.0	1.5

	Limestone (incl shell and coral)	2.00	-12.0	1.5
	Clays nec (incl brick, pipe, tile and shale)	2.00	-12.0	1.5
	Salt	2.00	-12.0	1.5
	Natural phosphates	0.00	-12.0	1.5
	Misc. mining	2.00	-12.0	1.5
Services to mining	Petroleum exploration (own account)	2.00	-12.0	1.5
	Petroleum exploration services nec	2.00	-12.0	1.5
	Mineral exploration (own account)	2.00	-12.0	1.5
	Mineral exploration services nec	2.00	-12.0	1.5
	Mining services nec	2.00	-12.0	1.5
Meat and meat products	Poultry, slaughtered	0.50	-12.0	2.5
	Fresh meat	0.50	-12.0	2.5
	Casings, bungs, weasands and runners	0.50	-12.0	2.5
	Edible offals (excl poultry)	0.50	-12.0	2.5
	Edible tallow (excl refined)	0.50	-12.0	2.5
	Inedible tallow (excl refined) and other unrefined animal oils and fats	0.50	-12.0	2.5
	Raw hides and skins	0.50	-12.0	2.5
	Meal of meat, offal and blood, not for human consumption	0.50	-12.0	2.5
	Bacon and ham (incl canned)	0.50	-12.0	2.5
	Misc. Meat Processing	0.50	-12.0	2.5
Dairy products	Liquid whole milk, graded, tested or chilled	1.60	-12.0	2.5
	Flavoured liquid whole and skim milk	1.60	-12.0	2.5
	Other liquid whole milk (incl pasteurised milk)	1.60	-12.0	2.5
	Cream (incl thickened), not concentrated or sweetened	1.60	-12.0	2.5
	Sour cream, yogurt and other cultured milk products	1.60	-12.0	2.5
	Ice cream and frozen confections	1.60	-12.0	2.5
	Buttermilk (excl cultured) and skim milk (excl liquid skim)	1.60	-12.0	2.5
	Whey and whey cream	1.60	-12.0	2.5
	Cheese and curd	1.60	-12.0	2.5
	Milk based food preparations	1.60	-6.0	2.5
	Misc. dairy products	1.60	-12.0	2.5
Fruit and vegetable products	Jams	0.80	-12.0	2.5
	Preserved fruit and fruit products	0.80	-12.0	2.5
	Vegetables, frozen	0.80	-12.0	2.5
	Sauces (excl worcestershire and apple)	0.80	-12.0	2.5
	Misc. fruit & vegetable processing	0.80	-12.0	2.5
Oils and fats	Margarine	1.70	-12.0	2.5
	Misc. oil & fat	1.70	-12.0	2.5
Flour and cereal foods	Wheat flour (excl self raising)	2.10	-12.0	2.5
	Cereal breakfast foods	2.10	-12.0	2.5
	Flour (self raising)	2.10	-12.0	2.5
	Misc. flour & cereal	2.10	-12.0	2.5
Bakery products	Bread and bread rolls	0.00	-12.0	2.5
	Cakes, pastries, pies; crumpets	0.00	-12.0	2.5
	Biscuits and biscuit crumbs; rusks; ice cream cones and wafers; unleavened bread	0.00	-12.0	2.5
Confectionery	Chocolate confectionery (excl chocolate coated biscuits and white chocolate)	2.00	-12.0	2.5
	Cocoa products (excl chocolate confectionery)	2.00	-12.0	2.5
	Chewing gum, white chocolate and other confectionery not containing cocoa	2.00	-12.0	2.5
Other food products	Raw sugar	0.50	-12.0	2.5

	Fish, canned	0.50	-12.0	2.5
	Rock lobster and crayfish (incl tails), chilled or frozen	0.50	-12.0	2.5
	Processed seafoods (excl canned fish, frozen fish meat, rock lobster and crayfish)	0.50	-12.0	2.5
	Fish fillets	0.50	-12.0	2.5
	Coffee and coffee essences	0.50	-12.0	2.5
	Mustard; worcestershire sauce; mayonnaise and salad dressing	0.50	-12.0	2.5
	Flavouring essences, industrial	0.50	-12.0	2.5
	Misc. food mfg	0.50	-12.0	2.5
Soft drinks, cordials, syrups	Natural and artificial mineral waters and aerated waters (excl sweetened or flavoured)	0.00	-12.0	2.5
	Mineral waters and aerated waters, sweetened or flavoured, canned	0.00	-12.0	2.5
	Mineral waters and aerated waters, sweetened or flavoured, bottled	0.00	-12.0	2.5
	Misc. soft drink	0.00	-12.0	2.5
Beer and malt	Beer and Malt Manufacturing	0.00	-12.0	2.5
Wine and spirits	Vermouth, sparkling wines and other beverage wines of fresh grapes (incl fortified)	4.80	-12.0	2.5
	Cider, perry, mead and wine-based mixed drinks (coolers)	4.80	-12.0	2.5
	Brandy and fortified spirits	4.80	-12.0	2.5
	Distillation wine from grapes	4.80	-12.0	2.5
	Misc. spirits	4.80	-12.0	2.5
Tobacco products	Cigarettes, cigars, cheroots and tobacco	2.00	-12.0	2.5
Textile fibres, yarns etc	Labels and badges, textile, with printed lettering or design	2.33	-12.0	2.5
	Textile finishing nec	2.33	-12.0	2.5
	Wool, scoured (degreased but not carded, combed or carbonised)	7.00	-4.0	2.5
	Wool, carbonised	7.00	-4.0	2.5
	Yarns of continuous synthetic filament or artificial fibres (incl viscose or acetate)(excl elastic sewing thread)	7.00	-12.0	2.5
	Broadwoven fabric of continuous synthetic fibres (excl pile or chenille)	7.00	-12.0	2.5
	Narrow woven textile fabrics (incl tape); synthetic tyre cord yarns or fabric	7.00	-12.0	2.5
	Sewing thread	7.00	-12.0	2.5
	Yarn of cotton (excl sewing thread, elastic or elastomeric); yarn gimped, chenille and loop-wade	7.00	-12.0	2.5
	Face washers, cotton towels, and baby napkins of textile fabrics	7.00	-12.0	2.5
	Broadwoven textile fabric, fibres nec	7.00	-12.0	2.5
	Broadwoven fabric, woollen	7.00	-12.0	2.5
	Woollen blankets and rugs (excl electric)	7.00	-12.0	2.5
	Yarn, spun, woollen nec	7.00	-12.0	2.5
	Misc. fibres, yarns & fabrics	7.00	-12.0	2.5
Textile products	Rope and cable (excl wire), cordage (excl tyre cord yarn), twine or net products	2.00	-12.0	2.5
