AN ECONOMIC ANALYSIS OF THE TASMANIAN FISHING INDUSTRY

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CENTRE FOR REGIONAL ECONOMIC ANALYSIS

FISHERIES RESEARCH & DEVELOPMENT CORPORATION

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An Economic Analysis of the Tasmanian Fishing Industry

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FISHERIES RESEARCH DEVELOPMENT CORPORATION PREFACE

(i) Summary

The study involved the construction of an economic model of the Tasmanian fishing industry: *TASFISH*. The model identifies twenty-two Tasmanian industries, of which nine represent the activities of firms in the fishing industries (abalone, rock lobster, scalefish, trawl, salmon farming, oyster farming, mussel farming, other seafood, and seafood processing). The model contains twenty-four commodities, of which eleven are outputs of the fishing industry (abalone, salmon, oysters, mussels, rock lobster, orange roughy, shark, trevalla, blue grenadier, other seafood, and processed seafood).

The economic model required the construction of an input-output table of the Tasmanian economy, with particular attention paid to the costs and sales structures of the fishing industries and fishing commodities. The input-output table was compiled from data collected from a survey of firms in each fishing industry sector; liaison with industry representatives; data supplied by the Department of Primary Industry and Fisheries; Australian Bureau of Agricultural and Resource Economics publications; Australian Bureau of Statistics publications; and the Centre for Regional Economic Analysis' latest input-output table for the Tasmanian and mainland economies.

The input-output table does not represent the model, but rather, *part* of the database upon which the model relies. *TASFISH* is a computable general equilibrium (CGE) model in the Johansen class of such models. *TASFISH* models the economic behaviour of Tasmanian households, firms, investors, state and federal governments, foreign importers, and mainland importers. The model is based on a number of standard CGE assumptions. Firms are assumed to minimise their costs and are modelled as operating within perfectly competitive markets. Households are assumed to maximise a measure of their happiness when deciding between which commodities to purchase. Foreign and mainland export demands are modelled as price sensitive. State and Federal government demands are exogenous.

The *TASFISH* model is the first computable general equilibrium model to focus on the fishing industry of a region. Key features of the model include the potential mobility of some forms of fishing capital between sectors of the wild fisheries industry; the multi-product capacity of the wild fisheries and marine farming enterprises; the actual or potential for limitations on entry into some sectors through licensing; the actual or potential for quota restrictions on the output of some sectors; and the modelling of resource constraints and price-responsive behaviour which are standard in computable general equilibrium models.

(ii) Background and Need

The Tasmanian Fisheries Research Advisory Board expressed a desire to have research and development strategies and policies that reflect the economic realities of the fishing industry. It was felt that an economic model of the Tasmanian fishing industry could inform the formulation of such strategies.

(iii) Objectives

The objectives of the study, as they appeared in the original proposal, were to evaluate the economic impact of the Tasmanian fishing industry using an input-output model of the Tasmanian economy, and assess the future growth prospects of the different industry components. In response to the comments of a reviewer of the original proposal, the project was changed so that a computable general equilibrium model of the fishing industry was to be constructed. This would allow supply-side constraints and other relationships to be better modelled. The construction of a computable general equilibrium model is a significantly more resource-intensive task than the construction of an input-output model, and so the construction of the CGE model became the primary research objective.

(iv) Methods

Data were collected on the Tasmanian fishing industry. These data were collected from: a survey of firms in each fishing industry sector; liaison with industry representatives; data supplied by the Department of Primary Industry and Fisheries; publications of the Australian Bureau of Agricultural and Resource Economics; and publications of the Australian Bureau of Statistics. These data were used to develop

both cost-structures for each fishing industry, and sales-structures for each fishing commodity. These cost- and sales-structures were combined with a condensed version of the Centre for Regional Economic Analysis' latest input-output table for the Tasmanian and mainland economies. The result of this integration was a 24 x 22 commodity - industry input-output table of the Tasmanian economy for 1994/95. This input-output table formed part of the database for the *TASFISH* model.

The *TASFISH* equation structure was written, based on assumptions about the economic behaviour of firms, households, investors, government, and foreign and mainland importers. The resulting system of equations was non-linear. The method used to solve the model requires a system of linear equations. The system of non-linear equations was converted to a system of linear equations through logarithmic differentiation.

The *TASFISH* model was solved using a suite of programs (*GEMPACK*) developed by the Centre of Policy Studies at Monash University. This step required the computer coding of the model in a format recognisable by *GEMPACK*. Similarly, the database of the model was converted to a format recognisable by *GEMPACK*. A real homogeneity test, and a nominal homogeneity test were then undertaken to check the computer implementation of the model. A trial simulation representing an increase in the availability of rock lobster pot licences was undertaken.

(v) Detailed Results

The *TASFISH* model and database have been constructed and tested. The model's database provides a clear picture of the size, and relative importance, of each fishing industry sector. The details of the model and database are contained in the main body of this report.

(vi) Benefits

The beneficiaries of the research will include both industry and government. Industry will benefit in a number of ways. First, they will benefit from better informed decision making on policy matters that directly affect their industry. Industry will be in a position to undertake, or commission someone to undertake, simulations of the

model to assess the impact of government policy change on their industry and the wider Tasmanian economy. This will make clear the economic implications of such policy changes to both the members of the industry, government, and the local communities that may be affected by government policy change.

State Government will benefit from the existence of a sophisticated model capable of application to the assessment of policy affecting the fishing industry. The model can be used to assess the impact on a wide range of economic variables of changes in a number of government policy areas. These policy areas include, but need not be limited to, quota and licensing changes, access to marine farm acreage, resource rents, licence fees, and the lifting of import bans.

We foresee these benefits extending over a number of years. The project has established the infrastructure for a permanent capacity to undertake sophisticated economic assessments of issues facing the Tasmanian fishing industry. The majority of studies that will be conducted with the model will provide scope for small refinements to the model, in terms of both its database and theoretical structure. The model database can also be updated as the Centre for Regional Economic Analysis undertakes its regular updating of the *FEDERAL* model (CREA's large scale multi-regional CGE model). In this way, the model will be of continued currency, both in terms of reflecting the economic realities of the Tasmanian fishing industry, and embodying recent developments in CGE modelling.

(vii) Intellectual property

The intellectual property arising from the project is the economic model, *TASFISH*, and that component of the model database that has not been derived from the Centre for Regional Economic Analysis' *FEDERAL* model database.

(viii) Further development

Further development work should be undertaken on the model as the needs of specific applications require.

(ix) Staff

The report was written by Mr James Giesecke under the supervision of Dr John Madden. Other staff to work on the project were Dr A J Hagger, Mrs P K Fenton and Mr S J Madden.

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(x) Final Cost

The final cost of the project was $86,000. The FRDC's contribution to the project was $47,422. The remaining $37,719 was contributed by the Centre for Regional Economic Analysis.

(xi) Acknowledgments

The following people are gratefully acknowledged for the assistance they have provided CREA in undertaking this research.

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Neil Stump, Tasmanian Rock Lobster Fishermen's Association

Rodney Treloggen, Tasmanian Rock Lobster Fishermen's Association

Karen Webb, Department of Primary Industry and Fisheries

Howell Williams, Department of Primary Industry and Fisheries

William Zacharin, Department of Primary Industry and Fisheries

1. INTRODUCTION

The *TASFISH* model is a single-region computable general equilibrium model of the Tasmanian economy with particular emphasis on detailed modelling of the wild fisheries, aquaculture, and seafood processing sectors of the economy. The model is suitable for analysis of the impact of policy, technological, market condition, and other changes on both the Tasmanian fishing industry and the Tasmanian economy as a whole.

The *TASFISH* model is capable of assessing the economic consequences of a wide range of both supply and demand-side shocks. Such shocks include, but are not necessarily limited to:

- changes in fishing, processing, and aquaculture production technologies;
- import price competition;
- changes in wage rates and other input costs;
- changes in government policy variables;
- state and federal government taxation rates;
- changes in consumer tastes; and
- change in export demands for Tasmanian seafoods.

It is possible to assess the consequences of such issues for a wide range of economic variables. Such variables include, but are not limited to:

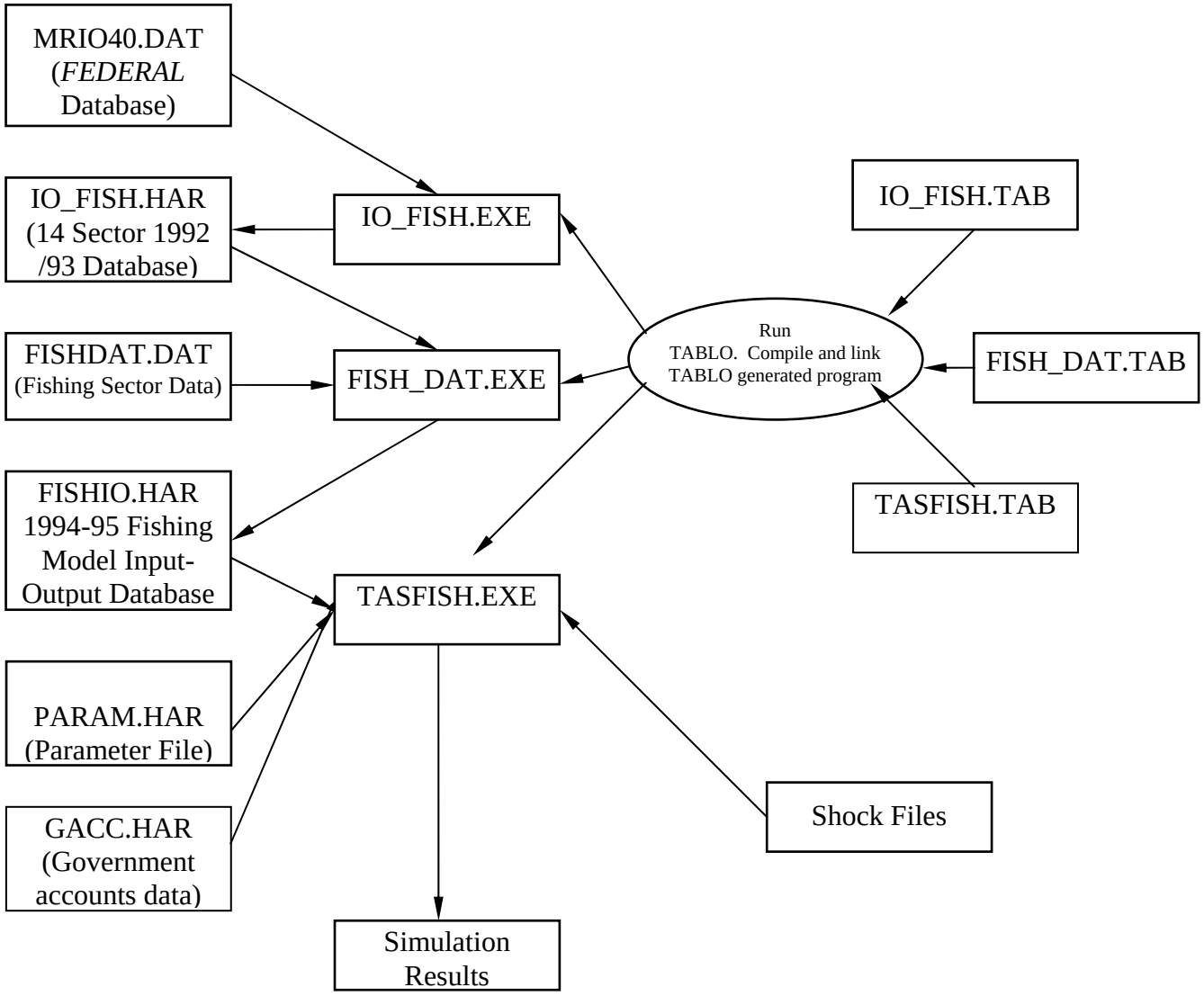
- returns to capital by industry;
- commodity prices;
- commodity production;
- investment and capital stocks by industry;
- real consumption spending by Tasmanian households;
- State government revenue, expenditures, and borrowing requirement;
- employment by industry;
- real producer wages by industry; and
- Tasmanian consumer price index

In the design of the model theory, attention has been paid to those aspects of the fishing industry that distinguish it from other industries. These distinguishing characteristics have been embodied in the equation system of the *TASFISH* model, and include:

- the potential mobility of some forms of fishing capital between sectors of the wild fisheries industry;
- the multi-product capacity of the wild fisheries and marine farming enterprises;
- the actual or potential for limitations on entry into some sectors through licensing; and
- the actual or potential for quota restrictions on the output of sectors.

This report is set out as follows. The theory underpinning the TASFISH model is explained in Section 2. Section 3 explains the structure and construction of the *TASFISH* model database. Appendices A, B and C describe the *TASFISH* model. Appendix A contains a listing of the model's equations, Appendix B contains a listing of the model's variables, and Appendix C contains a listing of the model's coefficients. Appendix E contains the TABLO code for IO_FISH.TAB. This program aggregates the two-region 37-sector database of the Centre for Regional Economic Analysis' *FEDERAL* model into a single-region 14-sector database (IO_FISH.HAR). Appendix F contains the TABLO code for IO_FISH.TAB. This program takes the 1992/93 14-sector database (IO_FISH.HAR), updates it to 1994/95, and integrates it with detailed data on the Tasmanian fishing industry (contained in FISHDAT.DAT), to create the 1994/95 *TASFISH* input-output database (FISHIO.HAR). The *TASFISH* model (TASFISH.TAB) employs both the input-output data in FISHIO.HAR, and information on parameters and elasticities (contained in PARAM.HAR and GACC.HAR) to produce simulation results (given the shocks contained in the relevant shock files). Figure 1.1 details the relationships between the files contained in Appendices E through G.

Figure 1.1: *TASFISH* Model: Data, Shock, and Program Files



4. SIMULATIONS WITH THE *TASFISH* MODEL

This section reports the results of three simulations. Two of these simulations exploit the theoretical properties of the model to test that the computer coding of the model has been carried out correctly.

The third shock is an illustrative policy shock - a ten per cent increase in the availability of rock lobster pot licences (or equivalently, a ten per cent uniform increase in the number of pots allowable on all current licences). It must be stressed that this shock has been undertaken and included only to illustrate the nature of the simulations that can be undertaken with the *TASFISH* model. It is not intended as a definitive simulation of the economic consequences of an increase in the number of pot licences. This would require a detailed analysis of the characteristics of such a proposal prior to undertaking a simulation with the model, to ensure that the particular features of the proposal were adequately modelled. Undertaking a simulation with a computable general equilibrium model such as *TASFISH* is rarely a simple matter of administering one or two shocks to existing exogenous variables. First, careful consideration must be given to whether a CGE model is the appropriate tool to use to analyse the issue at hand. If so, the relevant issue must be understood by the model user in some detail. The model user can then make any necessary changes to the theoretical structure of the model, and the database of the model, to ensure that the issue is properly modelled within the framework of the existing CGE model. Having made such changes to the model, the user must then decide, given the issue being analysed, what is an appropriate split between the endogenous and exogenous variables. The shocks to the model are then formulated, and the simulation undertaken. The results of the simulation must then be carefully examined and understood before they are reported. Hence each simulation of the model should be viewed as a significant analytical task in itself. The resources available for the present project were not sufficient to undertake simulations of issues relevant to the Tasmanian fishing industry. While we could have undertaken a larger number of illustrative simulations such as that provided for the rock lobster industry, we have chosen to not do so, primarily to avoid the results of such simulations being misinterpreted or misused by future readers of the report.

4.1 Nominal Homogeneity Test

The economic theory underlying the *TASFISH* model is such that the behaviour of economic agents is only affected by relative price changes. This property allows one to check the implementation of the model by testing whether all nominal values increase by a uniform amount, and all real variables remain unchanged, when the absolute price level is exogenously shocked. A 10 per cent shock was administered to the nominal exchange rate, and the price of imports from the Mainland, and the price of transport on goods imported from the Mainland. All nominal variables increased by ten per cent, and all real variables remained unchanged.

4.2 Real Homogeneity Test

A second computational test can be carried out by undertaking a "real homogeneity test". Constant returns to scale have been assumed in the construction of the model. Hence one would expect that a one per cent increase in all exogenous real variables in the model will result in a one per cent increase in all endogenous real variables while leaving all endogenous price variables unchanged. A one per cent shock was administered to labour supply, current capital stocks, licence supplies, land supply, foreign and mainland export quantities, and state and federal government demands. All endogenous real variables increased by one per cent, and all nominal variables remained unchanged.

4.3 An Increase in Pot Licences in the Rock Lobster Industry

The number of pot licences in the rock lobster industry was increased by 10 per cent under a long-run closure. Equation 30 equates the demand for, and supply of, each licence type. This Equation requires that the increase in the supply of rock lobster pot licences is matched by an increase in demand.

The demand for rock lobster pot licences is given by the factor demand equation, Equation 13. This Equation requires that, in the absence of an increase in the activity

level of the rock lobster industry, in order for the demand for rock lobster pot licences to increase, the price of pot licences must fall relative to the prices of the other inputs used by the rock lobster industry. In order to equate the demand and supply of pot licences, the pot licence rentals are projected to fall by 10.5 per cent.

The decrease in the price of rock lobster pot rentals causes a decrease in the costs of the rock lobster industry. Given the assumption of perfect competition, this decrease in costs is passed on to the users of rock lobster in the form of lower prices. Hence the basic price of Tasmanian sourced rock lobster is modelled to fall by 2.46 per cent.