	Tarpaulins; sails; tents; annexes; textile hosepiping; textile motor vehicle covers	2.00	-12.0	2.5
	Blinds and awnings of textile fabrics (incl canvas) and woven textile materials (incl cotton)	2.00	-12.0	2.5
	Made-up textile products nec	2.00	-12.0	2.5
	Carpets and floor rugs of textile materials; mats and matting (excl grass, sisal or coir)	2.00	-12.0	2.5
	Labels and badges, woven	2.00	-12.0	2.5
	Bags, sacks and packets of textile or canvas	2.00	-12.0	2.5

	Misc. textile product mfg	2.00	-12.0	2.5	
Knitting mill products	Hosiery (incl pantyhose, stockings, tights and socks)	2.00	-12.0	2.5	
	Pullovers, jumpers, sweaters and cardigans - knitted	7.00	-12.0	2.5	
	Fabrics (excl elastic or elastomeric), knitted or crocheted	7.00	-12.0	2.5	
	Knitted or crocheted fabric nec	7.00	-12.0	2.5	
	Curtains in the piece (incl continuous), knitted or crocheted	7.00	-12.0	2.5	
	Knitted articles nec, fabric knitted at the same establishment	7.00	-12.0	2.5	
Clothing	Womens and girls shirts and blouses	4.24	-12.0	2.5	
	Womens and girls T-shirts and tank tops	4.24	-12.0	2.5	
	Dresses, skirts, slacks, shorts, tunics, uniforms, jeans, overalls, leotards, coats, capes, suits and ensembles	4.24	-12.0	2.5	
	Womens and girls outer nightwear (incl dressing gowns, robes etc)	4.24	-12.0	2.5	
	Hats and other headgear (incl safety) (excl rubber bathing caps)	4.24	-12.0	2.5	
	Fur and sheepskin articles, (incl clothing) (excl headwear, footwear, handbags, purses and toys)	4.24	-12.0	2.5	
	Swimwear and tracksuits	4.24	-12.0	2.5	
	Clothing accessories (incl shawls, scarves, ties, gloves, belts, headbands)	4.24	-12.0	2.5	
	Leather clothing	4.24	-12.0	2.5	
	Dustcoats, mens and boys trousers (excl suit), shorts, jeans, overalls and work shirts, textile (excl waterproof)	4.24	-12.0	2.5	
	Waterproof, plastic and rubber clothing	4.24	-12.0	2.5	
	Mens and boys suits and uniforms (incl trousers), coats, blazers and jackets (excl leather, plastic or waterproof)	4.24	-12.0	2.5	
	Mens and boys woven shirts (with collars)	4.24	-12.0	2.5	
	Mens and boys outer nightwear (incl dressing gowns, robes, etc)	4.24	-12.0	2.5	
	Foundation garments (incl brassieres, corsets and girdles)	4.24	-12.0	2.5	
	Mens and boys T-shirts and tank tops	4.24	-12.0	2.5	
	Woven sleepwear (incl pyjamas and nightdresses) and infants clothing	4.24	-12.0	2.5	
	Misc. Clothing	4.24	-12.0	2.5	
	Footwear	Footwear with uppers of leather and outer soles of rubber or plastic (excl sports footwear)	7.00	-12.0	2.5
		Sports footwear; rubber thongs	7.00	-12.0	2.5
Footwear with uppers of leather and outer soles of leather or composition leather (excl sports footwear)		7.00	-12.0	2.5	
Misc. footwear		7.00	-12.0	2.5	
Leather and leather products	Leather, vegetable or chrome tanned (incl re-tanned), dressed or finished; chamois leathers	2.00	-12.0	2.5	
	Leather (excl dressed or finished)	2.00	-6.0	2.5	
	Hides and skins, pickled or preserved; tanned or dressed skins with hair or wool retained; fellmongered wool	2.00	-12.0	2.5	
	Leather handbags, suitcases, bags, travel sets for personal toilet articles, purses, key cases, wallets and billfolds	2.00	-12.0	2.5	
	Handbags, suitcases, bags, travel sets for toilet articles, purses, key cases, wallets and billfolds (excl leather)	2.00	-12.0	2.5	
	Saddlery and harness, of any material	2.00	-12.0	2.5	
	Misc. leather products	2.00	-12.0	2.5	
Sawmill products	Undressed sawn timber (incl treated) from logs sawn at the same unit	2.30	-12.0	2.5	
	Sawmill products nec	2.30	-12.0	2.5	
	Woodchips, softwood	2.30	-12.0	2.5	
	Woodchips, hardwood	2.30	-12.0	2.5	
	Resawn timber from timber already sawn at another unit (excl sleepers, palings and shingles)	2.30	-12.0	2.5	

	Dressed timber and mouldings nec	2.30	-12.0	2.5
	Floorboards and weatherboards from dressed timber	2.30	-12.0	2.5
Other wood products	Doors, wooden	2.00	-12.0	2.5
	Roof trusses, wooden	2.00	-12.0	2.5
	Wall and window frames, wooden	2.00	-12.0	2.5
	Veneers	2.00	-12.0	2.5
	Laminated wooden boards (incl particle board)	2.00	-12.0	2.5
	Builders joinery and carpentry nes, wooden	2.00	-12.0	2.5
	Frames, wooden (incl for paintings, photographs, mirrors, etc)	2.00	-12.0	2.5
	Misc. wooden product mfg	2.00	-12.0	2.5
Pulp, paper and paperboard	Vegetable parchment, tracing, glazed transparent or translucent papers (excl greaseproof); paper and paperboard nec	1.10	-6.0	2.5
	Paper stock (incl toilet paper stock, facial tissue and similar paper stock used for household or sanitary purposes)	1.10	-12.0	2.5
	Misc. pulp, paper & paperboard	1.10	-12.0	2.5
Paper bags and products	Solid paperboard containers	1.10	-12.0	2.5
	Containers, bags and packets, fibreboard nec	1.10	-12.0	2.5
	Corrugated paperboard containers and sheeting	1.10	-12.0	2.5
	Paper bags, packets and sacks (incl paper multiwall bags)(excl bags of composite material)	1.10	-12.0	2.5
	Toilet, tissue, serviettes, towels & similar paper for household and sanitary purposes, in sheets or perforated rolls	1.10	-12.0	2.5
	Paper trays, dishes, plates and cups; paper egg containers and fruit wrapping pads	1.10	-12.0	2.5
	Misc. paper product mfg	1.10	-12.0	2.5
Printing; services to printing	Commercial, job, general, commission (incl paper stationery) and screen printing	2.00	-12.0	2.5
	Trade advertising material, catalogues; printed pictures, designs & photos; forms; calendars & printed matter nec	2.00	-12.0	2.5
	Envelopes, paper (excl commission printing)	2.00	-12.0	2.5
	Writing pads, exercise books, registers, account books and loose leaf refills (excl commission printing)	2.00	-12.0	2.5
	Paper labels, printed or imprinted (excl commission printing)	2.00	-12.0	2.5
	Services to printing	2.00	-12.0	2.5
	Printing trade services nec	2.00	-12.0	2.5
	Misc. printing and services	2.00	-12.0	2.5
Publishing; recorded media etc	Newspapers, printing or publishing; periodicals (excl bound) published once a week or more	2.00	-12.0	2.5
	Newspapers - advertising sales	2.00	-12.0	2.5
	Magazines and bound periodicals publishing; periodicals published less than weekly	2.00	-12.0	2.5
	Other periodicals - advertising sales	2.00	-12.0	2.5
	Books, sheet music, maps, atlases, touring guides, charts, plans or other printed articles (eg art prints) publishing	2.00	-12.0	2.5
	Books, maps and sheet music - advertising sales	2.00	-12.0	2.5
	Pre-recorded audio, magnetic, video or computer tapes or disks, compact disks and records, manufacturing/publishing	2.00	-12.0	2.5
Petroleum and coal products	Automotive petrol; gasoline refining or blending; motor spirit (incl aviation spirit)	7.00	-12.0	2.5
	Gas oil or fuel oil (excl motor spirit and kerosene)	7.00	-12.0	2.5
	Kerosene (incl kerosene type jet fuel)	7.00	-12.0	2.5
	Liquefied petroleum gas produced at refineries	0.40	-12.0	2.5

	Refinery products nec	0.40	-12.0	2.5
	Misc. other petroleum & coal products	0.40	-12.0	2.5
Basic chemicals	Mixed fertilisers	1.90	-12.0	2.5
	Synthetic rubber	1.90	-12.0	2.5
	Polystyrene	1.90	-12.0	2.5
	Polypropylene	1.90	-12.0	2.5
	Polyvinyl acetate and synthetic resins (excl adhesives)	1.90	-12.0	2.5
	Plasticisers	1.90	-12.0	2.5
	Synthetic organic colouring agents and preparations (incl organic colour lakes, pigments and dyes)	1.90	-12.0	2.5
	Organo-inorganic compounds; heterocyclic compounds; nucleic acids	1.90	-12.0	2.5
	Sulphuric acid and oleum	1.90	-12.0	2.5
	Synthetic inorganic colouring agents and preparations (incl inorganic pigments and chemical whites)	1.90	-6.0	2.5
	Misc. basic chemical mfg	1.90	-12.0	2.5
Paints	Paint (excl bituminous) and primer, undercoat or lacquer	2.50	-12.0	2.5
	Filler or putty, caulking compound	2.50	-12.0	2.5
	Misc. paint mfg	2.50	-12.0	2.5
Pharmaceuticals etc	Pharmaceutical goods, for human use; barrier creams, toilet lanolin and suncreening preparations	2.00	-12.0	2.5
	Veterinary products nec	2.00	-12.0	2.5
	Pesticide Manufacturing	2.00	-12.0	2.5
Soap and detergents	Glycerine; candles	1.30	-12.0	2.5
	Soap products	1.30	-12.0	2.5
	Toothpaste and other dentifrices	1.30	-12.0	2.5
	Laundry bleach	1.30	-12.0	2.5
	Disinfectants (incl phenyl)	1.30	-12.0	2.5
	Scouring compounds and abrasive cleaners	1.30	-12.0	2.5
	Surface-active washing or cleaning preparations nec	1.30	-12.0	2.5
Cosmetics and toiletries	Hair shampoo, conditioner, sprays, colouring and other hairdressing preparations	2.00	-12.0	2.5
	Aftershave & shaving preparations; lipstick, eye makeup; beauty cream or lotions; face lotions & powders	2.00	-12.0	2.5
	Misc. cosmetics & toiletries	2.00	-12.0	2.5
Other chemical products	Inks	2.00	-12.0	2.5
	Adhesives (excl bituminous) and glues	2.00	-12.0	2.5
	Polishes (incl cream and liquid) and waxes (incl beeswax)	2.00	-12.0	2.5
	Gelatine (incl derivatives)	2.00	-12.0	2.5
	Misc. chemical products	2.00	-12.0	2.5
Rubber products	Rubber Tyre Manufacturing	1.50	-12.0	2.5
	Rubber gloves, mittens and mitts	1.50	-12.0	2.5
	Rubber belting (incl V belts)	1.50	-12.0	2.5
	Rubber tubes, pipes and hose	1.50	-12.0	2.5
	Rubber products nec	1.50	-12.0	2.5
Plastic products	Plastic bottles	1.50	-12.0	2.5
	Plastic tubes, pipes and hoses	1.50	-12.0	2.5
	Extruded sheets and sections nec	1.50	-12.0	2.5
	Rigid fibre reinforced plastic articles (incl rigid plastic sheets, swimming pool shells and tanks)	1.50	-12.0	2.5
	Foam and sponge plastic sheets, plates and strip (incl foam insulation and padding)	1.50	-12.0	2.5
	Plastic foam products nec	1.50	-12.0	2.5
	Plastic sacks, packets and bags (incl garbage bags)	1.50	-12.0	2.5
	Plastic drums, drum linings, boxes, cases, crates & packaging accessories (incl stoppers, lids, caps & seals)	1.50	-12.0	2.5

	Misc. Plastic Product Mfg	1.50	-12.0	2.5
Glass and glass products	Safety glass (incl windscreens and laminated sheet glass)	1.20	-12.0	2.5