The fall in the basic price of rock lobster induces users of rock lobster to increase their demand for the commodity. It has been assumed in the construction of the model that the rock lobster industry sells its output to the Seafood Processing Industry ($24.17 million), Tasmanian households ($0.831 million), Mainland firms and households ($0.842 million), and foreigners ($12.013 million). The demand for rock lobster by the Seafood Processing industry is projected to increase by 2.1 per cent. Tasmanian household demands are projected to increase by 2.4 per cent, Mainland demands are projected to increase by 2.5 per cent, and foreign export demands are projected to increase by 4.9 per cent.

The rock lobster industry is projected to substitute away from the use of other inputs, and towards the use of pots. The use of labour and capital by the industry decreases by 0.5 per cent. The industry's usage of vessel licences and fishing licences also decrease. Fishing licences are modelled as being in perfectly elastic supply at a constant price, so the decrease in the demand for these licences by the rock lobster industry has no influence on the other sectors of the fishing industry. However vessel fishing licences are in fixed supply, and are used by other sectors of the fishing industry. With the supply of vessel fishing licences fixed, the decrease in the demand for these licences by the rock lobster industry causes a fall in the rental price of these licences. The rental price of vessel licences is modelled to fall by 0.36 per cent.

Other than the impact on the Seafood Processing sector, the shock modelled here has a negligible impact on economic activity in other industry sectors. The fall in the

price of the vessel licences causes a fall in the costs of the other industries that use these licences. However the fall in the prices of these licences is so small (0.36 per cent), and the rentals on these licences represent a small share of the costs of these industries, so there is little impact on economic activity in the other fishing industries.

Likewise, the increase in the number of pot licences has a negligible impact on indicators of aggregate economic activity at the State level. Household real consumption spending, and real private investment spending, are each projected to increase by 0.005 per cent. Employment is projected to increase by 0.006 per cent (or approximately ten jobs).

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CENTRE FOR REGIONAL ECONOMIC ANALYSIS

SURVEY OF AQUACULTURE ESTABLISHMENTS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about the economics of your business.

Answers which provide the greatest detail possible will maximise the usefulness of this study for the fishing industry, and ultimately, your business.

It will be most advantageous to us if you can complete the survey using data for the 1994/95 financial year. If, however, this is not convenient, please complete the survey for the year closest to 1994/95 for which data are available.

If you own or operate more than one establishment engaged in different acquaculture activities, the appropriate number of questionnaires should have been enclosed.

If, however, your establishments are engaged in similar aquaculture activities, you may pool information on all your establishments on the one questionnaire.

Please note that the information you provide will not be divulged to any party under any circumstances.

If you need additional forms or you have any questions at all about the questionnaire or the overall study, please do not hesitate to telephone James Giesecke, Centre for Regional Economic Analysis, on (002) 20 2054.

Your prompt response will be of great assistance to us. Can you please return your questionnaires by Monday, 17 June 1996, at the latest.

GENERAL QUESTIONS

1. Did you operate during the 1994/95 financial year? *(Please tick one)*

   ☐ Yes Go to question 2

   ☐ No You have completed the questionnaire. Thank you for your cooperation. Please enclose this questionnaire in the accompanying post-free envelope and return it to CREA.

2. For which financial year have you provided data in this survey? *(Please tick one)*

   1994/95 ☐ *(Please provide data for the 1994/95 financial year if possible)*

   1993/94 ☐

   1992/93 ☐

   Other ☐ Please specify ☐

3. In the financial year for which you are providing data, what was the overall size of your marine farm?

   ☐ hectares

4. In the financial year for which you are providing data, what was the size of the developed area?

   ☐ hectares

5. In the financial year for which you are providing data, what was the total capital value of your establishment?

   - on water $ ☐
   - on land $ ☐

   In the financial year for which you are providing data, what were the additons to this capital value?

   - on water $ ☐
   - on land $ ☐

6. In the financial year for which you are providing data, how many people were employed in your establishment? (Include participating owners)

- full time ☐

- part time ☐ (total part time hours per annum _____)

7. Approximately what proportion of your firm is ultimately owned by residents of Tasmania?

☐ per cent

SALES

These questions relate to your sales during the financial year for which you are providing data.

8. What was the total value of your sales during the financial year for which you are providing data.

$ ☐ Total sales

9. For each of the species indicated below, what was the percentage contribution of each to total sales?

Species	**Percentage by value of Total Sales %**
Salmonids	
Oysters	
Mussels	
Abalone	
Scallops	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

10. For each of the species shown below, please indicate the percentages that you sold to each type of purchaser. Please include sales of fish stock of all sizes, not just market size stock. Ignore those species for which your sales were zero.

Species	Sales Outside Tasmania		Sales Inside Tasmania							Total %
	Exports to Mainland %	Exports Overseas %	Other Marine Farms %	Seafood Processor* %	Fish Wholesalers %	Fish Retailers %	Consumers %	Restaurants %	Other *(Please specify)* %	
Salmonids										**100%**
Oysters										**100%**
Mussels										**100%**
Abalone										**100%**
Scallops										**100%**
Other *(Please specify)*										
(a)										**100%**
(b)										**100%**
(c)										**100%**

* excluding retailers or wholesalers of fish

EXPENSES

These questions relate to your expenses during the financial year for which you are supplying data.

11. What was the total value of your expenses?

$	Total expenses

12. Please indicate the percentage of your total expenses represented by each expense item listed in the table below.

Expense	Percentage of Total Expense %
Spat, Fingerlings, etc.	
Market size stock purchased from other marine farms for resale	
Petrol, Oil, Diesel Fuel	
Provisions (e.g. food and beverages)	
Protective Clothing and Footwear	
Packaging by Material Type *(Please specify)*	
(a)	
(b)	
(c)	
Equipment (e.g. nets, mesh bags, etc.) *(Please specify)*	
(a)	
(b)	
(c)	
Wages and salaries (incl. payroll taxes and employee benefits)	
Repairs/Maintenance	
Licence Fees	
Transport/Freight Costs	
Insurance	
Accountant	
Telephone	
Electricity	
Vehicle Registrations	
Legal Expenses	
Promotion and Advertising	
Consultants Fees	
Interest	
Depreciation	
Other Expenses *(Please specify)*	
(a)	
(b)	
(c)	
Total Costs	**100%**

CAPITAL OUTLAYS

These questions relate to your capital outlays during the <u>1994/95</u> financial year.

13. What was the total value of your capital outlays?

    $ _____ Total Capital Outlays

14. Please indicate the percentage of your total capital outlays represented by each capital outlay item listed in the table below:

Capital Expenditure (1994/95)	**Percentage of total capital outlays %**
New Baskets	
New Trays	
Racks	
Rails	
Sieving Machines	
Boats	
Tractors	
Water Pumps	
Addition to Inventories	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total Capital Outlays	**100%**

15. *(Optional)* We may need to clarify with you some of the information you have supplied us in this survey. To enable us to do this, you may like to leave your name and contact number below:

    Name: ..... (optional)

    Phone: ..... (optional)

Thank you for your cooperation. Please enclose this questionnaire in the attached post-free envelope and then return it to CREA.

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CENTRE FOR REGIONAL ECONOMIC ANALYSIS

SURVEY OF TASMANIAN SEAFOOD PROCESSORS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about the economics of your business.

Answers which provide the greatest detail possible will maximise the usefulness of this study for the fishing industry, and ultimately, your business.

It will be most advantageous to us if you can complete this survey using data for the 1994/95 financial year. If, however, this is not convenient, please complete the survey for the year closest to 1994/95 for which data are available.

Please note that the information you provide will not be divulged to any party under any circumstances.

If you need additional forms or you have any questions at all about the questionnaire or the overall study, please do not hesitate to telephone James Giesecke, Centre for Regional Economic Analysis, on (002) 20 2054.

Your prompt response will be of great assistance to us. Can you please return your questionnaires by Monday, 17 June 1996, at the latest.

GENERAL QUESTIONS

1. Did you operate during the 1994/95 financial year? *(Please tick one box)*

   ☐ Yes Go to question 2

   ☐ No You have completed the questionnaire. Thank you for your cooperation. Please enclose this questionnaire in the accompanying post-free envelope and return it to CREA.

2. For which financial year have you provided data in this survey? *(Please tick one box)*

   1994/95 ☐ *(Please provide data for the 1994/95 financial year if possible)*

   1993/94 ☐

   1992/93 ☐

   Other ☐ Please specify _____

3. In the financial year for which you are providing data (as indicated in your answer to question 2) how many people were employed in your establishment? (Include participating owners)

   full time _____

   part time _____ (total part time hours per annum) _____

4. Approximately what proportion of your firm is ultimately owned by residents of Tasmania?

   ☐ per cent

SALES

These questions relate to your sales during the financial year for which you are providing data (as indicated in your answer to questions 2).

5. What was the total value of your sales in the financial year for which you are supplying data?

$ _____ Total sales

6. Please indicate below the percentage of your total sales represented by sales to each type of customer listed.

Type of Customer	Percentage of Total Sales %
Customers Outside Tasmania:	
Exports to the Mainland	
Exports Overseas	
Customers Within Tasmania:	
Retail Fish Markets	
Other Retail Markets	
Wholesale Fish Markets	
Other Wholesale Markets	
Direct sale to Consumers	
Seafood Processors	
Fish Restaurants	
Other Restaurants	
Institutions (e.g. Hospitals) *(Please specify)*	
(a)	
(b)	
(c)	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

SEAFOOD PURCHASES

These questions relate to your seafood purchases during the financial year for which you are providing data (as indicated in your answer to question 2).

7. What was the total value of your seafood purchases?

$ _____ Total value

8. Please record the percentage of your total seafood purchases represented by purchases of each of the species listed below.

Species Type	Percentage of Total Seafood Purchases
Abalone	
Scallops	
Crustacea	
Rocklobster	
Giant Crab	
Other	
Jack mackerel	
Deep water trawl fish	
Orange Roughy	
Blue grenedier	
Other	
Finfish	
Trevalla	
Garfish	
Australian salmon	
Trumpeter	
Flathead	
Flounder	
Shark	
Other	
Octopus	
Calamari	
Seaweed	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

9. This question relates to where you purchased each variety of seafood you processed.

For each seafood variety you purchased, please indicate the percentage (by value) purchased from Tasmania, the Mainland and Overseas. Ignore those species for which your purchases were zero.

Species Type	Source of Purchases as a Percentage of Purchase Value			Total
	Tasmania %	Australia %	Overseas %	
Abalone				**100%**
Scallops				**100%**
Crustacea				
Rocklobster				**100%**
Giant Crab				**100%**
Other				**100%**
Jack mackerel				**100%**
Deep water trawl fish				
Orange Roughy				**100%**
Blue grenadier				**100%**
Other				**100%**
Finfish				
Trevalla				**100%**
Garfish				**100%**
Australian salmon				**100%**
Trumpeter				**100%**
Flathead				**100%**
Flounder				**100%**
Shark				**100%**
Other				**100%**
Octopus				**100%**
Calamari				**100%**
Seaweed				**100%**
Other *(Please specify)*				
(a)				**100%**
(b)				**100%**
(c)				**100%**

OTHER EXPENSES

These questions relate to your other expenses (i.e. other than seafood purchases) during the financial year for which you are supplying data.

10. What was the value of your other expenses (i.e. other than seafood purchases)?

    $ _____ Total other expenses

11. Please indicate the percentage of total "other expenses" represented by each expenditure item listed in the table below:

Type of Expenditure	Percentage of total other expenses %
Packaging *(Please specify type of material)*	
(a)	
(b)	
(c)	
All foodstuffs other than seafoods (e.g. salt, oil, etc.) *(Please specify type)*	
(a)	
(b)	
(c)	
Office supplies	
Electricity	
Other utilities (e.g. gas, water)	
Telephone	
Professional services (e.g. legal, advertising, accounting, etc.)	
Other services (e.g. secretarial, etc.) *(Please specify type)*	
(a)	
(b)	
(c)	
Repairs and maintenance	
Building depreciation	
Building rental/lease	
Equipment rental/lease	
Depreciation of plant, equipment, fixtures and fittings	
Wages and salaries (incl. payroll taxes and employee benefits)	
Insurance	
Licences and fees	
Dividends and return to ownership/management	
Interest	
Bad debts	
Other financial expenses *(Please specify)*	
(a)	
(b)	
(c)	
Miscellaneous expenses: *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

CAPITAL OUTLAYS

These questions relate to your capital outlays during the <u>1994/95</u> financial year.

12. What was the total value of your capital outlays in the 1994/95 financial year?

    $ _____ Total Outlays

13. Please indicate the percentage of your total capital outlays represented by outlays on each of the capital expenditure items detailed below:

Capital Expenditure (1994/95)	**Percentage of total capital outlays %**
Buildings	
Equipment *(Please specify)*	
(a)	
(b)	
(c)	
Other capital outlays *(Please specify)*	
(a)	
(b)	
(c)	
Total capital outlays	**100%**

14. *(Optional)* We may need to clarify with you some of the information you have supplied us in this survey. To enable us to do this, you may like to leave your name and contact number below:

    Name: ..... (optional)

    Phone: ..... (optional)

Thank you for your cooperation. Please enclose this questionnaire in the attached post-free envelope and then return it to CREA.

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UNIVERSITY OF TASMANIA

CENTRE FOR REGIONAL ECONOMIC ANALYSIS

SURVEY OF WILD FISHERIES SECTOR OF THE TASMANIAN FISHING INDUSTRY

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about the economics of your business.

Answers which provide the greatest detail possible will maximise the usefulness of this study for the fishing industry, and ultimately, your business.

Please note that the information you provide will not be divulged to any party under any circumstances.

It will be most advantageous to us if you can complete this survey using data for the 1994/95 financial year. If, however, this is not convenient, please complete the survey for the year closest to 1994/95 for which data are available.

If you need additional forms or you have any questions at all about the questionnaire or the overall study, please do not hesitate to telephone James Giesecke, Centre for Regional Economic Analysis, on (002) 20 2054.

Your prompt response will be of great assistance to us. Can you please return your questionnaires by Monday, 17 June 1996, at the latest.

GENERAL QUESTIONS

1. Did you fish at all in the 1994/95 financial year?

   ☐ Yes Go to question 2

   ☐ No You have completed the questionnaire. Thank you for your cooperation. Please enclose this questionnaire in the accompanying post-free envelope and return it to CREA.

2. Please indicate the number of vessels for which you are supplying data on this form. ☐

3. For which financial year have you provided data in this survey? *(Please tick one box)*

   1994/95 ☐ *(Please provide data for the 1994/95 financial year if possible)*

   1993/94 ☐

   1992/93 ☐

   Other ☐ Please specify _____

4. In the financial year for which you are providing data (as indicated in your answer to question 3), how many people were employed on your vessel(s)? (Include participating owners)

   full time _____

   part time _____ (total part time hours per annum) _____

5. In the table provided below, please indicate the approximate weight, length, underdeck volume, and replacement value, of each boat you operate.

No.	Weight	Length	Underdeck Volume	Replacement Cost

6. Approximately what proportion of your fishing enterprise is ultimately owned by residents of Tasmania?

per cent

SALES

These questions relate to the seafood you sold during the financial year for which you are providing data.

7. In the financial year for which you are providing data (as indicated in your answer to question 3) what was the total value of your *seafood* sales?

$ Total Seafood Sales

8. In the financial year for which you are providing data (as indicated in your answer to question 3) what was the value of any other *boat income* you generated?

$ Other Boat Income

9. In the financial year for which you are providing data (as indicated in your answer to question 3), what was the percentage of your catch value contributed by each of the catching methods you use (e.g. 80% demersal trawl, 20% dredge).

Catching Method	Percent
Diving, gathering	
Dredge	
Traps and pots	
Demersal trawl	
Danish seine	
Surround nets	
Gill nets	
Line and hook	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	100%

10. Please indicate the percentage contributions (by value) of each of the following species to your total *seafood* sales during the financial year for which you are providing data.

Species	Percent of Total Catch Value
Abalone	
Scallops	
Crustacea	
Rocklobster	
Giant Crab	
Other	
Jack mackerel	
Deep water trawl fish	
Orange Roughy	
Blue grenadier	
Other	
Finfish	
Trevalla	
Garfish	
Australian salmon	
Trumpeter	
Flathead	
Flounder	
Shark	
Other	
Octopus	
Calamari	
Seaweed	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

11. Please specify in the following table, the percentage sold to each of the customer types listed (for example: for abalone, 80% mainland exports, 20% Tasmanian restaurants). Ignore those species for which your sales were zero.

	Percentage (by value) of each species variety sold to:							**Total**
	Tasmanian Seafood Processors* %	**Tasmanian Fish Wholesalers %**	**Tasmanian Restaurants %**	**Tasmanian Fish Retailers %**	**Exports to Mainland %**	**Exports Overseas %**	**Other *(please specify)***	
Abalone								**100%**
Scallops								**100%**
Crustacea								
Rocklobster								**100%**
Giant Crab								**100%**
Other								**100%**
Jack mackerel								**100%**
Deep water trawl fish								
Orange Roughy								**100%**
Blue grenadier								**100%**
Other								**100%**
Finfish								
Trevalla								**100%**
Garfish								**100%**
Australian salmon								**100%**
Trumpeter								**100%**
Flathead								**100%**
Flounder								**100%**
Shark								**100%**
Other								**100%**
Octopus								**100%**
Calamari								**100%**
Seaweed								**100%**
Other *(Please specify)*								
(a)								**100%**
(b)								**100%**
(c)								**100%**
Total								**100%**

* excluding retailers or wholesalers of fish

EXPENSES

These questions relate to your expenses during the financial year for which you are providing data (as indicated in your answer to question 3).