	Glassware nec	1.20	-12.0	2.5
	Misc. Glass & Glass Product mfg	1.20	-12.0	2.5
Ceramic products	Clay bricks (excl refractory bricks)	1.20	-12.0	2.5
	Refractory products (incl bricks, cement and clay)	1.20	-12.0	2.5
	Industrial ceramic goods	1.20	-12.0	2.5
	Ceramic roofing, flooring and wall tiles (incl terracotta)	1.20	-12.0	2.5
	Ceramic wash basins and permanent fixture type sanitary ware	1.20	-12.0	2.5
	Tableware, ornamental pottery and domestic ware nec	1.20	-12.0	2.5
	Ceramic goods nec	1.20	-12.0	2.5
	Misc. ceramic product mfg	1.20	-12.0	2.5
Cement, lime and concrete slurry	Cement (incl hydraulic and portland)(excl adhesive or refractory)	0.75	-12.0	2.5
	Lime (incl quick, hydrated, slaked and agricultural)	0.75	-12.0	2.5
	Ready mixed concrete and mortar	0.00	-12.0	2.5
Plaster; other concrete products	Concrete, cement, fibrous-cement or artificial stone pipes; concrete box culverts	1.20	-12.0	2.5
	Plaster board, sheets, panels or tiles	0.80	-12.0	2.5
	Concrete, cement and artificial stone bricks, blocks, building boards and tiles	0.80	-12.0	2.5
	Misc. Plaster & other concrete products	0.80	-12.0	2.5
Non-metallic min. products nec	Mineral wool and mineral wool products	0.80	-12.0	2.5
	Cut, dressed, polished or shaped stone products	0.80	-12.0	2.5
	Glass fibre and glass wool products	0.80	-12.0	2.5
	Misc. non-metallic mineral product mfg	0.80	-12.0	2.5
Iron and steel	Iron or steel seamless tubes or pipes (excl cast or forged)	0.82	-12.0	2.5
	Iron or steel tubes or pipes (excl cast, forged or seamless)	0.82	-12.0	2.5
	Ferrous metal steam, gas and water fittings, taps, cocks, valves or parts (excl cast or forged)	0.82	-12.0	2.5
	Misc. steel and tube mfg	0.82	-12.0	2.5
	Metallurgical coke, coke breeze and retort carbon	0.82	-12.0	2.5
	Basic iron, pig iron, sponge iron and spiegeleisen; iron or steel granules and powders	0.82	-12.0	2.5
	Ferro-alloys (incl manganese, silicon or chrome)	0.82	-12.0	2.5
	Iron or steel primary forms (incl ingots) and semi-finished products	0.82	-12.0	2.5
	Iron and steel bars, rods, angles, shapes and sections (incl sheet piling)	0.82	-12.0	2.5
	Iron or steel rails, rail fastenings or other rail accessories	0.82	-12.0	2.5
	Misc. iron & steel mfg	0.82	-12.0	2.5
Basic non-ferrous metals etc	Alumina	0.90	-6.0	2.5
	Aluminium alloys and aluminium recovery (from alumina smelted at the same unit)	0.90	-12.0	2.5
	Copper (incl brass) primary recovery and secondary recovery from drosses, ashes or other waste materials	0.90	-9.0	2.5
	Silver, lead and zinc primary recovery and secondary recovery from drosses, ashes or other waste materials	0.90	-9.0	2.5
	Copper, silver, lead or zinc secondary recovery from purchased scrap	0.90	-9.0	2.5
	Copper, silver, lead and zinc alloys	0.90	-9.0	2.5
	Non-ferrous metal castings, diecastings and forgings	0.90	-12.0	2.5
	Non-ferrous metals, not elsewhere specified, primary & secondary recovery from drosses, ashes or other waste	0.90	-9.0	2.5

	material			
	Nickel, tin, antimony and other non-ferrous metals, not elsewhere specified, secondary recovery from scrap	0.90	-9.0	2.5
	Misc. basic non-ferrous metals	0.90	-9.0	2.5
Structural metal products	Reinforcing steel rods or bars	1.50	-12.0	2.5
	Reinforcing welded steel mesh	1.50	-12.0	2.5
	Misc. structural metal products	1.50	-12.0	2.5
	Aluminium/aluminium framed doors (incl roller/concertina) & windows (incl glass); door/window frames; roller grilles	1.50	-12.0	2.5
	Aluminium combined door-window units	1.50	-12.0	2.5
	Architectural aluminium products (excl sheet metal), for building nec	1.50	-12.0	2.5
	Iron or steel window-frames	1.50	-12.0	2.5
	Metal (excl aluminium) door or door frames	1.50	-12.0	2.5
	Architectural metal products (excl sheet metal), for building nec	1.50	-12.0	2.5
Sheet metal products	Metal cylinders (incl aerosol containers) for compressed or liquified gas	1.50	-12.0	2.5
	Metal containers nec	1.50	-12.0	2.5
	Sheet metal ducting	1.50	-12.0	2.5
	Sheet metal sanitary ware	1.50	-12.0	2.5
	Sheet metal stoppers, caps, lids, capsules for bottles, threaded bungs, bung covers, seals & packing accessories nec	1.50	-12.0	2.5
	Sheet metal vats, tanks, milk or cream cans	1.50	-12.0	2.5
	Sheet metal non-electric tableware, kitchenware or other household articles and parts (excl sanitary ware)	1.50	-12.0	2.5
	Sheet metal products nec	1.50	-12.0	2.5
Fabricated metal products	Metal nuts, bolts (incl expansion), screws, rivets, washers, dowel pins, masonry anchors and turnbuckles	2.00	-12.0	2.5
	Metal coating and finishing	2.00	-12.0	2.5
	Non-ferrous metal steam, gas and water fittings, valves or parts	2.00	-12.0	2.5
	Metal hand tools (excl gardening or power operated or pneumatic)	2.00	-12.0	2.5
	Metal hand tools nec (incl gardening tools; excl power operated)	2.00	-12.0	2.5
	Cutlery, kitchen ware and table ware, non-precious metal	2.00	-6.0	2.5
	Cutlery nec, non-precious metal	2.00	-6.0	2.5
	Metal hand tool accessories & attachments (incl screwdriver & drill bits)(excl twist drills & dies)	2.00	-12.0	2.5
	Springs (incl leaves for springs)	2.00	-12.0	2.5
	Woven or linked wire fabric (excl mattress supports)	2.00	-12.0	2.5
	Welded wire fabric (excl reinforcing)	2.00	-12.0	2.5
	Boilers (incl auxiliary plant)	2.00	-12.0	2.5
	Plate iron, steel or aluminium (incl alloys) containers (incl vats, tanks, casks, drums, cans, boxes, and similar)	2.00	-12.0	2.5
	Aluminium venetian blinds (incl plastic coated)	2.00	-12.0	2.5
	Metal blinds and awnings (excl aluminium venetian blinds)	2.00	-12.0	2.5
	Locks (incl parts & padlocks); metal fittings & mountings for windows & doors (incl hinges & hydraulic door closures)	2.00	-12.0	2.5
	Metal freight containers (excl stock crates)	2.00	-12.0	2.5
	Fire extinguishers	2.00	-12.0	2.5
	Television antennae	2.00	-12.0	2.5
	Misc. fabricated metal products	2.00	-12.0	2.5
Motor vehicles and parts etc	Motor vehicle bodies	5.20	-12.0	2.5

	Caravans, camper trailers and similar vehicles	5.20	-12.0	2.5
	Semi-trailers (incl stock crates and timber jinkers)	5.20	-12.0	2.5
	Trailers	5.20	-12.0	2.5
	Body panels for trucks and buses	5.20	-12.0	2.5
	Transport equipment, parts and accessories nec	5.20	-12.0	2.5
	Repairing and servicing (2811-2819, 2829)	5.20	-12.0	2.5
	Motor scooters and motor cycles	0.00	-12.0	2.5
	Finished motor vehicles with less than 10 persons capacity	5.20	-12.0	2.5
	Finished motor vehicles with 10 or more person capacity	5.20	-12.0	2.5
	Chassis with engines for motor vehicles	5.20	-12.0	2.5
	Motor vehicle transmission assemblies (excl in association with the manufacture of complete vehicles or engines)	5.20	-12.0	2.5
	Misc. Motor Vehicles & Parts	5.20	-12.0	2.5
Ships and boats	Boats (incl rowing/sail) & other vessels under 50 tonnes displacement (excl inflatables, canoes, surf/sailboards)	0.50	-12.0	2.5
	Repairing and servicing (2821-2822)	0.50	-12.0	2.5
	Misc. Ship & boat building	0.50	-12.0	2.5
Railway equipment	Locomotives and trams (incl underframes); railway rolling stock	0.50	-12.0	2.5
	Repairing and servicing (2823)	0.50	-12.0	2.5
Aircraft	Aircraft and aircraft parts	0.50	-12.0	2.5
	Repairing and servicing (2824)	0.50	-12.0	2.5
Scientific etc equipment	Optical instruments and appliances nec	0.50	-6.0	2.5
	Spectacle and contact lenses	0.50	-6.0	2.5
	Surgical, medical equipment and appliances (incl artificial joints, limbs or eyes, pacemakers & needles or syringes)	0.50	-6.0	2.5
	Watches (incl metal watch straps), watch cases, clocks and parts	0.50	-6.0	2.5
	Radio and radar equipment, navigational aids, and radio remote control equipment	0.50	-6.0	2.5
	Misc. Photographic & scientific equip.	0.50	-6.0	2.5
Electronic equipment	Photocopying machines and parts	1.90	-6.0	2.5
	Calculators and electronic cash registers	1.90	-6.0	2.5
	Mainframe data processing machines	1.90	-6.0	2.5
	Computers, business machines, electrical and electronic equipment and parts nec	1.90	-6.0	2.5
	Office and accounting machinery (excl calculating, accounting and similar machines)	1.90	-6.0	2.5
	Office machines, parts and accessories nec	1.90	-6.0	2.5
	Electrical line, telephone and telegraph equipment (excl headphones)	1.90	-12.0	2.5
	Television receiving sets	1.90	-12.0	2.5
	Record, tape, cassette or compact disc players and sound recording equipment	1.90	-12.0	2.5
	Electronic equipment and parts nec	1.90	-12.0	2.5
	Misc. electronic equipment mfg	1.90	-12.0	2.5
Household appliances	Domestic gas, solid fuel, oil or spirit fired stoves, ovens and ranges	1.60	-12.0	2.5
	Domestic gas space heaters	1.60	-12.0	2.5
	Domestic electric space heaters	1.60	-12.0	2.5
	Domestic solid fuel, oil or spirit fired space heaters	1.60	-12.0	2.5
	Domestic refrigerators and freezers	1.60	-12.0	2.5
	Compressors for refrigerating and air conditioning equipment	1.60	-12.0	2.5
	Commercial refrigeration cabinets etc, free-standing (incl water coolers)	1.60	-12.0	2.5
	Clothes washing machines, drying cabinets, tumble driers	1.60	-12.0	2.5

	and dishwashing machines			
	Domestic appliances nec (incl electric, gas)	1.60	-12.0	2.5
	Electro-thermic appliances nec	1.60	-12.0	2.5
	Parts and component equipment nec, for household appliances	1.60	-12.0	2.5
Other electrical equipment	Misc. household appliance mfg	1.60	-12.0	2.5
	Automotive insulated cable, wire or strip	0.84	-12.0	2.5
	Cable, wire and strip, uninsulated or insulated nec	0.84	-12.0	2.5
	Insulated winding wire	0.84	-12.0	2.5
	Insulated optical fibre cable	0.84	-12.0	2.5
	Electric light or lamp bulbs or tubes (incl filament or fluorescent)(excl automotive)	0.84	-12.0	2.5
	Incandescent light fittings	0.84	-12.0	2.5
	Electric light fittings nec	0.84	-12.0	2.5
	Transformers	0.84	-12.0	2.5
	Electric motors (excl automotive)	0.84	-12.0	2.5