12. In the financial year for which you are providing data (as indicated in your answer to question 3) what was the total value of your expenses?

$\$$ _____ Total Expenses

13. Please indicate the percentage of your total expenses represented by each expense item in the table below.

Expense	Percentage of Total Expenses
Petrol, Oil, Diesel Fuel	
Provisions (e.g. food and beverages)	
Protective Clothing and Footwear	
Bait *(Please specify type)*	
(a)	
(b)	
(c)	
Fishing Equipment (used during the period) e.g. nets, hooks, rope *(Please specify type)*	
Gillnet	
Hooks	
Pots and traps	
Diving equipment	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Wages and Salaries (including payroll taxes and employee benefits)	
Repairs/Maintenance	
Wharfage Fees	
Licence Fees	
Insurance	
Interest	
Depreciation	
Income Tax	
Other Expenses (e.g. accountant, telephone, electricity) *(Please specify)*	
(a)	
(b)	
(c)	
Total Expenses	**100%**

14. Is the value of the wages you pay related in any way to the value of your catch?

Yes	☐	go to Question 15
No	☐	go to question 16

15. In what way are the value of your wages related to the value of your catch?

_____

_____

_____

CAPITAL OUTLAYS

These questions relate to your capital outlays during the 1994/95 financial year.

16. What was the total value of your capital outlays in **1994/95**.

$ ☐ Capital Outlays

17. Please indicate the percentage of total capital outlays represented by each of the items in the table below.

Capital Expenditure (1994/95)	**Percentage of Total Capital Outlays**
New Engine	
New Vessel	
Additions to inventories	
Other capital outlays *(Please specify)*	
(a)	
(b)	
(c)	
Total capital outlays	100%

18. *(Optional)* We may need to clarify with you some of the information you have supplied us in this survey. To enable us to do this, you may like to leave your name and contact number below:

Name: ..... (optional)

Phone: ..... (optional)

Thank you for your cooperation. Please enclose this questionnaire in the attached post-free envelope and return it to CREA.

UNIVERSITY OF TASMANIA

CENTRE FOR REGIONAL ECONOMIC ANALYSIS

SURVEY OF TASMANIAN SEAFOOD OUTLETS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about the economics of your business, especially as it relates to the sales and purchases of seafood products.

Answers which provide the greatest detail possible will maximise the usefulness of this study for the fishing industry, and ultimately, your business.

It will be most advantageous to us if you can complete this survey using data for the 1994/95 financial year. If, however, this is not convenient, please complete the survey for the year closest to 1994/95 for which data are available.

Please note that the information you provide will not be divulged to any party under any circumstances.

If you need additional forms or you have any questions at all about the questionnaire or the overall study, please do not hesitate to telephone James Giesecke, Centre for Regional Economic Analysis, on (002) 20 2054.

Your prompt response will be of great assistance to us. Can you please return your questionnaires by Monday, 17 June 1996, at the latest.

GENERAL QUESTIONS

1. Did you operate during the 1994/95 financial year? *(Please tick one box)*

   ☐ Yes Go to question 2

   ☐ No You have completed the questionnaire. Thank you for your cooperation. Please enclose this questionnaire in the accompanying post-free envelope and return it to CREA.

2. For which financial year have you provided data in this survey? *(Please tick one box)*

   1994/95 ☐ *(Please provide data for the 1994/95 financial year if possible)*

   1993/94 ☐

   1992/93 ☐

   Other ☐ Please specify _____

3. What is the primary nature of your business? *(Please tick one box)*

   ☐ Restaurant - Seafood Specialty House
   ☐ Restaurant - Other
   ☐ Retail Seafood Business
   ☐ Other Retail Business
   ☐ Wholesale Seafood Business
   ☐ Other Wholesale Business
   ☐ Other (Please specify) _____

4. In the financial year for which you are providing data, how many people were employed in your establishment? (Include participating owners)

   full time _____

   part time _____ (total part time hours per annum) _____

5. Approximately what proportion of your firm is ultimately owned by residents of Tasmania?

   ☐ per cent

SALES

These questions relate to your sales during the financial year for which you are providing data.

6. What was the total value of your ***seafood*** sales during the financial year for which you are providing data?

$	Total seafood sales

7. Please indicate in the table below the percentage of your total ***seafood*** sales made to each of the customer types shown.

Type of Customer	**Percentage of Total Seafood Sales %**
Customers Outside Tasmania:	
Interstate Exports	
Overseas Exports	
Customers Within Tasmania:	
Consumers	
Retail Seafood Businesses	
Other Retail Businesses	
Wholesale Seafood Business	
Other Wholesale Business	
Seafood Processors	
Restaurants	
Institutions (e.g. Hospitals) *(Please specify)*	
(a)	
(b)	
(c)	
Other *(Please specify)*	
(a)	
(b)	
(c)	
Total	**100%**

SEAFOOD PURCHASES

These questions relate to your *seafood* purchases during the financial year for which you are providing data.

8. What was the total value of your purchases of seafood during the financial year for which you are providing data?

   $ _____ Total seafood purchases

9. This question relates to where you purchased each variety of seafood you sold.

   For each species of seafood shown below that you purchased, please indicate the percentage (by value) that you sourced from Tasmania, the mainland, and overseas. Ignore species for which your purchases were zero.

Species Type	Source of Purchases as a Percentage of Purchases Value			Total
	Tasmania %	Mainland %	Overseas %	
Abalone				**100%**
Scallops				**100%**
Crustacea				
Rocklobster				**100%**
Giant Crab				**100%**
Other				**100%**
Jack mackerel				**100%**
Deep water trawl fish				
Orange Roughy				**100%**
Blue grenadier				**100%**
Other				**100%**
Finfish				
Trevalla				**100%**
Garfish				**100%**
Australian salmon				**100%**
Trumpeter				**100%**
Flathead				**100%**
Flounder				**100%**
Shark				**100%**
Other				**100%**
Octopus				**100%**
Calamari				**100%**
Seaweed				**100%**
Other *(Please specify)*				
(a)				**100%**
(b)				**100%**
(c)				**100%**

OTHER EXPENSES

These questions relate to your expenses (other than seafood purchases) during the financial year for which you are providing data (as indicated in you answer to question 2).

11. What was the total value of your expenses (other than seafood purchases) during the financial year for which you are providing data?

$ _____ Total expenses

12. What percentage of these expenses related to your seafood marketing activities?

_____ %

[*This space has been left blank intentionally*.]

13. Please indicate the percentage of your total expenses (other than seafood purchases) represented by each item in the following table:

Type of Expenditure	**Percentage of Total Expenses %**
All non-seafood goods purchased for resale	
Packaging by material type *(Please specify)*	
(a)	
(b)	
(c)	
All foodstuffs other than seafoods (e.g. salt, oil, etc) *(Please specify)*	
(a)	
(b)	
(c)	
Office supplies	
Electricity	
Other utilities (e.g. gas, water)	
Telephone	
Professional services (e.g. legal, advertising, accounting, etc.)	
Other services (e.g. secretarial, etc.) *(Please specify)*	
(a)	
(b)	
(c)	
Repairs and maintenance	
Building depreciation	
Building rental/lease	
Equipment depreciation	
Wages and salaries (incl. payroll taxes and employee benefits)	
Insurance	
Licences and fees	
Dividends and return to ownership/management	
Interest	
Bad debts	
Other financial expenses *(Please specify)*	
(a)	
(b)	
(c)	
Other expenses *(Please specify)*	
(a)	
(b)	
(c)	
Total Other Expenses	100%

CAPITAL OUTLAYS

These questions relate to your capital outlays during the <u>1994/95</u> financial year.

14. What was the total value of your capital outlays in the 1994/95 financial year?

$	Total capital outlays

15. Please indicate the percentage of your total capital outlays in 1994/95 represented by expenditure on the items in the following table:

Capital Expenditure (1994/95)	**Percentage of total expenditure %**
Buildings	
Equipment *(Please specify)*	
(a)	
(b)	
(c)	
Other capital outlays *(Please specify)*	
(a)	
(b)	
(c)	
Total capital outlays	**100%**

16. *(Optional)* We may need to clarify with you some of the information you have supplied us in this survey. To enable us to do this, you may like to leave your name and contact number below:

Name: ..... (optional)

Phone: ..... (optional)

Thank you for your cooperation. Please enclose this questionnaire in the attached post-free envelope and then return it to CREA.

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APPENDIX A:

TASFISH EQUATION SYSTEM

APPENDIX B:

TASFISH VARIABLE LISTING

APPENDIX C:

TASFISH COEFFICIENT LISTING

APPENDIX D:

QUESTIONNAIRES

APPENDIX E:

IO_FISH.TAB

APPENDIX F:

FISH_DAT.TAB

APPENDIX G:

TASFISH1.TAB

APPENDIX A *TASFISH* EQUATION SYSTEM

Household demands for composite commodities.

(1) $$x^{(3)}_{(ic)} = c^{(3)} - p^{(3)}_{(ic)}$$

Household demands for commodities by source.

(2) $$x^{(3)}_{(is)} = x^{(3)}_{(ic)} - \left(p^{(3)}_{(is)} - \sum_{t=1}^{3} S^{(3)}_{(it)} p^{(3)}_{(it)} \right)$$

Government demands for commodities.

(3) $$x^{(4)}_{(is)} = h^{(4)}_{(is)} c^{(3)}_{R} + f^{(4)}_{(is)} + f^{(4)}_{(i)} + f^{(4)}$$

(4) $$x^{(5)}_{(i)} = h^{(5)}_{(i)} c^{(3)}_{R} + f^{(5)}_{(i)} + F^{(5)}$$

Demands for commodities in capital creation.

(5) $$x^{(2)j}_{(ic)} = i_{j} + a^{(2)j}_{(ic)}$$

Demands for commodities by source in capital creation.

(6) $$x^{(2)j}_{(is)} = x^{(2)j}_{(ic)} - \left(p^{(2)j}_{(is)} - \sum_{t=1}^{3} S^{(2)j}_{(it)} p^{(2)j}_{(it)} \right)$$

Export Demand Functions: Mainland.

(7) $$p_{(i6)} = -\lambda_{(i6)} x_{(i6)} + f_{(i6)}$$

Export Demand Functions: Foreign.

(8) $$p^{(w)}_{(i7)} = -\lambda_{(i7)} x^{(w)}_{(i7)} + f^{(w)}_{(i7)}$$

Commodity composition of output by industry j.

(9) $$x_{jm} = z_{j} - \sigma_{j} \left(p^{(0)}_{(m1)} - \sum_{k=1}^{m} S_{jk} p^{(0)}_{(k1)} \right) + f_{jm}$$

Intermediate input demands.

(10) $$x^{(1)j}_{(ic)} = z_{j} + a^{(1)j}_{(ic)}$$

Demand for commodities by source in current production.

(11) $$x_{(is)}^{(1)j} = x_{(ic)}^{(1)j} - \left(p_{(is)}^{(1)j} - \sum_{t=1}^{3} S_{(it)}^{(1)j} p_{(it)}^{(1)j} \right)$$

Demand for effective primary factor input.

(12) $$x_{(F)}^{(1)j} = z_j + a_{(F)}^{(1)j}$$

Demand for primary factors.

(13) $$x_{(F,V)}^{(1)j} = x_{(F)}^{(1)j} - \sigma_j \left(p_{(F,V)}^{(1)j} - \sum_{k=1}^{m} S_{(F,k)}^{(1)j} p_{(F,k)}^{(1)j} \right)$$

Zero pure profits in production.

(14) $$\begin{aligned} \sum_{m=1}^{n} \left(p_{m1}^{(0)} + x_{(jm)} \right) H_{(jm)} = & \sum_{i=1}^{k} \sum_{s=1}^{3} \left(p_{(is)}^{(1)j} + x_{(is)}^{(1)j} \right) H_{(is)}^{(1)j} \\ & + \sum \left(p_{(F,V)}^{(1)j} + x_{(F,V)}^{(1)j} \right) H_{(F,V)}^{(1)j} \\ & + \left(p_{(PT)}^{(1)j} + x_{(PT)}^{(1)j} \right) H_{(PT)}^{(1)j} \\ & + \sum_{t} \left(p_{(OC)t}^{(1)j} + x_{(OC)t}^{(1)j} \right) H_{(OC)t}^{(1)j} \end{aligned}$$

Zero pure profits in the provision of goods for current production.

(15) $$p_{(is)}^{(1)j} = S_{(is)}^{(1*)j} p_{(is)}^{(0)} + S_{(11)(is)}^{(1*)j} t_{(is)}^{(11)j} + S_{(31)(is)}^{(1*)j} t_{(is)}^{(31)j}$$

Zero pure profits in creation of composite commodities for household consumption.

(16) $$\left(p_{(ic)}^{(3)} + x_{(ic)}^{(3)} \right) = \sum_{s=1}^{3} S_{(is)}^{(3)} \left[p_{(is)}^{(3)} + x_{(is)}^{(3)} \right]$$

Zero pure profits in the supply of goods to households.

(17) $$p_{(is)}^{(3)} = S_{(is)}^{(3*)} p_{(is)}^{(0)} + S_{(13)(is)}^{(3*)} t_{(is)}^{(13)} + S_{(33)(is)}^{(3*)} t_{(is)}^{(33)}$$

Zero pure profits in capital creation.

(18) $$p_k^{(j)} = \sum_i \sum_s H_{(is)}^{(2)j} p_{(is)}^{(2)j} + \sum_i \sum_s H_{(is)}^{(2)j} a_{(is)}^{(2)j}$$

Zero pure profit in the supply of goods for capital creation.

(19) $$p_{(is)}^{(2)j} = S_{(is)}^{(2*)j} p_{(is)}^{(0)} + S_{(12)(is)}^{(2*)j} t_{(is)}^{(12)j} + S_{(32)(is)}^{(2*)j} t_{(is)}^{(32)j}$$

Zero pure profit in exporting goods to the Mainland.

(20) $$p_{(i6)} = H^{(0)}_{(i6)} p^{(0)}_{(i1)} + H^{(m)}_{(i6)} m^{(x)}_{(i6)} + H^{(3)}_{(i6)} t^{(3)}_{(i6)}$$

Zero pure profits in exporting goods overseas.

(21) $$\phi + p^{(w)}_{(i7)} = p^{(0)}_{(i1)} \left[\frac{P^{(0)}_{(i1)}}{P^{(0)}_{(i1)} + T_{(i7)}} \right] + t_{(i7)} \left[\frac{T_{(i7)}}{P^{(0)}_{(i1)} + T_{(i7)}} \right]$$

Zero pure profits in importing goods from overseas.

(22) $$p^{(0)}_{(i3)} = \left(\phi + p^{(w)}_{(i3)} \right) S^{(w)}_{(i3)} + t_{(i3)} S^{(T)}_{(i3)}$$

Zero pure profits in importing goods from the Mainland.

(23) $$p^{(0)}_{(i,2)} = p^{(M)}_{(i)}$$

Demand equals supply for Tasmanian produced commodities.

(24) $$\begin{aligned} x_{(i1)} = & \sum_j x^{(1)j}_{(i1)} H^{(1)j}_{(i1)} + \sum_j x^{(2)j}_{(i1)} H^{(2)j}_{(i1)} \\ & + x^{(3)}_{(i1)} H^{(3)}_{(i1)} + x^{(4)}_{(i1)} H^{(4)}_{(i1)} \\ & + x^{(5)}_{(i)} H^{(5)}_{(i)} + x_{(i6)} H^{(x)}_{(i6)} \\ & + x^{(w)}_{(i7)} H^{(x)}_{(i7)} \end{aligned}$$

Supply of Tasmanian produced goods.

(25) $$x_{(i1)} = \sum_j S^{*}_{(ij)} x_{(ij)}$$

Demand equals supply of imports from Mainland.

(26) $$\begin{aligned} x_{(i2)} = & x^{(3)}_{(i2)} W^{(3)}_{(i2)} + x^{(4)}_{(i2)} W^{(4)}_{(i2)} \\ & + \sum_j x^{(2)j}_{(i2)} W^{(2)j}_{(i2)} + \sum_j x^{(1)j}_{(i2)} W^{(1)j}_{(i2)} \end{aligned}$$

Demand equals supply of overseas imports.

(27) $$\begin{aligned} x_{(i3)} = & x^{(3)}_{(i3)} W^{(3)}_{(i3)} + x^{(4)}_{(i3)} W^{(4)}_{(i3)} \\ & + \sum_j x^{(2)j}_{(i3)} W^{(2)j}_{(i3)} + \sum_j x^{(1)j}_{(i3)} W^{(1)j}_{(i3)} \end{aligned}$$

Demand equals supply of labour.

(28) $$\sum_{j} x^{(1)j}_{(F,1)} S^{(1)j}_{(F,1)} = \ell_s$$

Demand equals supply of industry specific capital.

(29) $$x^{(1)j}_{(F,2)} = k(T)^j$$

Demand equals supply of licence type t.

(30) $$\sum_{j} x^{(1)j}_{(F,t)} S^{(1)j}_{(F,t)} = \ell_t$$

Price of goods to Tasmanian State government.

(31) $$p^{(4)}_{(is)} = p^{(0)}_{(i,s)}$$

GSP deflator.

(32) $$\xi^{(1)} = \sum_{i} W^{(1)}_{(i)} p^{(0)}_{(i1)}$$

CPI.