	Electric welding and cutting machines, plant and equipment	0.84	-12.0	2.5
	Electrical welding (incl arc) equipment (incl wire, rods and electrodes)	0.84	-12.0	2.5
	Generators (excl automotive)	0.84	-12.0	2.5
	Misc. electrical & equipment mfg	0.84	-12.0	2.5
Agricultural, mining etc machinery	Lawn mowers	0.50	-12.0	2.5
	Ploughing, seeding, planting and fertilising equipment	0.50	-12.0	2.5
	Harvesting, threshing and haymaking machinery (incl straw or fodder balers or agricultural mowers)	0.50	-12.0	2.5
	Agricultural wheeled tractors (excl crawler)	0.50	-12.0	2.5
	Irrigation equipment and parts (incl hose fittings)(excl domestic type sprinklers)	0.50	-12.0	2.5
	Agricultural machinery nec	0.50	-12.0	2.5
	Agricultural machinery parts nec	0.50	-12.0	2.5
	Construction and earthmoving wheeled tractors (excl crawler)	0.50	-12.0	2.5
	Construction machinery nec	0.50	-12.0	2.5
	Construction machinery parts nec	0.50	-12.0	2.5
	Crushing and grinding machinery	0.50	-12.0	2.5
	Mining or drilling machinery and parts (incl coal or rock cutters, boring, sinking or tunnelling machinery)	0.50	-12.0	2.5
	Wheeled tractors (excl crawler, agricultural, construction and earthmoving)	0.50	-12.0	2.5
	Materials equipment nec	0.50	-12.0	2.5
Elevators or escalators and parts	0.50	-12.0	2.5	
Misc. Mining & Construction Machinery	0.50	-12.0	2.5	
Other machinery and equipment	Non-domestic cooking or heating machinery for food or drinks	0.50	-12.0	2.5
	Food processing machinery and parts nec	0.50	-12.0	2.5
	Gas welding and cutting equipment (excl filler welding rods)	0.50	-12.0	2.5
	Wood and metal working machinery and parts nec	0.50	-12.0	2.5
	Saw blades	0.50	-12.0	2.5
	Metal dies, die sets and moulds	0.50	-12.0	2.5
	Hand tools, power operated (incl portable electric hand tools) nec	0.50	-12.0	2.5
	Pumps and pumping machinery (incl petrol bowsers and air or gas compressors)	0.50	-12.0	2.5
	Pump and compressor parts nec	0.50	-12.0	2.5
	Complete air conditioning units nec (incl packaged units, ducting etc)	0.50	-12.0	2.5

	Space heating equipment nec (incl parts)	0.50	-6.0	2.5
	Marine propulsion engines	0.50	-12.0	2.5
	Engines nec	0.50	-12.0	2.5
	Industrial machinery and parts for textile manufacture and treatment industries (excl industrial sewing machines)	0.50	-12.0	2.5
	Printing machinery and parts	0.50	-12.0	2.5
	Industrial machinery and equipment nec	0.50	-12.0	2.5
	Bearings and parts	0.50	-12.0	2.5
	Industrial machinery and equipment parts nec	0.50	-12.0	2.5
	Repairing and servicing (2863-2864, 2866-2867, 2869)	0.50	-12.0	2.5
Prefabricated buildings	Complete prefabricated metal or metal framed garages, carports, hangers or sheds (incl machinery or hay sheds)	1.50	-12.0	2.5
	Fabricated steel nec	1.50	-12.0	2.5
	Prefabricated and transportable buildings nec	1.50	-12.0	2.5
Furniture	Complete and assembled domestic seating	2.30	-12.0	2.5
	Complete & assembled wooden or predominantly wooden domestic furniture (excl seating or custom made built-in)	2.30	-12.0	2.5
	Non-domestic furniture nec, wood or predominantly wood, complete, assembled	2.30	-12.0	2.5
	Complete & assembled sheet metal furniture and parts, storage structures or shelving (incl domestic and non-domestic)	2.30	-12.0	2.5
	Mattress supports (excl un-upholstered wire, link mesh, wire springs or rubber)	2.30	-12.0	2.5
	Pillows, cushions, bean bags and innerspring, foam, sponge or water mattresses (excl rubber)	2.30	-12.0	2.5
	Complete and assembled non-domestic seating (excl medical, dental or veterinary)	2.30	-12.0	2.5
	Complete & assembled metal or predominantly metal (excl sheet metal) office & other non-domestic furniture	2.30	-12.0	2.5
	Complete and assembled metal or predominantly metal (excl sheet metal) domestic furniture (excl seating)	2.30	-12.0	2.5
	Complete and assembled other domestic furniture not elsewhere specified (excl wooden or metal)	2.30	-12.0	2.5
	Complete and assembled other office and non-domestic furniture not elsewhere specified (excl wooden or metal)	2.30	-12.0	2.5
	Unassembled or partly assembled furniture or shelving (incl parts)	2.30	-12.0	2.5
Other manufacturing	Badges, coins and medals, sheet metal	2.00	-12.0	2.5
	Jewellery (incl worked precious and semi-precious stones) and silverware	2.00	-12.0	2.5
	Toys (excl fur or leather)	2.00	-12.0	2.5
	Sporting goods (incl canoes, sailboards or surfboards)(excl motorised vehicles, clothing or footwear)	2.00	-12.0	2.5
	Paint brushes or rollers, accessories and parts	2.00	-12.0	2.5
	Brushes for personal use (incl tooth, shaving, hair, nail or eyelash)(excl paint, bottle scrubbing & industrial)	2.00	-12.0	2.5
	Advertising signs, name-plates and sign-plates (excl electric)	2.00	-12.0	2.5
	Pens, pencils and refills, crayons and chalk	2.00	-12.0	2.5
	Writing and marking equipment nec (incl carbon paper)	2.00	-12.0	2.5
	Umbrellas	2.00	-12.0	2.5
	Musical instruments (incl strings)	2.00	-12.0	2.5
	Manufacturing nec	2.00	-12.0	2.5
	Repairing and servicing (2941-2949)	2.00	-12.0	2.5
Electricity	Electricity generation and distribution	0.00	-12.0	2.5
Gas	Gas production and distribution	0.00	-12.0	2.5
Water, sewerage and	Water, sewerage and drainage	0.00	-12.0	2.5

drainage				
Residential building	Residential building construction (4111, 4112, 42 part)	0.00	-12.0	2.5
	Repair and maintenance of residential buildings (4111, 4112, 42 part)	0.00	-12.0	2.5
Other construction	Non-residential building construction (4113, 42 part)	0.00	-12.0	2.5
	Repair and maintenance of non-residential buildings (4113, 42 part)	0.00	-12.0	2.5
	Road and bridge construction (excl repair and maintenance)(4121)	0.00	-12.0	2.5
	Road and bridge repair and maintenance (4121, 42 part)	0.00	-12.0	2.5
	Non-building construction nec (4122, 42 part)	0.00	-12.0	2.5
	Repair and maintenance of non-building construction nec (4122, 42 part)	0.00	-12.0	2.5
Wholesale trade	Margin - wholesaling services	0.00	-12.0	2.5
	Non-margin - wholesaling services (excl repairing and servicing)	0.00	-12.0	2.5
Retail trade	Margin - retailing services	0.00	-12.0	2.5
	Non-margin - retailing services (excl repairing and servicing)	0.00	-12.0	2.5
Mechanical repairs	Tractors, agricultural or construction machinery repairing and servicing (4611 part)	0.00	-12.0	2.5
	Motor vehicle, outboard motor and lawn mower repairing and servicing (4620 part)	0.00	-12.0	2.5
Other repairs	Business machines and equipment repairing and servicing (4614 part)	0.00	-12.0	2.5
	Wholesale repairing and servicing nec (46 part, 47 part)	0.00	-12.0	2.5
	Household electrical appliances repairing and servicing (5261 part)	0.00	-12.0	2.5
	Retail repairing and servicing nec (52 part, 53 part)	0.00	-12.0	2.5
Accommodation, cafes & restaurants	Accommodation services (5710)	0.00	-12.0	2.5
	Margin - restaurant, hotel and licensed club services (5720 part, 5730 part, 5740 part)	0.00	-12.0	2.5
	Meal preparation and presentation (5730 part, 5740 part)	0.00	-12.0	2.5
	Licensed and non-licensed club services nec (5740 part)	0.00	-12.0	2.5
Road transport	Margin - road freight transport services	0.00	-12.0	2.5
	Non-margin - road freight transport	0.00	-12.0	2.5
	Bus and tramway transport services	0.00	-12.0	2.5
	Road passenger transport services nec	0.00	-12.0	2.5
Rail, pipeline, other transport	Margin - railway freight transport services	0.00	-12.0	2.5
	Non-margin - railway freight transport services nec	0.00	-12.0	2.5
	Railway passenger transport services	0.00	-12.0	2.5
	Margin - pipeline transport services	0.00	-12.0	2.5
	Transport services nec	0.00	-12.0	2.5
Water transport	Margin - ocean and inland water freight transport services	0.00	-12.0	2.5
	Non-margin - Water Transport	0.50	-12.0	0.5
Air and space transport	Margin - air freight transport services	0.00	-12.0	2.5
	Non-margin - Air and Space Transport	2.00	-12.0	2.5
Services to transport; storage	Parking services	0.00	-12.0	2.5
	Services to road transport nec	0.00	-12.0	2.5
	Margin - services to water transport (6621-6629)	0.00	-12.0	2.5
	Road freight forwarding	0.00	-12.0	2.5
	Forwarding agency services (excl road freight forwarding)	0.00	-12.0	2.5
	Customs agency services; services to transport nec (6644, 6649)	0.00	-12.0	2.5

	Storage	0.00	-12.0	2.5
	Misc. Services to Transport	0.00	-12.0	2.5
Communication services	Postal services	0.00	-12.0	2.5
	Courier services	0.00	-12.0	2.5
	Domestic telecommunication services	0.00	-12.0	2.5
	Overseas telecommunication services	0.00	-12.0	2.5
Banking	Bank services - imputed charge	0.00	-12.0	2.5
	Bank services nec	0.00	-12.0	2.5
Non-bank finance	Building society services nec - imputed charge (7322, 7330)	0.00	-12.0	2.5
	Building society services nec	0.00	-12.0	2.5
	Credit union services - imputed charge	0.00	-12.0	2.5
	Credit union services nec	0.00	-12.0	2.5
	Authorised money market dealer services - imputed charge	0.00	-12.0	2.5
	Money market corporations - IBSC	0.00	-12.0	2.5
	Money market corporations - explicit charge	0.00	-12.0	2.5
	Australian Industry Development Corporation and Victorian Development Corporation Services	0.00	-12.0	2.5
	Finance services - imputed charge	0.00	-12.0	2.5
	Finance services nec	0.00	-12.0	2.5
Financial asset investors	Financial asset investors	0.00	-12.0	2.5
	Holding company services nec	0.00	-12.0	2.5
Life & super	Life insurance and superannuation fund services (7411-7412)	0.00	-12.0	2.5
Other insurance	Health insurance services	0.00	-12.0	2.5
	Margin - marine insurance services	0.00	-12.0	2.5
	Fire insurance services	0.00	-12.0	2.5
	Houseowner and household insurance services	0.00	-12.0	2.5
	Crops (incl hailstone damage) and livestock insurance services	0.00	-12.0	2.5
	Motor vehicle comprehensive and compulsory third party insurance services	0.00	-12.0	2.5
	Misc. insurance	0.00	-12.0	2.5
Services to finance etc	Security broking and dealing services	0.00	-12.0	2.5