(33) $$\xi^{(2)} = \sum_{i} \sum_{s} W^{(2)}_{is} p^{(3)}_{(is)}$$

Investment price index.

(34) $$\xi^{(3)} = \sum_{j} \sum_{i} \sum_{s} W^{(3)j}_{(is)} p^{(2)j}_{(is)}$$

State government price index.

(35) $$\xi^{(4)} = \sum_{i} \sum_{s} W^{(4)}_{(is)} p^{(4)}_{(is)}$$

Mainland export price index.

(36) $$\xi^{(5)} = \sum_{i} W^{(5)}_{(i)} p^{(0)}_{(i1)}$$

Overseas export price index

(37) $$\xi^{(6)} = \sum_{i} W^{(6)}_{(i)} p^{(0)}_{(i1)}$$

Real household wages.

(38) $$w_j = h_w \xi^{(2)} + f^{(1)j}_{(F,1)}$$

Producer wages

(39) $$p^{(1)j}_{(F,1)} = S^j_w w_j + S^j_{payroll} t^j_{payroll}$$

Aggregate capital stock.

(40) $$k = \sum_j C^K_j k(0)_j$$

Gross household wages income.

(41) $$w = \sum_j G_j \left(x^{(1)j}_{(F,1)} + w_j \right)$$

Gross capital income to Tasmanian households.

(42) $$d = H_j \left(p^{(1)j}_{(F,2)} + x^{(1)j}_{(F,2)} \right)$$

Gross income from licences.

(43) $$\ell = \sum_t \sum_j H_{tj} \left(p^{(1)j}_{(F,t)} + x^{(1)j}_{(F,t)} \right)$$

Total income tax paid by Tasmanian households

(44) $$t = \sum_{t=1}^{10} B^T_t b_t$$

(45) $$b_1 = \sum_j P_j \left(t^j_{paye} + x^{(1)j}_{(F,1)} \right)$$

(46) $$t^j_{paye} = h^j_{paye} w_j + f^j_{paye}$$

(47) $$b_2 = \sum_j K_j \left(t^j_{ktax} + x^{(1)j}_{(F,2)} \right)$$

(48) $$t^j_{ktax} = h^j_{ktax} p^{(1)j}_{(F,2)} + f^j_{ktax}$$

(49) $$b_3 = \sum_j V_j \left(t^j_{vltax} + x^{(1)j}_{(F,3)} \right)$$

(50) $$t^j_{vltax} = h^j_{vltax} p^{(1)j}_{(F,3)} + f^j_{vltax}$$

(51) $$b_4 = \sum_j A_j \left(t^j_{abqtax} + x^{(1)j}_{(F,4)} \right)$$

(52) $$t^j_{abqtax} = h^j_{abqtax} p^{(1)j}_{(F,4)} + f^j_{abqtax}$$

(53) $$b_5 = \sum_j D_j \left(t^j_{abdtax} + x^{(1)j}_{(F,5)} \right)$$

(54) $$t^j_{abdtax} = h^j_{abdtax} p^{(1)j}_{(F,5)} + f^j_{abdtax}$$

(55) $$b_6 = \sum_j R_j \left(t^j_{rltax} + x^{(1)j}_{(F,6)} \right)$$

(56) $$t^j_{rltax} = h^j_{rltax} p^{(1)j}_{(F,6)} + f^j_{rltax}$$

(57) $$b_7 = S_j \left(x^{(1)j}_{(F,7)} + t^j_{saltax} \right)$$

(58) $$t^j_{saltax} = h^j_{saltax} p^{(1)j}_{(F,7)} + f^j_{saltax}$$

(59) $$b_8 = \sum_j O_j \left(x^{(1)j}_{(F,8)} + t^j_{oytax} \right)$$

(60) $$t^j_{oytax} = h^j_{oytax} p^{(1)j}_{(F,8)} + f^j_{oytax}$$

(61) $$b_9 = \sum_j M_j \left(x^{(1)j}_{(F,9)} + t^j_{(F,9)} \right)$$

(62) $$t^j_{(F,9)} = h^j_{(F,9)} p^{(1)j}_{(F,9)} + f^j_{(F,9)}$$

Residential land tax

(63) $$b_{10} = \sum_j M^j_{(F,10)} \left(x^{(1)j}_{(F,2)} + t^j_{(F,10)} \right)$$

Licence fees paid by Tasmanian households

$$
\begin{aligned}
\ell^{*} = \sum_{j} \Big[& S^{Lj}_{(F,3)} \left(v^{R}_{j} + x^{(1)j}_{(F,3)} \right) + S^{Lj}_{(F,4)1} \left(a^{Q1}_{j} + x^{(1)j}_{(F,4)} \right) \\
& + S^{Lj}_{(F,4)2} \left(a^{Q2}_{j} + x^{(1)j}_{(F,4)} \right) + S^{Lj}_{(F,5)} \left(a^{D1}_{j} + x^{(1)j}_{(F,5)} \right) \\
& + S^{Lj}_{(F,6)} \left(r^{R}_{j} + x^{(1)j}_{(F,6)} \right) + S^{Lj}_{(F,7)1} \left(q^{(s)R}_{j} + x^{(1)j}_{(F,7)} \right) \\
& + S^{Lj}_{(F,7)2} \left(q^{(s)LF}_{j} + x^{(1)j}_{(F,7)} \right) + S^{Lj}_{(F,8)1} \left(q^{(0)R}_{j} + x^{(1)j}_{(F,8)} \right) \\
& + S^{Lj}_{(F,8)2} \left(q^{(0)LF}_{j} + x^{(1)j}_{(F,8)} \right) + S^{Lj}_{(F,9)1} \left(q^{(M)LF}_{j} + x^{(1)j}_{(F,9)} \right) \\
& + S^{Lj}_{(F,9)2} \left(q^{(M)R}_{j} + x^{(1)j}_{(F,9)} \right) \Big]
\end{aligned} \tag{64}
$$

Abalone royalty fee per kilogram

$$a^{Q1}_{j} = h^{Q1}_{j} p^{(0)}_{(1,1)} + f^{Q1}_{j} \tag{65}$$

Total gross income of households.

$$d^{(1)} = S^{D1}_{W} w + S^{D1}_{D} d + S^{D1}_{L} \ell \tag{66}$$

Total taxes, fees, and government rents paid by Tasmanian households.

$$u = U^{(1)} t + U^{(2)} \ell^{*} \tag{67}$$

Total net disposable income of households.

$$d^{(2)} = d^{(1)} G^{(1)} - u G^{(2)} \tag{68}$$

Household aggregate expenditure.

$$c^{(3)} = f^{(c)} + d^{(2)} \tag{69}$$

Real household expenditure.

$$c^{(3)}_{R} = c^{(3)} - \xi^{(2)} \tag{70}$$

Next period's capital stock

$$k(1)_{j} = k(0)_{j} \left(1 - G_{j} \right) + y_{j} G_{j} + f^{K2}_{j} \tag{71}$$

Equalisation of expected rates of return.

$$-\beta_{j} \left(k(1)_{j} - k_{j}(0) \right) + r_{j}(0) = \omega + f^{r2}_{j} \tag{72}$$

Aggregate Tasmanian investment.

(73) $$i = \sum_j S_j^I \left(p_K^{(j)} + y_j \right)$$

Post-tax rate of return on capital.

(74) $$p_j^{(9)} = Q_j^{(9)} \left[p_{(F,2)}^{(1)j} - T_j^{(9,1)} t_{ktax}^j - T_j^{(9,2)} t_{(F,10)}^j \right]$$

Current rates of return.

(75) $$r_j(0) = Q_j \left(p_j^{(9)} - p_K^j \right)$$

State government revenue

(76)
$$\begin{aligned}
g^{(1)} = \sum_j & \left[G_{(F,3)}^{(1)} \left(v_j^R + x_{(F,3)}^{(1)j} \right) + G_{(f,4)1}^{(1)} \left(a_j^{Q1} + x_{(F,4)}^{(1)j} \right) \right. \\
& + G_{(F,4)2}^{(1)} \left(a_j^{Q2} + x_{(F,4)}^{(1)j} \right) + G_{(F,5)}^{(1)} \left(a_j^{D1} + x_{(F,5)}^{(1)j} \right) \\
& + G_{(F,6)}^{(1)} \left(r_j^R + x_{(F,6)}^{(1)j} \right) + G_{(F,7)1}^{(1)} \left(q_j^{(s)R} + x_{(F,7)}^{(1)j} \right) \\
& + G_{(F,7)2}^{(1)} \left(q_j^{(s)LF} + x_{(F,7)}^{(1)j} \right) \\
& + G_{(F,8)1}^{(1)} \left(q_j^{(0)R} + x_{(F,8)}^{(1)j} \right) + G_{(F,8)2}^{(1)} \left(q_j^{(0)LF} + x_{(F,8)}^{(1)j} \right) \\
& \left. + G_{(F,9)1}^{(1)} \left(q_j^{(M)R} + x_{(F,9)}^{(1)j} \right) + G_{(F,9)2}^{(1)} \left(q_j^{(M)LF} + x_{(F,9)}^{(1)j} \right) \right] \\
& + \sum_i \sum_s \sum_j \left[G_{(11)(is)}^{(1)j} \left(t_{(is)}^{(11)j} + x_{(is)}^{(1)j} \right) + G_{(12)(is)}^{(1)j} \left(t_{(is)}^{(12)j} + x_{(is)}^{(2)j} \right) \right] \\
& + \sum_j G_{payroll}^{(1)j} \left(t_{payroll}^j + x_{(F,1)}^{(1)j} \right) \\
& + \sum_i \sum_s G_{(13)(is)}^{(1)} \left(t_{(is)}^{(13)} + x_{(is)}^{(3)} \right) \\
& + G_N^{(1)} n \\
& + \sum_j G_{(PT)}^{(1)j} \left(p_{(PT)}^{(1)j} + x_{(PT)}^{(1)j} \right) \\
& + \sum_j G_{(F,10)}^{(1)j} \left(x_{(F,2)}^{(1)j} + t_{(F,10)}^j \right)
\end{aligned}$$

State government expenditure.

(77) $$g^{(2)} = \sum_i \sum_s G_{(is)}^{(2)} \left(x_{(is)}^{(4)} + p_{(is)}^{(0)} \right) + G_{(M)}^{(2)} m$$

State government borrowing requirement.

(78) $$100 \Delta G^{(3)} = G^{(2)} g^{(2)} - G^{(1)} g^{(1)}$$

APPENDIX B *TASFISH* Variable Listing

Variable	Subscript Range	Number	Description
$a_{(ic)}^{(1)\,j}$			Technical change in the use of good i by industry j as an intermediate input.
$a_{(F)}^{(1)\,j}$			Technical change in use of primary factor inputs by industry j.
$a_{(is)}^{(2)\,j}$			Technical change in the use of good i from source s in construction of units of capital for industry j.
$a_{(ic)}^{(2)\,j}$			Technical change in the use of composite good i by industry j for capital formation.
a_j^{Q1}			Royalty per kilogram of abalone.
a_j^{Q2}			Abalone quota unit annual fee.
a_j^{D1}			Abalone dive licence renewal fee.
b_1			Income tax paid on labour earnings by Tasmanian households.
b_2			Income tax paid on earnings from capital by Tasmanian households.
b_3			Income tax paid by Tasmanian households on vessel licence rentals.
b_4			Income tax paid by Tasmanian households on abalone quota rentals.
b_5			Income tax paid on abalone dive licence returns by Tasmanian households.

Variable	Subscript Range	Number	Description
b_6			Income tax paid on rock lobster pot licence rentals by Tasmanian households.
b_7			Income tax paid on salmon aquaculture lease area by Tasmanian households.
b_8			Income tax paid by Tasmanian households on rents on oyster lease areas.
b_9			Income tax paid by Tasmanian households on rents received on leases in mussel industry.
b_{10}			Residential land tax paid by Tasmanian households.
$c^{(3)}$			Nominal Tasmanian household consumption spending.
$c_R^{(3)}$			Real Tasmanian household consumption spending.
$c^{(3)}$			Household aggregate expenditure.
$c_R^{(3)}$			Real household expenditure.
d			Gross rental income from Tasmanian capital to Tasmanian residents.
$d^{(1)}$			Gross income of Tasmanian households.
$d^{(e)}$			Net disposable income of households.
$f_{(is)}^{(4)}$			Shifter on state government demands for good i from source s.

Variable	Subscript Range	Number	Description
$f_{(i)}^{(4)}$			Shifter on state government demands for good i regardless of source.
$f_{(i)}^{(5)}$			Shifter on Commonwealth government demands for good i from Tasmania.
$f_{(i6)}$			Shifter on Mainland export demand curves for good i.
f_{jm}			Shift variable allowing for exogenous shifts in the output of good m by industry j.
f_{j}^{K1}			Shifter on Equation N to facilitate shifting between comparative Static and forecasting closures.
f^{r}			Shifter on Equation N for switiching between comparative static and forecasting closure.
f_{j}^{K2}			Shifter on Equation N for switching between comparative static and forecasting closures.
f_{j}^{r2}			Shifter on Equation N for switching between comparative static and forecasting closures.
$f_{(F,1)}^{(1)j}$			Real wage.
f_{PAYE}^{j}			Shifter in rate of PAYE tax per unit of labour in industry j.
f_{KTAX}^{j}			Shift variable on rate of capital tax per unit of capital in industry j.
f_{VLTAX}^{j}			Shift variable on rate of vessel licence income tax in industry j.
f_{ABDTAX}^{j}			Shifter on income tax on abalone dive licences.

Variable	Subscript Range	Number	Description
f^{j}_{RLTAX}			Shifter on per unit rock lobster pot tax.
f^{j}_{SALTAX}			Shifter on per unit salmon lease area income tax.
f^{j}_{OYTAX}			Shifter on per unit oyster lease tax.
$f^{j}_{(F,9)}$			Shifter on per unit mussel lease tax.
$f^{(4)}$			Uniform shifter on State government demands.
$f^{(5)}$			Uniformshifter on Federal government demands.
$f^{(w)}_{(i7)}$			Shifter on foreign export demand functions.
f^{j}_{ABQTAX}			Shift variable on rate of per quota unit income tax.
f^{Q1}_{j}			Shifter on abalone royalty per kilogram.
$f^{(c)}$			Average propensity to consume.
$g^{(1)}$			State government revenue.
$g^{(2)}$			State government expenditure.
i			Aggregate Tasmanian investment.

Variable	Subscript Range	Number	Description
i_j			Investment spending by industry j.
$k(T)^j$			Supply of capital to industry j.
$k(1)_j$			Next periods capital stock in industry j.
$k(0)_j$			Current period's capital stock in industry j.
k			Tasmanian capital stock.
ℓ_s			Supply of labour.
ℓ_t			Supply of licences of type t.
ℓ			Gross income from licences.
ℓ*			Licence fees paid by Tasmanian households.
$m^{(x)}_{(i6)}$			Transport margin to Mainland on Tasmanian good i.
m			Other State government revenue.
n			Other State government revenue.
$p^{(3)}_{(ic)}$			Price of composite commodity i to Tasmanian households.

Variable	Subscript Range	Number	Description
$p^{(3)}_{(is)}$			Price of good i from s faced by Tasmanian households.
$p^{(2)\,j}_{(is)}$			Price of good i from source s to industry j for use in capital creation.
$p_{(i6)}$			Mainland price of Tasmanian commodity i.
$p^{(W)}_{(i7)}$			Foreign currency export price of Tasmanian good i.
$p^{(0)}_{(ms)}$			Basic price of good m from source s.
$p^{(1)\,j}_{(F,V)}$			Price to regional industry j of primary factor v.
$p^{(1)\,j}_{(is)}$			Price faced by industry j for good i from source s for use in current production.
$p^{(1)\,j}_{(PT)}$			Production tax on output of industry j.
$p^{(1)\,j}_{(OC)t}$			Price of other cost items incurred by industry j, owned by owner t.
$p^{(j)}_{k}$			Price of a unit of capital constructed in industry j.
$p^{(W)}_{(i3)}$			Foreign currency price of imported good i.
$p^{(m)}_{(i)}$			Mainland price of good i.
$p^{(4)}_{(is)}$			Price of good i from source s to Tasmanian State government.

Variable	Subscript Range	Number	Description
$p_j^{(9)}$			Post-tax rate of return on capital.
$q_j^{(s)R}$			Annual salmon lease area government rental.
$q_j^{(s)LF}$			Annual salmon lease area renewal fee.
$q_j^{(0)R}$			Annual oyster lease area government rental.
$q_j^{(0)LF}$			Annual oyster lease area renewal fee.
$q_j^{(M)LF}$			Annual mussel area lease fee.
$q_j^{(M)R}$			Annual mussel lease area government rental.
$r(0)_j$			Rate of return on industry j's capital stock.
r_j^R			Rock lobster pot licence renewal fee.
t_{i7}			Commodity specific export tax (subsidy).
$t_{(i3)}$			Commodity specific import tax.
t_{KTAX}^j			Income tax payable per unit of capital employed in industry j.
t_{PAYE}^j			PAYE tax payable per unit of labour employed in industry j.