	Services to finance and investment nec (incl imputed charge)	0.00	-12.0	2.5
	Services to insurance	0.00	-12.0	2.5
Ownership of dwellings	Ownership of dwellings	0.00	-12.0	2.5
Other property services	Property operator and developer services	0.00	-12.0	2.5
	Real estate agent services	0.00	-12.0	2.5
	Agricultural or pastoral property broking, leasing, renting or valuing	0.00	-12.0	2.5
	Non-financial asset investors	0.00	-12.0	2.5
	Motor vehicle hire	0.00	-12.0	2.5
	Ship and boat leasing or hire (except on a financial lease basis)	0.00	-12.0	2.5
	Caravan, car trailer, box trailer or horse trailer hire	0.00	-12.0	2.5
	Transport container leasing or hire	0.00	-12.0	2.5
	Transport equipment leasing nec	0.00	-12.0	2.5
	Plant leasing, hiring and renting services nec	0.00	-12.0	2.5
Scientific research etc	Research services	0.00	-12.0	2.5
	Architectural services	0.00	-12.0	2.5

	Surveying services	0.00	-12.0	2.5
	Consulting engineering services	0.00	-12.0	2.5
	Quantity surveying services	0.00	-12.0	2.5
	Meteorology services	0.00	-12.0	2.5
	Technical services nec	0.00	-12.0	2.5
	Data processing services	0.00	-12.0	2.5
	Information storage and retrieval	0.00	-12.0	2.5
	Computer maintenance services	0.00	-12.0	2.5
	Computer consultancy services	0.00	-12.0	2.5
Legal, accounting etc services	Legal services	0.00	-12.0	2.5
	Accounting services	0.00	-12.0	2.5
	Advertising services	0.00	-12.0	2.5
	Commercial art and display services	0.00	-12.0	2.5
	Market research services	0.00	-12.0	2.5
	Business administrative services	0.00	-12.0	2.5
	Business management services	0.00	-12.0	2.5
Other business services	Employment placement and contract staff services (excl casting agency service)	0.00	-12.0	2.5
	Typing, copying and mailing services	0.00	-12.0	2.5
	Security and investigative services (except police)	0.00	-12.0	2.5
	Pest control services	0.00	-12.0	2.5
	Cleaning services	0.00	-12.0	2.5
	Contract packing services nec	0.00	-12.0	2.5
	Collecting and credit reporting services	0.00	-12.0	2.5
	Business services nec	0.00	-12.0	2.5
Government administration	Federal government administrative services	0.00	-12.0	2.5
	State government administrative services	0.00	-12.0	2.5
	Local government administrative services	0.00	-12.0	2.5
	Judicial services	0.00	-12.0	2.5
Defence	Defence services	0.00	-12.0	2.5
Education	School, post-school and educational services nec	0.00	-12.0	2.5
Health services	Hospital and nursing home services	0.00	-12.0	2.5
	Medical services (8621, 8622, 8631)	0.00	-12.0	2.5
	Dental services	0.00	-12.0	2.5
	Optometry and optical dispensing; health services nec (8632, 8635, 8636, 8639)	0.00	-12.0	2.5
	Ambulance services	0.00	-12.0	2.5
	Community health centre services (medical and paramedical)	0.00	-12.0	2.5
	Veterinary services	0.00	-12.0	2.5
Community services	Childminding centres	0.00	-12.0	2.5
	Community care services (8721, 8722, 8729)	0.00	-12.0	2.5
Motion picture, radio etc	Motion picture production	0.00	-12.0	2.5
	Film hiring services	0.00	-12.0	2.5
	Motion picture theatre services	0.00	-12.0	2.5
	Radio and television station services (9121-9122)	0.00	-12.0	2.5
Libraries, museums, arts	Library, museum and art gallery services	0.00	-12.0	2.5
	Zoological and botanical services	0.00	-12.0	2.5
	Recreational parks and gardens operation	0.00	-12.0	2.5
	Music and theatre production operation	0.00	-12.0	2.5
	Creative arts (own account)	0.00	-12.0	2.5
	Sound recording studios operation	0.00	-12.0	2.5

	Performing arts venue operation	0.00	-12.0	2.5
	Casting agency operation	0.00	-12.0	2.5
	News reporting services (excl own account)	0.00	-12.0	2.5
	Services to the arts nec	0.00	-12.0	2.5
Sport, gambling etc	Horse and dog racing operation	0.00	-12.0	2.5
	Sports grounds and similar facilities operation nec	0.00	-12.0	2.5
	Ski slope and similar services	0.00	-12.0	2.5
	Sports and services to sports nec	0.00	-12.0	2.5
	Lottery operation	0.00	-12.0	2.5
	Casinos operation	0.00	-12.0	2.5
	Gambling services nec	0.00	-12.0	2.5
	Totalisator agency services	0.00	-12.0	2.5
	Recreation services nec	0.00	-12.0	2.5
Personal services	Personal and household goods hiring (incl video hire)	0.00	-12.0	2.5
	Laundry and dry-cleaning services	0.00	-12.0	2.5
	Photographic film processing	0.00	-12.0	2.5
	Photography services nec	0.00	-12.0	2.5
	Funeral directing services	0.00	-12.0	2.5
	Crematoria and cemetery services	0.00	-12.0	2.5
	Hairdressing and beauty salon services	0.00	-12.0	2.5
	Personal services nec	0.00	-12.0	2.5
	Domestic services of private household employees	0.00	-12.0	2.5
Other services	Religious organisations	0.00	-12.0	2.5
	Interest groups	0.00	-12.0	2.5
	Police services	0.00	-12.0	2.5
	Corrective centres	0.00	-12.0	2.5
	Fire brigade services (excl forest)	0.00	-12.0	2.5
	Sanitary and garbage disposal services	0.00	-12.0	2.5
Travel	Travel	0.00	-4.0	2.5