Variable	Subscript Range	Number	Description
t^{j}_{VLTAX}			Per unit income tax on vessel licence rentals in industry j.
t^{j}_{ABQTAX}			Per quota unit income tax.
t^{j}_{ABDTAX}			Per unit income tax on abalone dive licences.
t^{j}_{RLTAX}			Per unit tax on rock lobster pots.
t^{j}_{SALTAX}			Per unit tax on salmon aquaculture lease areas.
t^{j}_{OYTAX}			Per unit tax on oyster lease areas.
$t^{j}_{(F,9)}$			Per unit tax, mussel lease areas.
$t^{(11)\,j}_{(is)}$			Tasmanian government sales tax on use of good i from source s by Tasmanian industry j for current production.
$t^{(31)\,j}_{(is)}$			Federal government sales tax on use of good i from source s by Tasmanian industry j for current production.
$t^{(13)}_{(is)}$			Tasmanian government sales tax on good i from source s pruchased by Tasmanian households.
$t^{(33)}_{(is)}$			Federal government sales tax on good i from source s purchased by Tasmanian households.
$t^{(3)}_{(i6)}$			Commonwealth sales tax on exports of i to the Mainland.

Variable	Subscript Range	Number	Description
$t^{j}_{PAYROLL}$			Payroll tax rate, industry j.
t^{j}_{KTAX}			Income tax paid per unit of capital in industry j.
$t^{j}_{(F,10)}$			Residential land tax.
v^{R}_{j}			Vessel licence renewal fee.
w			Gross wage income.
w_j			Household gross wage paid per unit of labour in industry j, before PAYE taxes.
$x^{(3)}_{(ic)}$			Demand for compisite commodity i by Tasmanian households.
$x^{(3)}_{(is)}$			Demand for commodity i from source s by Tasmanian households.
$x^{(4)}_{(is)}$			State government demand for good i from source s.
$x^{(5)}_{(i)}$			Federal government demands for good i from Tasmania.
$x^{(2)j}_{(is)}$			Demand for good i from source s by industry j for use in capital formation.
$x^{(2)j}_{(ic)}$			Demand for composite commodity i by Tasmanian industry j for use in capital creation.
$x_{(i6)}$			Demand for Tasmanian commodity i on the Mainland.

Variable	Subscript Range	Number	Description
x_{jm}			Output of good m by industry j.
$x^{(1)\,j}_{(ic)}$			Demand for composite commodity i by industry j for use as an intermediate output.
$x^{(1)\,j}_{(F)}$			Demand by industry j for effective units of primary factor input.
$x^{(1)\,j}_{(F,V)}$			Demand for primary factor v by industry j.
$x^{(1)\,j}_{(is)}$			Demand for good i from source s used by industry j for current production.
$x^{(1)\,j}_{(PT)}$			Production tax units “used” by industry j.
$x^{(1)\,j}_{(OC)t}$			Quantity of other cost items consumed by industry j, owned by owner t.
$x_{(is)}$			Supply of good i from source s.
$x^{(w)}_{(i7)}$			Foreign demand for good i.
$x^{(w)}_{(i7)}$			Foreign demand for good i.
y_j			Investment by industry j.
y_j			Investment in industry j.
z_j			Activity level of industry j.

Variable	Subscript Range	Number	Description
ϕ			Australian exchange rate.
$\xi^{(v)}$			Five price indices: (v=1) GSP deflator, (v=2) CPI, (V=3) Investment price index, (v=4) Government price index, (v=5) Export price index.
ω			Economy-wide rate of return.
ΔF			Homotopy in forecasting equations.
$\Delta G^{(3)}$			Change in the State government's borrowing requirement.

APPENDIX C *TASFISH* Coefficient Listing

Equation	Coefficient or Parameter	Description	Source
(2)	$S^{(3)}_{(it)}$	Share of cost of good i from source t in Tasmanian households' total consumption of i.	Input-output data files.
(3)	$h^{(4)}_{(is)}$	Parameter for indexing state government demand for commodities to real regional consumption spending.	Set by user. Stored on parameters file.
(4)	$h^{(5)}_{i}$	Parameter for indexing Federal government demands for good i to Tasmanian consumption spending.	" "
(6)	$S^{(2)\,j}_{(it)}$	Share of good i from source t in industry j's total purchases of good i for use in capital creation.	Calculated from input-output data files.
(7)	$\lambda_{(i6)}$	Reciprocal of the mainland elasticity of demand for Tasmanian good i.	Estimates stored on parameters file.
(8)	$\lambda_{(i7)}$	Reciprocal of the foreign elasticity of demand for Tasmanian good i.	Estimates stored on parameters file.
(9)	σ_j	Elasticity of transformation between goods by industry j.	Estimates stored on parameters file.
(9)	S_{jk}	Share of industry j's revenue accounted for by sales of commodity k.	Calculated from input-output data file.
(11)	$S^{(1)\,j}_{(it)}$	Share of good i from source t in industry j's use of good i.	Calculated from input-output data files.
(14)	$S^{(1)\,j}_{(F,k)}$	Share of cost of factor k in total primary factor usage by industry j.	Calculated from input-output data files.
(14)	$H_{(jm)}$	Share of sales of good m by industry j in total sales of industry j.	Calculated from input-output data files.

Equation	Coefficient or Parameter	Description	Source
(14)	$H^{(1)j}_{(is)}$	Share of good i from source s in total costs of industry j.	Calculated from input-output data files.
(14)	$H^{(1)j}_{(F,V)}$	Share of factor V in total costs of industry j.	Calculated from input-output data files.
(14)	$H^{(1)j}_{(PT)}$	Share of production tax in total costs of industry j.	Calculated from input-output data files.
(14)	$H^{(1)j}_{(OC)}$	Share of other costs in total costs industry j.	Calculated from input-output data files.
(15)	$S^{(1*)j}_{(is)}$	Proportion of the basic price in the purchasers price of good (is) used by j for current production.	" "
(15)	$S^{(1*)j}_{(11)(is)}$	Share of the State government tax in the purchasers' price of good (is) used by j for current production.	" "
(15)	$S^{(1*)j}_{(31)(is)}$	Share of the Federal government tax in the purchasers price of good (is) used by j for current production.	" "
(16)	$S^{(3)}_{(is)}$	See Equation (2) above.	" "
(17)	$S^{(3*)}_{(is)}$	Share of the basic price in the purchasers price of good (is) used by Tasmanian households.	
(17)	$S^{(3*)}_{(13)(is)}$	Share of the State government tax in the purchasers' price of good (is) used by Tasmanian households.	
(17)	$S^{(3*)}_{(33)(is)}$	Share of the Federal government tax in the purchasers' price of good (is) used by Tasmanian households.	
(18)	$H^{(2)j}_{(is)}$	Share of good i from source s in total cost of producing a unit of capital for industry j.	Calculated from input-output data files.

Equation	Coefficient or Parameter	Description	Source
(19)	$S_{(is)}^{(2*)j}$	Share of the basic price in the purchasers' price of good i from source s used by industry j for capital formation.	
(19)	$S_{(12)}^{(2*)j}$	Share of the State government tax in the purchasers' price of good i from source s used by industry j for capital formation.	
(19)	$S_{(32)}^{(2*)j}$	Share of the Federal government tax in the purcahsers' price of good i from source s used by industry j for capital formation.	
(20)	$H_{(i6)}^{(0)}$	Share of basic price of good i in export (mainland) price of good i.	Calculated from input-output data files.
(20)	$H_{(i6)}^{(m)}$	Share of transport margin on good i in total export price of good i.	" "
(20)	$H_{(i6)}^{(3)}$	Share of the Federal government sales tax in the mainland export price of good i.	
(21)	$T_{(i7)}$	Total export tax (subsidy) on good i.	" "
(21)	$P_{(i1)}^{(0)}$	Basic value of Tasmanian export commodity i.	
(21)	$S_{(i3)}^{(w)}$	Share of the $A pre-tariff import price in the landed price.	
(21)	$S_{(i3)}^{(T)}$	Share of the tariff in landed import price.	
(24)	$H_{(i1)}^{(1)j}$	Share of industry j's demand for good i1 for intermediate input in total use of good i.	Calculated fromm IO data files.
(24)	$H_{(i1)}^{(2)j}$	Share of industry j's use of good i1 for capital creation in total use of i1.	" "

Equation	Coefficient or Parameter	Description	Source
(24)	$H^{(3)}_{(i1)}$	Share of household use of i1 in total use of i1.	" "
(24)	$H^{(4)}_{(i1)}$	Share of State government use of i1 in total use of i1.	" "
(24)	$H^{(5)}_{i}$	Share of Commonwealth use of i1 in total use of i1.	" "
(24)	$H^{(x)}_{(i6)}$	Share of interstate exports of i1 in total use of i1.	" "
(24)	$H^{(x)}_{(i7)}$	Share of foreign exports of good i1 in total use of i1.	" "
(25)	$S^{*}_{(ij)}$	Share of industry j's output of good i in total Tasmanian production of i.	Calculated from make data.
(26)	$W^{(3)}_{(i2)}$	Share of quantity of imports of good i from Mainland consumed by Tasmanian household.	
(26)	$W^{(4)}_{(i2)}$	Share of imports of good i from Mainland consumed by State government.	
(26)	$W^{(2)\,j}_{(i2)}$	Share of imports of good i from Mainland consumed by capital creators in industry j.	
	$K_j(0)$	Base period capital stock, industry j.	Parameter file estimates.
	D_j	One minus the depreciation rate.	Estimate stored on parameters file.
	$Y_j(T)$	Terminal period investment (equal to base I in control solution).	Calculated from IO data files.

Equation	Coefficient or Parameter	Description	Source
(27)	$W^{(3)}_{(i3)}$	Share of quantity of imports of good i from overseas consumed by Tasmanian households.	
(27)	$W^{(4)}_{(i3)}$	Share of quantity of imports of good i from overseas consumed by the State government.	
(27)	$W^{(2)j}_{(i3)}$	Share of quantity of imports of good i from overseas used in capital creation.	
(27)	$W^{(1)j}_{(i3)}$	Share in total imports of i from overseas of good i used by Tasmanian firms for current production.	
(28)	$S^{(1)j}_{(F,1)}$	Proportion of labour force employed in industry j.	
(30)	$S^{(1)j}_{(F,t)}$	Share of licence type t employed in industry j.	
(32)	$W^{(1)}_{(i)}$	Share of value of commodity i in total Tasmanian output.	
(33)	$W^{(2)}_{(is)}$	Share of good (is) in total household outlays.	
(34)	$W^{(3)j}_{(is)}$	Share of good i from source s used by industry j in total investment.	
(35)	$W^{(4)}_{(is)}$	Share of good i from source s in total Tasmanian government expenditure.	
(36)	$W^{(6)}_{(i)}$	Share of good i in total exports to the mainland.	
(37)	$W^{(7)}_{(i)}$	Share of good i in total overseas exports of good i.	

Equation	Coefficient or Parameter	Description	Source
(38)	h_W	Parameter indexing changes in Tasmanian wages to the Tasmanian CPI.	Set by user. Stored on parameters file.
(39)	S^j_W	Share of pre-payroll tax wage (i.e. household gross wage) in employer wage.	
(39)	$S^j_{PAYROLL}$	Share of payroll tax in employer wage.	
(40)	C^K_j	Share in total regional capital stock of industry j's capital stock.	Calculated from parameter file.
(41)	G_j	Share of industry (j) gross wage in total household wages.	
(42)	H_j	Share of Tasmanian residents' capital income from Tasmanian capital from industry j.	
(43)	H_{tj}	Share of gross returns from licence t in j in total licence income.	
(44)	B^T_t	Share of tax type t in total taxes paid by Tasmanian residents.	
(45)	P_j	Share of PAYE tax paid on earnings from industry j.	IO data files.
(45)	h^j_{PAYE}	Parameter indexing per-unit PAYE tax to gross wage.	Parameter file. Set by user.
(47)	K_j	Share of tax on industry j returns to capital in total taxes paid on returns to capital.	IO data files.
(48)	h^j_{KTAX}	Parameter indexing per unit capital tax to rental rate per unit.	Set by user. Stored on parameter file.

Equation	Coefficient or Parameter	Description	Source
(49)	h^{j}_{VLTAX}	Parameter indexing per unit vessel licence tax to vessel licence rental rate	Set by user. Stored on parameter file.
(49)	V_j	Share of tax on vessel licence in j in total vessel licence tax.	
(50)	h^{j}_{ABDTAX}	Parameter indexing per unit abalone dive tax to rental rate.	Set by user. Stored on parameter file.
(51)	A_j	Share of the income tax on abalone quota rents earned in industry j in total abalone quota unit income tax.	
(53)	D_j	Share of the income tax on abalone dive rents earned in industry j in total abalone dive rent income tax.	
(55)	R_j	Share of the income tax on rock lobster pot rentals paid on rents in industry j.	
(56)	h^{j}_{RLTAX}	Parameter indexing per unit rock lobster pot licence tax to rental rate.	
(57)	S_j	Share of the income tax on salmon base area rentals paid on rents in industry j.	
(58)	h^{j}_{SALTAX}	Parameter indexing per unit salmon base area rental tax to the rental rate.	
(59)	O_j	Share of the income tax on oyster base area rentals in j in total tax paid on after lease rents.	
(61)	M_j	Share of the income tax on mussel lease rentals paid on mussel lease rentals in industry j.	
(63)	$M^{j}_{(F,10)}$	Share of residential land tax receipts from j in total residential land receipts.	

Equation	Coefficient or Parameter	Description	Source
(64)	$S^{Lj}_{(F,3)}$	Share of vessellicence fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,4)1}$	Share of abalone royalty fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,4)2}$	Share of abalone quota renewal fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,5)}$	Share of abalone dive licence renewal fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,6)}$	Share of rock lobster pot licence fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,7)1}$	Share of salmon lease area government rent in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,7)2}$	Share of salmon lease area renewal fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,8)1}$	Share of oyster lease area government rent in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,8)2}$	Share of oyster lease area renewal fees in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,9)1}$	Share of mussel lease area government rent in total fees paid by Tasmanian households.	
(64)	$S^{Lj}_{(F,9)2}$	Share of mussel lease area renewal fees in total fees paid by Tasmanian households.	
(66)	S^{D1}_{W}	Share of gross wages in household gross income.	

Equation	Coefficient or Parameter	Description	Source
(66)	S_D^{D1}	Share of gross rentals in household gross income.	
(66)	S_L^{D1}	Share of gross licence income in gross income.	
(67)	$U^{(1)}$	Share of income taxes in total tax, fees, royalty paid by Tasmanian households.	
	$U^{(2)}$	Share of licence fees in total taxes, fees, royalty etc paid by Tasmanian households.	
(68)	$G^{(1)}$	Ratio of gross to net household income.	Calculated from input-output data file.
(68)	$G^{(2)}$	Ratio of total taxes paid to net household income.	" "
(71)	G_j	Ratio of industry j's gross investment to its capital stock of the following year.	Estimate stored on parameters file.
(72)	β_j	Sensitivity of expected ROR to increase in K.	
(73)	S_j^I	Share of investment of industry j in total Tasmanian investment.	Calculated from IO data files.
(74)	$Q_j^{(9)}$	Ratio of pre- to post-tax rental rate.	
(74)	$T_j^{(9,1)}$	Ratio of capital income tax to pre-tax rental rate	
(74)	$T_j^{(9,2)}$	Ratio of residential land tax to pre-tax rental rate.	

Equation	Coefficient or Parameter	Description		Source
(75)	Q_j	Ratio of the gross rate of return in industry j to the net rate of return.	"	"
(76)	$G^{(1)}_{(F,3)}$	Share of vessel licence renewal fee in total state government revenue.		
(76)	$G^{(1)}_{(F,4)1}$	Share of abalone royalty in total state government revenue.		
(76)	$G^{(1)}_{(F,4)2}$	Share of abalone quota unit annual fee in total state government revenue.		
(76)	$G^{(1)j}_{(F,5)}$	Share of abalone dive annual fee in total State government revenue.		
(76)	$G^{(1)}_{(F,6)}$	Share of rock lobster pot licence renewal fees in total state government revenue.		
(76)	$G^{(1)}_{(F,7)1}$	Share of salmon aquaculture lease area government rent in total revenue.		
(76)	$G^{(1)}_{(F,6)}$	Share of rock lobster pot licence renewal fees in total state government revenue.		
(76)	$G^{(1)}_{(F,8)1}$	Share of oyster aquaculture lease area government rents in total government revenue.		
(76)	$G^{(1)}_{(F,8)2}$	Share of oyster aquaculture lease area renewal fees in total revenue.		
(76)	$G^{(1)}_{(F,9)1}$	Share of mussel aquaculture lease area rents paid to government in total State government revenue.		
(76)	$G^{(1)}_{(F,9)2}$	Share of mussel aquaculture lease area renewal fees in total revenue.		

Equation	Coefficient or Parameter	Description	Source
(76)	$G^{(1)j}_{(11)(is)}$	Share of state government revenue from sales tax on good (is) used by j in current production.	
(76)	$G^{(1)j}_{(12)(is)}$	Share of state government revenue from sales tax on good (is) used by j in capital formation.	
(76)	$G^{(1)j}_{PAYROLL}$	Share of payroll tax revenue in total State government revenue.	
(76)	$G^{(1)}_{(13)(is)}$	Share of State government revenue from sales tax on good (is) consumed by households.	
(76)	$G^{(1)}_{N}$	Share of State government revenue from “other revenue” sources.	
(76)	$G^{(1)j}_{(PT)}$	Share of State government revenue from production taxes on industry j’s output.	
(77)	$G^{(2)}_{(is)}$	Share of State government expenditure represented by outlays on good (is).	
(77)	$G^{(2)}_{(M)}$	Share of State government expenditure represented by “other outlays”.	
(78)	$G^{(2)}$	Total State government outlays.	
(78)	$G^{(1)}$	Government revenue.	

APPENDIX E: IO_FISH.TAB

```
!       IO_FISH2.TAB                                                    !
!       a TABLO INPUT FILE to derive a 12 Industry                      !
!       Tasmanian input-output table (1992/93) in preparation   !
!       for insertion of fishing industry data to create TASFISH!
!       Database                                                        !


SET                                                                     !suffix!
COM     #commodities#                   (C1-C37);                       !c!
EXP     #set of exportables#    (C1,C3-C8, C13-C14,C19-C21,C23,C24);    !x!
IMP     #set of importables#    (C2,C9-C12,C15-C18,C22,C25-C37);        !m!
SOU     #sources of commodities#        (A1,A2,A3);                     !s!
REG             #Regions#               (A1,A2);                        !r!
IND     #industries#                    (I1-I37);                       !i!
OCC     #Occupation Types#              (O1-O8);                        !o!
MAR     #margin Commodities#            (C29-C31);                      !m!
NONMAR #Non-margin Commodities#(C1-C28,C32-C37);                        !m!
FAC             #Primary Factors#       (A1,A2,A3);                     !f!
PUR #purpose# (A1,A2);
NSR #number State gov receipts# (A1,A2,A3,A4,A5,A6,A7,A8);
SET JSET #endogenous private# (I1-I37);
!SET NOTJ #exogenous private# (I25,I26,I32,I35); !
SET GBE #Public Enterprizes# (I25,I26,I32,I35);
SET NOTGBE #Set of Private Industries# (I1-I24,I27-I31,I33,I34,I36-I37);
SET AGG  #Set of agri Industries#(I1);
SET NONAGG  #Set of agri Industries#(I2-I37);
SET OWNERS #owners of primary factors# (row, cgov, sgov, Tashous, RoAhous);
SET NGOWNERS #owners of primary factors# (row, Tashous, RoAhous);
SET GOWNERS #owners of primary factors# (cgov, sgov);

SUBSET
MAR is subset of COM;
NONMAR is subset of COM;
REG is subset of SOU;
EXP is subset of COM;
IMP is subset of COM;
JSET IS SUBSET OF IND;
!NOTJ IS SUBSET OF IND; !
GBE is subset of IND;
AGG is subset of IND;
NONAGG is subset of IND;
NOTGBE is subset of IND;
SUBSET NGOWNERS IS SUBSET OF OWNERS;
SUBSET GOWNERS IS SUBSET OF OWNERS;


COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MA1(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MA2(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MF(i,j,r);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MK11(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MK21(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MP1(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MK12(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MK22(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MP2(i,j,r,u);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK1G11(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK1G21(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MP1G1(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK1G12(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK1G22(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MP1G2(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK2G1(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MK2G2(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MP2G(i,j,r);
COEFFICIENT (all,q,OCC)(all,j,IND)(all,r,REG) MU1(q,j,r);
COEFFICIENT (all,q,OCC)(all,j,IND)(all,r,REG) MU2(q,j,r);
COEFFICIENT (all,q,OCC)(all,j,IND)(all,r,REG) MU3(q,j,r);
COEFFICIENT (all,t,OWNERS)(all,j,IND)(all,r,REG) MV1(t,j,r);
COEFFICIENT (all,t, OWNERS)(all,j,IND)(all,r,REG) MV2(t,j,r);
COEFFICIENT (all,t, OWNERS)(all,j,IND)(all,r,REG) MV3(t,j,r);
COEFFICIENT (all,u, OWNERS)(all,j,IND)(all,r,REG) MW1(u,j,r);
COEFFICIENT (all,u, OWNERS)(all,j,IND)(all,r,REG) MW2(u,j,r);
COEFFICIENT (all,j,IND)(all,r,REG) MX1(j,r);
COEFFICIENT (all,j,IND)(all,r,REG) MX2(j,r);
COEFFICIENT (all,j,IND)(all,r,REG) MX3(j,r);
```

APPENDIX E: IO_FISH.TAB

```
COEFFICIENT (all,t,OWNERS) OXX3(t);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MB11(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MB21(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MG1(i,j,r);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) ML111(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) ML211(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MQ11(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) ML112(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) ML212(i,j,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,j,IND)(all,r,REG) MQ12(i,j,r,u);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML1G11(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML1G21(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MQ1G1(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML1G12(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML1G22(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MQ1G2(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML2G1(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) ML2G2(i,j,r);
COEFFICIENT (all,i,COM)(all,j,IND)(all,r,REG) MQ2G(i,j,r);
COEFFICIENT (all,i,COM)(all,r,REG) MC1(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MC2(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MH(i,r);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MM11(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MM21(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MR1(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MM12(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MM22(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MR2(i,r,u);
COEFFICIENT (all,i,COM)(all,r,REG) MM1G11(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MM1G21(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MR1G1(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MM1G12(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MM1G22(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MR1G2(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MM2G1(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MM2G2(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MR2G(i,r);
COEFFICIENT (all,i,COM) MD1(i);
COEFFICIENT (all,i,COM) MD2(i);
COEFFICIENT (all,u,MAR) (all,i,COM) MN11(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MN21(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MN12(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MN22(i,u);
COEFFICIENT (all,i,COM) MN2G1(i);
COEFFICIENT (all,i,COM) MN2G2(i);
COEFFICIENT (all,i,COM)(all,r,REG) ME11(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) ME21(i,r);
COEFFICIENT (all,i,COM)(all,r,REG) MJ1(i,r);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MO111(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MO211(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MT11(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MO112(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MO212(i,r,u);
COEFFICIENT (all,u,MAR) (all,i,COM)(all,r,REG) MT12(i,r,u);
COEFFICIENT (all,i,COM) E12(i);
COEFFICIENT (all,i,COM) E22(i);
COEFFICIENT (all,i,COM) MJ2(i);
COEFFICIENT (all,u,MAR) (all,i,COM) MO121(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MO221(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MT21(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MO122(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MO222(i,u);
COEFFICIENT (all,u,MAR) (all,i,COM) MT22(i,u);
COEFFICIENT (all,i,COM) MZ(i);


FILE (text) MRIO_2  #file containing 37 industry regional IO data#;

FILE (NEW, header) IOFILE;

!  READ SECTION    !

READ  MA1 FROM FILE MRIO_2;
READ MA2 FROM FILE MRIO_2;
READ MF FROM FILE MRIO_2;
```

APPENDIX E: IO_FISH.TAB

```
READ MK11 FROM FILE MRIO_2;
READ MK21 FROM FILE MRIO_2;
READ MP1 FROM FILE MRIO_2;
READ MK12 FROM FILE MRIO_2;
READ MK22 FROM FILE MRIO_2;
READ MP2 FROM FILE MRIO_2;
READ MK1G11 FROM FILE MRIO_2;
READ MK1G21 FROM FILE MRIO_2;
READ MP1G1 FROM FILE MRIO_2;
READ MK1G12 FROM FILE MRIO_2;
READ MK1G22 FROM FILE MRIO_2;
READ MP1G2 FROM FILE MRIO_2;
READ MK2G1 FROM FILE MRIO_2;
READ MK2G2 FROM FILE MRIO_2;
READ MP2G FROM FILE MRIO_2;
READ MU1 FROM FILE MRIO_2;
READ MU2 FROM FILE MRIO_2;
READ MU3 FROM FILE MRIO_2;
READ MV1 FROM FILE MRIO_2;
READ MV2 FROM FILE MRIO_2;
READ MV3 FROM FILE MRIO_2;
READ MW1 FROM FILE MRIO_2;
READ MW2 FROM FILE MRIO_2;
READ MX1 FROM FILE MRIO_2;
READ MX2 FROM FILE MRIO_2;
READ MX3 FROM FILE MRIO_2;
READ OXX3 FROM FILE MRIO_2;
READ MB11 FROM FILE MRIO_2;
READ MB21 FROM FILE MRIO_2;
READ MG1 FROM FILE MRIO_2;
READ ML111 FROM FILE MRIO_2;
READ ML211 FROM FILE MRIO_2;
READ MQ11 FROM FILE MRIO_2;
READ ML112 FROM FILE MRIO_2;
READ ML212 FROM FILE MRIO_2;
READ MQ12 FROM FILE MRIO_2;
READ ML1G11 FROM FILE MRIO_2;
READ ML1G21 FROM FILE MRIO_2;
READ MQ1G1 FROM FILE MRIO_2;
READ ML1G12 FROM FILE MRIO_2;
READ ML1G22 FROM FILE MRIO_2;
READ MQ1G2 FROM FILE MRIO_2;
READ ML2G1 FROM FILE MRIO_2;
READ ML2G2 FROM FILE MRIO_2;
READ MQ2G FROM FILE MRIO_2;
READ MC1 FROM FILE MRIO_2;
READ MC2 FROM FILE MRIO_2;
READ MH FROM FILE MRIO_2;
READ MM11 FROM FILE MRIO_2;
READ MM21 FROM FILE MRIO_2;
READ MR1 FROM FILE MRIO_2;
READ MM12 FROM FILE MRIO_2;
READ MM22 FROM FILE MRIO_2;
READ MR2 FROM FILE MRIO_2;
READ MM1G11 FROM FILE MRIO_2;
READ MM1G21 FROM FILE MRIO_2;
READ MR1G1 FROM FILE MRIO_2;
READ MM1G12 FROM FILE MRIO_2;
READ MM1G22 FROM FILE MRIO_2;
READ MR1G2 FROM FILE MRIO_2;
READ MM2G1 FROM FILE MRIO_2;
READ MM2G2 FROM FILE MRIO_2;
READ MR2G FROM FILE MRIO_2;
READ MD1 FROM FILE MRIO_2;
READ MD2 FROM FILE MRIO_2;
READ MN11 FROM FILE MRIO_2;
READ MN21 FROM FILE MRIO_2;
READ MN12 FROM FILE MRIO_2;
READ MN22 FROM FILE MRIO_2;
READ MN2G1 FROM FILE MRIO_2;
READ MN2G2 FROM FILE MRIO_2;
READ ME11 FROM FILE MRIO_2;
READ ME21 FROM FILE MRIO_2;
READ MJ1 FROM FILE MRIO_2;
READ MO111 FROM FILE MRIO_2;
```

APPENDIX E: IO_FISH.TAB

```
READ MO211 FROM FILE MRIO_2;
READ MT11 FROM FILE MRIO_2;
READ MO112 FROM FILE MRIO_2;
READ MO212 FROM FILE MRIO_2;
READ MT12 FROM FILE MRIO_2;
READ E12 FROM FILE MRIO_2;
READ E22 FROM FILE MRIO_2;
READ MJ2 FROM FILE MRIO_2;
READ MO121 FROM FILE MRIO_2;
READ MO221 FROM FILE MRIO_2;
READ MT21 FROM FILE MRIO_2;
READ MO122 FROM FILE MRIO_2;
READ MO222 FROM FILE MRIO_2;
READ MT22 FROM FILE MRIO_2;
READ MZ FROM FILE MRIO_2;


!              MAPPINGS BETWEEN SETS   !
COEFFICIENT (INTEGER) (all,i,COM) AGGCOMNO(i);
COEFFICIENT (INTEGER) (all,j,IND) AGGINDNO(j);

FORMULA AGGCOMNO("C1") = 1;
FORMULA AGGCOMNO("C2") = 1;
FORMULA AGGCOMNO("C3") = 2;
FORMULA AGGCOMNO("C4") = 3;
FORMULA AGGCOMNO("C5") = 4;
FORMULA AGGCOMNO("C6") = 4;
FORMULA AGGCOMNO("C7") = 4;
FORMULA AGGCOMNO("C8") = 5;
FORMULA AGGCOMNO("C9") = 4;
FORMULA AGGCOMNO("C10") = 4;
FORMULA AGGCOMNO("C11") = 4;
FORMULA AGGCOMNO("C12") = 4;
FORMULA AGGCOMNO("C13") = 4;
FORMULA AGGCOMNO("C14") = 4;
FORMULA AGGCOMNO("C15") = 4;
FORMULA AGGCOMNO("C16") = 4;
FORMULA AGGCOMNO("C17") = 4;
FORMULA AGGCOMNO("C18") = 4;
FORMULA AGGCOMNO("C19") = 4;
FORMULA AGGCOMNO("C20") = 4;
FORMULA AGGCOMNO("C21") = 4;
FORMULA AGGCOMNO("C22") = 4;
FORMULA AGGCOMNO("C23") = 4;
FORMULA AGGCOMNO("C24") = 4;
FORMULA AGGCOMNO("C25") = 6;
FORMULA AGGCOMNO("C26") = 6 ;
FORMULA AGGCOMNO("C27") = 7;
FORMULA AGGCOMNO("C28") = 7;
FORMULA AGGCOMNO("C29") = 8;
FORMULA AGGCOMNO("C30") = 9;
FORMULA AGGCOMNO("C31") = 14;
FORMULA AGGCOMNO("C32") = 9;
FORMULA AGGCOMNO("C33") = 10;
FORMULA AGGCOMNO("C34") = 11;
FORMULA AGGCOMNO("C35") = 12;
FORMULA AGGCOMNO("C36") = 13;
FORMULA AGGCOMNO("C37") = 14;

FORMULA AGGINDNO("I1") = 1;
FORMULA AGGINDNO("I2") = 1;
FORMULA AGGINDNO("I3") = 2;
FORMULA AGGINDNO("I4") = 3;
FORMULA AGGINDNO("I5") = 4;
FORMULA AGGINDNO("I6") = 4;
FORMULA AGGINDNO("I7") = 4;
FORMULA AGGINDNO("I8") = 5;
FORMULA AGGINDNO("I9") = 4;
FORMULA AGGINDNO("I10") = 4;
FORMULA AGGINDNO("I11") = 4;
FORMULA AGGINDNO("I12") = 4;
FORMULA AGGINDNO("I13") = 4;
FORMULA AGGINDNO("I14") = 4;
FORMULA AGGINDNO("I15") = 4;
FORMULA AGGINDNO("I16") = 4;
```

APPENDIX E: IO_FISH.TAB

```
FORMULA AGGINDNO("I17") = 4;
FORMULA AGGINDNO("I18") = 4;
FORMULA AGGINDNO("I19") = 4;
FORMULA AGGINDNO("I20") = 4;
FORMULA AGGINDNO("I21") = 4;
FORMULA AGGINDNO("I22") = 4;
FORMULA AGGINDNO("I23") = 4;
FORMULA AGGINDNO("I24") = 4;
FORMULA AGGINDNO("I25") = 6;
FORMULA AGGINDNO("I26") = 6 ;
FORMULA AGGINDNO("I27") = 7;
FORMULA AGGINDNO("I28") = 7;
FORMULA AGGINDNO("I29") = 8;
FORMULA AGGINDNO("I30") = 9;
FORMULA AGGINDNO("I31") = 14;
FORMULA AGGINDNO("I32") = 9;
FORMULA AGGINDNO("I33") = 10;
FORMULA AGGINDNO("I34") = 11;
FORMULA AGGINDNO("I35") = 12;
FORMULA AGGINDNO("I36") = 13;
FORMULA AGGINDNO("I37") = 14;


SET AGGCOM (aggc1-aggc14);
COEFFICIENT (INTEGER) (all,aggi,AGGCOM) AGGNO(aggi);
FORMULA AGGNO("aggc1") = 1;
FORMULA AGGNO("aggc2") = 2;
FORMULA AGGNO("aggc3") = 3;
FORMULA AGGNO("aggc4") = 4;
FORMULA AGGNO("aggc5") = 5;
FORMULA AGGNO("aggc6") = 6;
FORMULA AGGNO("aggc7") = 7;
FORMULA AGGNO("aggc8") = 8;
FORMULA AGGNO("aggc9") = 9;
FORMULA AGGNO("aggc10") = 10;
FORMULA AGGNO("aggc11") = 11;
FORMULA AGGNO("aggc12") = 12;
FORMULA AGGNO("aggc13") = 13;
FORMULA AGGNO("aggc14") = 14;

SET AGGIND (aggj1-aggj14);
COEFFICIENT (INTEGER) (all,aggj,AGGIND) AGGNOJ(aggj);
FORMULA AGGNOJ("aggj1") = 1;
FORMULA AGGNOJ("aggj2") = 2;
FORMULA AGGNOJ("aggj3") = 3;
FORMULA AGGNOJ("aggj4") = 4;
FORMULA AGGNOJ("aggj5") = 5;
FORMULA AGGNOJ("aggj6") = 6;
FORMULA AGGNOJ("aggj7") = 7;
FORMULA AGGNOJ("aggj8") = 8;
FORMULA AGGNOJ("aggj9") = 9;
FORMULA AGGNOJ("aggj10") = 10;
FORMULA AGGNOJ("aggj11") = 11;
FORMULA AGGNOJ("aggj12") = 12;
FORMULA AGGNOJ("aggj13") = 13;
FORMULA AGGNOJ("aggj14") = 14;

COEFFICIENT (INTEGER) (all,aggm,AGGCOM) AGGNOM(aggm);
FORMULA AGGNOM("aggc8") = 8;
FORMULA AGGNOM("aggc9") = 9;
FORMULA AGGNOM("aggc14") = 14;


! DATA AFTER AGGREGATION OVER COM !
COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
(all,r,REG) AMA1(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)
(all,aggj,AGGIND)(all,r,REG) AMA2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
(all,r,REG) AMF(aggi,aggj,r);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND) (all,r,REG) AMK11(aggi,aggj,r,aggm);
```

APPENDIX E: IO_FISH.TAB

```
COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK21(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMP1(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK12(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK22(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMP2(aggi,aggj,r,aggm);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK1G11(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK1G21(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMP1G1(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK1G12(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK1G22(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMP1G2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK2G1(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMK2G2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMP2G(aggi,aggj,r);

COEFFICIENT (all,q,OCC)(all,aggj,AGGIND)
        (all,r,REG) AMU1(q,aggj,r);

COEFFICIENT (all,q,OCC)(all,aggj,AGGIND)
        (all,r,REG) AMU2(q,aggj,r);

COEFFICIENT (all,q,OCC)(all,aggj,AGGIND)
        (all,r,REG) AMU3(q,aggj,r);

COEFFICIENT (all,t,OWNERS)(all,aggj,AGGIND)
        (all,r,REG) AMV1(t,aggj,r);

COEFFICIENT (all,t, OWNERS)(all,aggj,AGGIND)
        (all,r,REG) AMV2(t,aggj,r);

COEFFICIENT (all,t, OWNERS)(all,aggj,AGGIND)
        (all,r,REG) AMV3(t,aggj,r);

COEFFICIENT (all,u, OWNERS)(all,aggj,AGGIND)
        (all,r,REG) AMW1(u,aggj,r);

COEFFICIENT (all,u, OWNERS)(all,aggj,AGGIND)
(all,r,REG) AMW2(u,aggj,r);

COEFFICIENT (all,aggj,AGGIND)(all,r,REG) AMX1(aggj,r);

COEFFICIENT (all,aggj,AGGIND)(all,r,REG) AMX2(aggj,r);

COEFFICIENT (all,aggj,AGGIND)(all,r,REG) AMX3(aggj,r);

COEFFICIENT (all,t,OWNERS) AOXX3(t);
FORMULA (all,t,OWNERS) AOXX3(t) = OXX3(t);
```

APPENDIX E: IO_FISH.TAB

```
COEFFICIENT (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMB11(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMB21(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMG1(aggi,aggj,r);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AML111(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AML211(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMQ11(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AML112(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AML212(aggi,aggj,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMQ12(aggi,aggj,r,aggm);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML1G11(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML1G21(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMQ1G1(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML1G12(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML1G22(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMQ1G2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML2G1(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AML2G2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMQ2G(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AMC1(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AMC2(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AMH(aggi,r);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)(all,r,REG)
         AMM11(aggi,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMM21(aggi,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMR1(aggi,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMM12(aggi,r,aggm);

COEFFICIENT (all,aggm, AGGCOM) (all,aggi,AGGCOM)
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APPENDIX E: IO_FISH.TAB

```
        (all,r,REG) AMM22(aggi,r,aggm);

COEFFICIENT (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMR2(aggi,r,aggm);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMM1G11(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMM1G21(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG)
        AMR1G1(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG)
        AMM1G12(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMM1G22(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMR1G2(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMM2G1(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMM2G2(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
        (all,r,REG) AMR2G(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)
         AMD1(aggi);

COEFFICIENT (all,aggi,AGGCOM) AMD2(aggi);
COEFFICIENT  (all,aggi,AGGCOM) (all,aggm,AGGCOM) AMN11(aggi,aggm);

COEFFICIENT  (all,aggi,AGGCOM) (all, aggm,AGGCOM) AMN21(aggi, aggm);

COEFFICIENT  (all,aggi,AGGCOM) (all, aggm,AGGCOM) AMN12(aggi, aggm);

COEFFICIENT (all,aggi,AGGCOM) (all, aggm,AGGCOM) AMN22(aggi, aggm);

COEFFICIENT (all,aggi,AGGCOM) AMN2G1(aggi);

COEFFICIENT (all,aggi,AGGCOM) AMN2G2(aggi);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AME11(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AME21(aggi,r);

COEFFICIENT (all,aggi,AGGCOM)(all,r,REG) AMJ1(aggi,r);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMO111(aggi,r, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMO211(aggi,r, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMT11(aggi,r, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMO112(aggi,r, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMO212(aggi,r, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMT12(aggi,r, aggm);

COEFFICIENT (all,aggi,AGGCOM) AE12(aggi);

COEFFICIENT (all,aggi,AGGCOM) AE22(aggi);
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APPENDIX E: IO_FISH.TAB

```
COEFFICIENT (all,aggi,AGGCOM) AMJ2(aggi);

COEFFICIENT (all,aggm, AGGCOM) (all,aggi,AGGCOM) AMO121(aggi, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM) AMO221(aggi, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM) AMT21(aggi, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM) AMO122(aggi, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM) AMO222(aggi, aggm);

COEFFICIENT (all, aggm, AGGCOM) (all,aggi,AGGCOM) AMT22(aggi, aggm);

COEFFICIENT (all,aggi,AGGCOM) AMZ(aggi);

! AGGREGATION !

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
(all,r,REG) AMA1(aggi,aggj,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MA1(i,j,r)));


FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
        (all,r,REG) AMF(aggi,aggj,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj), MF(i,j,r)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND) (all,r,REG) AMK11(aggi,aggj,r,aggm) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
        SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MK11(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK21(aggi,aggj,r,aggm) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
        SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MK21(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMP1(aggi,aggj,r,aggm) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
        SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MP1(i,j,r,u))));


FORMULA (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMA2(aggi,aggj,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj), MA2(i,j,r)));


FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK12(aggi,aggj,r,aggm) =
         SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
        sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MK12(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMK22(aggi,aggj,r,aggm) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
        sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MK22(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,aggj,AGGIND)(all,r,REG) AMP2(aggi,aggj,r,aggm) =
         SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
```

```
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MP2(i,j,r,u))));


FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK1G11(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MK1G11(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK1G21(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND:AGGINDNO(j)=AGGNOJ(aggj), MK1G21(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMP1G1(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MP1G1(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK1G12(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MK1G12(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK1G22(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MK1G22(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMP1G2(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MP1G2(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK2G1(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MK2G1(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMK2G2(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MK2G2(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMP2G(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MP2G(i,j,r)));

FORMULA (all,q,OCC)(all,aggj,AGGIND)
            (all,r,REG) AMU1(q,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MU1(q,j,r));

FORMULA (all,q,OCC)(all,aggj,AGGIND)
            (all,r,REG) AMU2(q,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MU2(q,j,r));

FORMULA (all,q,OCC)(all,aggj,AGGIND)
            (all,r,REG) AMU3(q,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MU3(q,j,r));

FORMULA (all,t,OWNERS)(all,aggj,AGGIND)
            (all,r,REG) AMV1(t,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MV1(t,j,r));

FORMULA (all,t, OWNERS)(all,aggj,AGGIND)
            (all,r,REG) AMV2(t,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MV2(t,j,r));
```

APPENDIX E: IO_FISH.TAB

```
FORMULA (all,t, OWNERS)(all,aggj,AGGIND)
            (all,r,REG) AMV3(t,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MV3(t,j,r));

FORMULA (all,u, OWNERS)(all,aggj,AGGIND)
            (all,r,REG) AMW1(u,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MW1(u,j,r));

FORMULA (all,u, OWNERS)(all,aggj,AGGIND)
            (all,r,REG) AMW2(u,aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MW2(u,j,r));

FORMULA (all,aggj,AGGIND)(all,r,REG)
            AMX1(aggj,r)
             = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MX1(j,r));

FORMULA (all,aggj,AGGIND)(all,r,REG)
            AMX2(aggj,r)  = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MX2(j,r));

FORMULA (all,aggj,AGGIND)(all,r,REG)
            AMX3(aggj,r)  = SUM(j,IND:AGGINDNO(j)=
            AGGNOJ(aggj),MX3(j,r));

FORMULA (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AMB11(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MB11(i,j,r)));

FORMULA (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AMB21(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MB21(i,j,r)));

FORMULA (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AMG1(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MG1(i,j,r)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AML111(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            sum(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
            ML111(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AML211(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            sum(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
            ML211(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AMQ11(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MQ11(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AML112(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            ML112(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AML212(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
```

```
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            SUM(u,MAR: AGGCOMNO(u) = AGGNOM(aggm),
            ML212(i,j,r,u))));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,aggj,AGGIND)(all,r,REG) AMQ12(aggi,aggj,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),
            SUM(u,MAR: AGGCOMNO(u) = AGGNOM(aggm),
            MQ12(i,j,r,u))));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML1G11(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML1G11(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML1G21(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML1G21(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMQ1G1(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MQ1G1(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML1G12(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML1G12(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML1G22(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML1G22(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMQ1G2(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MQ1G2(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML2G1(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML2G1(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AML2G2(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),ML2G2(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) AMQ2G(aggi,aggj,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(j,IND: AGGINDNO(j)=AGGNOJ(aggj),MQ2G(i,j,r)));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AMC1(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MC1(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AMC2(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MC2(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AMH(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MH(i,r));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)(all,r,REG)
             AMM11(aggi,r,aggm) =
            SUM(i,COM:AGGCOMNO(i)= AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
            MM11(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMM21(aggi,r,aggm) =
             SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
```

```
        MM21(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMR1(aggi,r,aggm)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
        MR1(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMM12(aggi,r,aggm) =
         SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
        MM12(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMM22(aggi,r,aggm) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
        MM22(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
        (all,r,REG) AMR2(aggi,r,aggm)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
        MR2(i,r,u)));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMM1G11(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM1G11(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMM1G21(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM1G21(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG)
        AMR1G1(aggi,r) = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        MR1G1(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG)
        AMM1G12(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM1G12(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMM1G22(aggi,r) =
        SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM1G22(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMR1G2(aggi,r) = SUM(i,COM:AGGCOMNO(i)
        =AGGNO(aggi),MR1G2(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMM2G1(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM2G1(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMM2G2(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MM2G2(i,r));

FORMULA (all,aggi,AGGCOM)
        (all,r,REG) AMR2G(aggi,r)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MR2G(i,r));

FORMULA (all,aggi,AGGCOM)
         AMD1(aggi)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MD1(i));

FORMULA (all,aggi,AGGCOM) AMD2(aggi)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MD2(i));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMN11(aggi,aggm)
        = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
        SUM(u,MAR:AGGCOMNO(u)=AGGNOM(aggm),
        MN11(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMN21(aggi,aggm)
```

```
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MN21(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMN12(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MN12(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMN22(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MN22(i,u)));

FORMULA (all,aggi,AGGCOM) AMN2G1(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MN2G1(i));

FORMULA (all,aggi,AGGCOM) AMN2G2(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MN2G2(i));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AME11(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),ME11(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AME21(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),ME21(i,r));

FORMULA (all,aggi,AGGCOM)(all,r,REG) AMJ1(aggi,r)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MJ1(i,r));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMO111(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO111(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMO211(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO211(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMT11(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MT11(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMO112(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO112(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMO212(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO212(i,r,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM)
            (all,r,REG) AMT12(aggi,r,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MT12(i,r,u)));

FORMULA (all,aggi,AGGCOM) AE12(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),E12(i));

FORMULA (all,aggi,AGGCOM) AE22(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),E22(i));

FORMULA (all,aggi,AGGCOM) AMJ2(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MJ2(i));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMO121(aggi,aggm)
```

```
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO121(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMO221(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR: AGGCOMNO(u) = AGGNOM(aggm),
            MO221(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMT21(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MT21(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMO122(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO122(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMO222(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            SUM(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MO222(i,u)));

FORMULA (all,aggm,AGGCOM) (all,aggi,AGGCOM) AMT22(aggi,aggm)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),
            sum(u,MAR:AGGCOMNO(u) = AGGNOM(aggm),
            MT22(i,u)));


! Tariff on Imports of i into Tasmania          !
! NATIONAL Tariff on  Imports of i                        !
FORMULA (all,aggi,AGGCOM) AMZ(aggi)
            = SUM(i,COM:AGGCOMNO(i)=AGGNO(aggi),MZ(i));

! Imports of i into Tasmania as proportion of national imports of i !
COEFFICIENT (all,aggi,AGGCOM) NATIMP(aggi);
FORMULA (all,aggi,AGGCOM) NATIMP(aggi) =
sum(aggj,AGGIND,sum(r,REG,AMF(aggi,aggj,r) +
AMG1(aggi,aggj,r))) + sum(r,REG, AMH(aggi,r) +
AMJ1(aggi,r)) + AMJ2(aggi);

COEFFICIENT (all,aggi,AGGCOM) TASIMP(aggi);
FORMULA (all,aggi,AGGCOM) TASIMP(aggi) =
sum(aggj,AGGIND,AMF(aggi,aggj,"A1") +
AMG1(aggi,aggj,"A1")) + AMH(aggi,"A1") +
AMJ1(aggi,"A1");

! TASMANIAN tariffs !
FORMULA (all,aggi,AGGCOM) AMZ(aggi)
            = (TASIMP(aggi)/NATIMP(aggi)) * AMZ(aggi);



! Calculation of FMA1 !

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) XMA1(aggi,aggj,r);
COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)(all,r,REG)
            XXMA1(aggi,aggj,r);

FORMULA (all,aggm,AGGCOM)(all,aggj,AGGIND)(all,r,REG)
            XXMA1(aggm,aggj,r) =
            sum(t,AGGCOM,AMK11(t,aggj,r,aggm) + AMK21(t,aggj,r,aggm) +
            AMP1(t,aggj,r,aggm));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)(all,r,REG)
            XMA1(aggi,aggj,r) = XXMA1(aggi,aggj,r) + AMA1(aggi,aggj,r);

COEFFICIENT (all,aggi, AGGCOM) (all,aggj,AGGIND)
            FMA1(aggi,aggj);

FORMULA (all,aggi, AGGCOM) (all,aggj,AGGIND) FMA1(aggi,aggj) =
            XMA1(aggi,aggj,"A1");
```

APPENDIX E: IO_FISH.TAB

```
! Calculation of FMA2 !

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) XMA2(aggi,aggj,r);

COEFFICIENT (all,aggi,AGGCOM)(all,aggj,AGGIND)
            (all,r,REG) XXMA2(aggi,aggj,r);

FORMULA (all,aggm,AGGCOM)(all,aggj,AGGIND)(all,r,REG)
            XXMA2(aggm,aggj,r) =  sum(t,AGGCOM, AMK22(t,aggj,r,aggm)
             + AMK12(t,aggj,r,aggm) + AMP2(t,aggj,r,aggm));

FORMULA (all,aggi,AGGCOM)(all,aggj,AGGIND)(all,r,REG) XMA2(aggi,aggj,r) =
                        AMA2(aggi,aggj,r)+ XXMA2(aggi,aggj,r);

COEFFICIENT (all,aggi, AGGCOM) (all,aggj,AGGIND)
            FMA2(aggi,aggj);

FORMULA (all,aggi, AGGCOM) (all,aggj,AGGIND) FMA2(aggi,aggj) =
            XMA2(aggi,aggj,"A1");


! Calculation of FMA3 !
COEFFICIENT (all, aggi, AGGCOM) (all, aggj, AGGIND) FMA3(aggi, aggj);

FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FMA3(aggi,aggj)
            = AMF(aggi,aggj,"A1");

! Tasmanian sales taxes !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS11(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS11(aggi,aggj) =
            AMK1G11(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS12(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS12(aggi,aggj) =
            AMK1G21(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS13(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS13(aggi,aggj) =
            AMP1G1(aggi,aggj,"A1");


! RoA sales taxes !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS21(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS21(aggi,aggj) =
            AMK1G12(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS22(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS22(aggi,aggj) =
            AMK1G22(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS23(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS23(aggi,aggj) =
            AMP1G2(aggi,aggj,"A1");


! Commonwealth sales taxes !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS31(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS31(aggi,aggj) =
            AMK2G1(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS32(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS32(aggi,aggj) =
            AMK2G2(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) FS33(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FS33(aggi,aggj) =
            AMP2G(aggi,aggj,"A1");

! LABOUR !
COEFFICIENT (all,j,AGGIND) FMU1(j);
COEFFICIENT (all,j,AGGIND) FMU2(j);
COEFFICIENT (all,j,AGGIND) FMU3(j);
```

APPENDIX E: IO_FISH.TAB

```
FORMULA (all,j,AGGIND) FMU1(j) =
        sum(q,OCC,AMU1(q,j,"A1"));

FORMULA (all,j,AGGIND) FMU2(j) =
        sum(q,OCC,AMU2(q,j,"A1"));

FORMULA (all,j,AGGIND) FMU3(j) =
        sum(q,OCC,AMU3(q,j,"A1"));

! CAPITAL !
COEFFICIENT (all,t,OWNERS) (all,j,AGGIND) FMV1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,AGGIND) FMV2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,AGGIND) FMV3(t,j);

FORMULA (all,t,OWNERS) (all,j,AGGIND) FMV1(t,j)
        = AMV1(t,j,"A1");

FORMULA (all,t,OWNERS) (all,j,AGGIND) FMV2(t,j)
        = AMV2(t,j,"A1");

FORMULA (all,t,OWNERS) (all,j,AGGIND) FMV3(t,j)
        = AMV3(t,j,"A1");


! LAND !
COEFFICIENT (all,u,OWNERS) (all,j,AGGIND) FMW1(u,j);
COEFFICIENT (all,u,OWNERS) (all,j,AGGIND) FMW2(u,j);

FORMULA (all,u,OWNERS) (all,aggj,AGGIND) FMW1(u,aggj)
        = AMW1(u,aggj,"A1");
FORMULA (all,u,OWNERS) (all,aggj,AGGIND) FMW2(u,aggj)
        = AMW2(u,aggj,"A1");

! WORKING CAPITAL  !
COEFFICIENT (all,aggj,AGGIND) FMX3(aggj);
FORMULA (all,aggj,AGGIND) FMX3(aggj)
        = AMX3(aggj,"A1");

! PRODUCTION TAXES !
COEFFICIENT (all,j,AGGIND) FMX1(j);
COEFFICIENT (all,j,AGGIND) FMX2(j);

FORMULA (all,j,AGGIND) FMX1(j) =
        AMX1(j,"A1");

FORMULA (all,j,AGGIND) FMX2(j) =
        AMX2(j,"A1");


! CAPITAL CREATION !

!Use of Tasmanian goods in capital creation - FMB1!
! Aggregate Margins !
COEFFICIENT (all,aggm,AGGCOM) (all, aggj, AGGIND) (all,r,REG)
        XXMB11(aggm,aggj,r);
FORMULA (all,aggm,AGGCOM) (all, aggj, AGGIND) (all,r,REG)
        XXMB11(aggm,aggj,r) =
        sum(aggi,AGGCOM, AML111(aggi,aggj,r,aggm) +
        AML211(aggi,aggj,r,aggm) + AMQ11(aggi,aggj,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all, aggi, AGGCOM)
        (all, aggj, AGGIND) (all,r,REG) AAMB11(aggi,aggj,r);
FORMULA (all, aggi, AGGCOM)
        (all, aggj, AGGIND) (all,r,REG) AAMB11(aggi,aggj,r)
        = AMB11(aggi,aggj,r) + XXMB11(aggi,aggj,r);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) (all, aggj, AGGIND)
        FMB1(aggi,aggj);
FORMULA (all, aggi,AGGCOM) (all, aggj, AGGIND)
        FMB1(aggi,aggj) = AAMB11(aggi,aggj,"A1");

!Use of Mainland goods in capital creation - FMB2!
! Aggregate Margins !
```

APPENDIX E: IO_FISH.TAB

```
COEFFICIENT (all,aggm,AGGCOM)(all,aggj,AGGIND) (all,r,REG)
        XXMB21(aggm, aggj,r);
FORMULA (all,aggm,AGGCOM)(all,aggj,AGGIND) (all,r,REG)
        XXMB21(aggm, aggj,r) = SUM(aggi,AGGCOM,
        AML112(aggi,aggj,r,aggm) + AML212(aggi,aggj,r,aggm)
        + AMQ12(aggi,aggj,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND)(all,r,REG)
        AAMB21(aggi,aggj,r);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND)(all,r,REG)
        AAMB21(aggi,aggj,r) = XXMB21(aggi, aggj,r)  + AMB21(aggi,aggj,r);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) (all, aggj, AGGIND)
        FMB2(aggi,aggj);
FORMULA (all, aggi,AGGCOM) (all, aggj, AGGIND)
        FMB2(aggi,aggj) = AAMB21(aggi,aggj,"A1");


! Imported goods for K creation - FMG1 !
COEFFICIENT (all, aggi, AGGCOM) (all, aggj, AGGIND)
        FMG1(aggi, aggj);

FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) FMG1(aggi,aggj)
        = AMG1(aggi,aggj,"A1");

! Tasmanian sales taxes on inputs for capital formation !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS11(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS11(aggi,aggj) =
        AML1G11(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS12(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS12(aggi,aggj) =
        AML1G21(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS13(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS13(aggi,aggj) =
        AMQ1G1(aggi,aggj,"A1");


! RoA sales taxes on inputs for capital formation !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS21(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS21(aggi,aggj) =
        AML1G12(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS22(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS22(aggi,aggj) =
        AML1G22(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS23(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS23(aggi,aggj) =
        AMQ1G2(aggi,aggj,"A1");

! Commonwealth Sales Taxes !
COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS31(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS31(aggi,aggj) =
        AML2G1(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS32(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS32(aggi,aggj) =
        AML2G2(aggi,aggj,"A1");

COEFFICIENT (all,aggi,AGGCOM) (all,aggj,AGGIND) KS33(aggi,aggj);
FORMULA (all,aggi,AGGCOM) (all,aggj,AGGIND) KS33(aggi,aggj) =
        AMQ2G(aggi,aggj,"A1");


! HOUSEHOLD EXPENDITURE !

! Household Expenditure on Tasmanian Products - FMC1 !

! Aggregate Margins !
COEFFICIENT  (all,r,REG) (all,aggm,AGGCOM)
        HMARG(r,aggm);
```

APPENDIX E: IO_FISH.TAB

```
FORMULA  (all,r,REG) (all,aggm,AGGCOM)
            HMARG(r,aggm) = SUM(aggi,AGGCOM,AMM11(aggi,r,aggm)
            + AMM21(aggi,r,aggm) + AMR1(aggi,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) (all,r,REG) AAMC1(aggi,r);
FORMULA (all,aggi,AGGCOM)(all,r,REG) AAMC1(aggi,r) =
            AMC1(aggi,r) + HMARG(r,aggi);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) FMC1(aggi);
FORMULA (all,aggi,AGGCOM) FMC1(aggi) =
            AAMC1(aggi,"A1");


! Household Expenditure on Mainland Products - FMC2 !

! Aggregate Margins !
COEFFICIENT  (all,r,REG) (all,aggm,AGGCOM)
            HMARG2(r,aggm);
FORMULA  (all,r,REG) (all,aggm,AGGCOM)
            HMARG2(r,aggm) = SUM(aggi,AGGCOM,AMM12(aggi,r,aggm)
            + AMM22(aggi,r,aggm) + AMR2(aggi,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) (all,r,REG) AAMC2(aggi,r);
FORMULA (all,aggi,AGGCOM)(all,r,REG) AAMC2(aggi,r) =
            AMC2(aggi,r) + HMARG2(r,aggi);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) FMC2(aggi);
FORMULA (all,aggi,AGGCOM) FMC2(aggi) =
            AAMC2(aggi,"A1");

! Imported goods for Household Comsumption !
COEFFICIENT (all, aggi, AGGCOM)
            FMC3(aggi);

FORMULA (all,aggi,AGGCOM) FMC3(aggi)
            = AMH(aggi,"A1");

! Tasmanian Sales Taxes !
! Tasmanian Sales Taxes on Tasmanian Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS11(aggi);
FORMULA (all,aggi,AGGCOM) CS11(aggi)
            = AMM1G11(aggi,"A1");

! Tasmanian Sales Taxes on RoA Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS12(aggi);
FORMULA (all,aggi,AGGCOM) CS12(aggi) =
            AMM1G21(aggi,"A1");

! Tasmanian Sales Taxes on Imported Goods !
COEFFICIENT (all,aggi,AGGCOM) CS13(aggi);
FORMULA (all,aggi,AGGCOM) CS13(aggi) =
            AMR1G1(aggi,"A1");


! RoA  Sales Taxes !
! RoA Sales Taxes on Tasmanian Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS21(aggi);
FORMULA (all,aggi,AGGCOM) CS21(aggi)
            = AMM1G12(aggi,"A1");

! RoA Sales Taxes on RoA Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS22(aggi);
FORMULA (all,aggi,AGGCOM) CS22(aggi) =
            AMM1G22(aggi,"A1");

! RoA Sales Taxes on Imported Goods !
COEFFICIENT (all,aggi,AGGCOM) CS23(aggi);
FORMULA (all,aggi,AGGCOM) CS23(aggi) =
            AMR1G2(aggi,"A1");
```

APPENDIX E: IO_FISH.TAB

```
! Commonwealth  Sales Taxes !
! Commonwealth Sales Taxes on Tasmanian Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS31(aggi);
FORMULA (all,aggi,AGGCOM) CS31(aggi)
        = AMM2G1(aggi,"A1");

! Commonwealth Sales Taxes on RoA Sourced Goods !
COEFFICIENT (all,aggi,AGGCOM) CS32(aggi);
FORMULA (all,aggi,AGGCOM) CS32(aggi) =
        AMM2G2(aggi,"A1");

! Commonwealth Sales Taxes on Imported Goods !
COEFFICIENT (all,aggi,AGGCOM) CS33(aggi);
FORMULA (all,aggi,AGGCOM) CS33(aggi) =
        AMR2G(aggi,"A1");


! Tasmanian State Government Consumption !
! on Tas Goods - SME1 !

! Aggregate Margins !
COEFFICIENT  (all,r,REG) (all,aggm,AGGCOM)
        HMARG3(r,aggm);
FORMULA  (all,r,REG) (all,aggm,AGGCOM)
        HMARG3(r,aggm) = SUM(aggi,AGGCOM,AMO111(aggi,r,aggm)
        + AMO211(aggi,r,aggm) + AMT11(aggi,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) (all,r,REG) AAME11(aggi,r);
FORMULA (all,aggi,AGGCOM)(all,r,REG) AAME11(aggi,r) =
        AME11(aggi,r) + HMARG3(r,aggi);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) SME1(aggi);
FORMULA (all,aggi,AGGCOM) SME1(aggi) =
        AAME11(aggi,"A1");

! Tasmanian State Government Consumption !
! on RoA Goods - SME2 !

! Aggregate Margins !
COEFFICIENT  (all,r,REG) (all,aggm,AGGCOM)
        HMARG4(r,aggm);
FORMULA  (all,r,REG) (all,aggm,AGGCOM)
        HMARG4(r,aggm) = SUM(aggi,AGGCOM,AMO112(aggi,r,aggm)
        + AMO212(aggi,r,aggm) + AMT12(aggi,r,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) (all,r,REG) AAME21(aggi,r);
FORMULA (all,aggi,AGGCOM)(all,r,REG) AAME21(aggi,r) =
        AME21(aggi,r) + HMARG4(r,aggi);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) SME2(aggi);
FORMULA (all,aggi,AGGCOM) SME2(aggi) =
        AAME21(aggi,"A1");

! Tasmanian State Government Consumption !
! on imported Goods - SME3 !
COEFFICIENT (all,aggi,AGGCOM) SME3(aggi);
FORMULA (all,aggi,AGGCOM) SME3(aggi) =
        AMJ1(aggi,"A1");


! Commonwealth spending on Tasmanian Goods !

! Aggregate Margins !
COEFFICIENT  (all,aggm,AGGCOM)
        HMARG5(aggm);
FORMULA  (all,aggm,AGGCOM)
        HMARG5(aggm) = SUM(aggi,AGGCOM,AMO121(aggi,aggm)
        + AMO221(aggi,aggm) + AMT21(aggi,aggm));

! Add margins to basic flows use !
COEFFICIENT (all,aggi,AGGCOM) AAE12(aggi);
```

APPENDIX E: IO_FISH.TAB

```
FORMULA (all,aggi,AGGCOM) AAE12(aggi) =
            AE12(aggi) + HMARG5(aggi);

! Define the data for Tasmania !
COEFFICIENT (all,aggi,AGGCOM) CE1(aggi);
FORMULA (all,aggi,AGGCOM) CE1(aggi) =
            AAE12(aggi);



! Mainland Exports !
! Basic Values and Margins !
COEFFICIENT (all,aggi,AGGCOM) AE1(aggi);
FORMULA (all,aggi,AGGCOM) AE1(aggi) =
            sum(aggj,AGGIND,XMA1(aggi,aggj,"A2") )+
            sum(aggj,AGGIND,AAMB11(aggi,aggj,"A2")) +
            AAMC1(aggi,"A2") +
            AAME11(aggi,"A2");

! Tasmanian Sales Taxes on Interstate Exports !
COEFFICIENT (all,aggi,AGGCOM) TAX1(aggi);
FORMULA (all,aggi,AGGCOM) TAX1(aggi) =
            sum(aggj,AGGIND,AMK1G11(aggi,aggj,"A2")) +
            sum(aggj,AGGIND,AML1G11(aggi,aggj,"A2")) +
            AMM1G11(aggi,"A2");

! RoA Sales Taxes on Interstate Exports !
COEFFICIENT (all,aggi,AGGCOM) SAX1(aggi);
FORMULA (all,aggi,AGGCOM) SAX1(aggi) =
            sum(aggj,AGGIND,AMK1G12(aggi,aggj,"A2")) +
            sum(aggj,AGGIND,AML1G12(aggi,aggj,"A2")) +
            AMM1G12(aggi,"A2");

! Commonwealth Sales Taxes on Interstate Exports !
COEFFICIENT (all,aggi,AGGCOM) CAX1(aggi);
FORMULA (all,aggi,AGGCOM) CAX1(aggi) =
            sum(aggj,AGGIND,AMK2G1(aggi,aggj,"A2")) +
            sum(aggj,AGGIND,AML2G1(aggi,aggj,"A2")) +
            AMM2G1(aggi,"A2");


! Foreign Exports !
COEFFICIENT (all,aggi,AGGCOM) OX1(aggi);
FORMULA (all,aggi,AGGCOM) OX1(aggi) =
            SUM(k,AGGCOM,AMN11(k,aggi) + AMN21(k,aggi)) +
            AMD1(aggi);

! Commonwealth Sales Taxes on Exports !
COEFFICIENT (all,aggi,AGGCOM) CX1(aggi);
FORMULA (all,aggi,AGGCOM) CX1(aggi) = AMN2G1(aggi);


! Check total cost equals total demand !
COEFFICIENT (all,aggj,AGGIND) COST(aggj);
FORMULA (all,aggj,AGGIND) COST(aggj) =
            SUM(aggi,AGGCOM,FMA1(aggi,aggj) + FMA2(aggi,aggj)
            + FMA3(aggi,aggj) + FS11(aggi,aggj) + FS12(aggi,aggj)
            + FS13(aggi,aggj) + FS21(aggi,aggj) + FS22(aggi,aggj)
             + FS23(aggi,aggj) + FS31(aggi,aggj) +FS32(aggi,aggj)
             + FS33(aggi,aggj)) + FMU1(aggj)+ FMU2(aggj)+ FMU3(aggj)
             + sum(t,OWNERS,FMV1(t,aggj) + FMV2(t,aggj) + FMV3(t,aggj)
            +FMW1(t,aggj) + FMW2(t,aggj)) + FMX3(aggj) + FMX1(aggj)
            + FMX2(aggj) ;

COEFFICIENT (all,aggi,AGGCOM) SALE(aggi);
FORMULA (all,aggi,AGGCOM) SALE(aggi) =
            sum(aggj,AGGIND, FMA1(aggi,aggj) + FMB1(aggi,aggj)) +
            FMC1(aggi) + SME1(aggi) + CE1(aggi) + AE1(aggi)
            + OX1(aggi);



! WRITES !
WRITE FMA1 to file IOFILE header "FMA1";
WRITE FMA2 to file IOFILE header "FMA2";
```

APPENDIX E: IO_FISH.TAB

```
WRITE FMA3 to file IOFILE header "FMA3" ;
WRITE FS11 to file IOFILE header "FS11";
WRITE FS12 to file IOFILE header "FS12";
WRITE FS13 to file IOFILE header "FS13";

WRITE FS21 to file IOFILE header "FS21" ;
WRITE FS22 to file IOFILE header "FS22" ;
WRITE FS23 to file IOFILE header "FS23" ;

WRITE FS31 to file IOFILE header "FS31" ;
WRITE FS32 to file IOFILE header "FS32" ;
WRITE FS33 to file IOFILE header "FS33" ;

WRITE FMU1 to file IOFILE header "FMU1" ;
WRITE FMU2 to file IOFILE header "FMU2" ;
WRITE FMU3 to file IOFILE header "FMU3" ;

WRITE FMV1 to file IOFILE header "FMV1" ;
WRITE FMV2 to file IOFILE header "FMV2" ;
WRITE FMV3 to file IOFILE header "FMV3" ;

WRITE FMW1 to file IOFILE header "FMW1" ;
WRITE FMW2 to file IOFILE header "FMW2" ;

WRITE FMX3 to file IOFILE header "FMX3" ;

WRITE FMX1 to file IOFILE header "FMX1" ;
WRITE FMX2 to file IOFILE header "FMX2" ;

WRITE KS11 to file IOFILE header "KS11" ;
WRITE KS12 to file IOFILE header "KS12" ;
WRITE KS13 to file IOFILE header "KS13" ;

WRITE FMG1 to file IOFILE header "FMG1" ;

WRITE FMB2 to file IOFILE header "FMB2" ;
WRITE FMB1 to file IOFILE header "FMB1" ;

WRITE KS21 to file IOFILE header "KS21" ;
WRITE KS22 to file IOFILE header "KS22" ;
WRITE KS23 to file IOFILE header "KS23" ;

WRITE KS31 to file IOFILE header "KS31" ;
WRITE KS32 to file IOFILE header "KS32" ;
WRITE KS33 to file IOFILE header "KS33" ;

WRITE FMC1 to file IOFILE header "FMC1" ;
WRITE FMC2 to file IOFILE header "FMC2" ;
WRITE FMC3 to file IOFILE header "FMC3" ;

WRITE CS11 to file IOFILE header "CS11" ;
WRITE CS12 to file IOFILE header "CS12" ;
WRITE CS13 to file IOFILE header "CS13" ;

WRITE CS21 to file IOFILE header "CS21" ;
WRITE CS22 to file IOFILE header "CS22" ;
WRITE CS23 to file IOFILE header "CS23" ;

WRITE CS31 to file IOFILE header "CS31" ;
WRITE CS32 to file IOFILE header "CS32" ;
WRITE CS33 to file IOFILE header "CS33" ;

WRITE SME1 to file IOFILE header "SME1" ;
WRITE SME2 to file IOFILE header "SME2" ;
WRITE SME3 to file IOFILE header "SME3" ;

WRITE CE1 to file IOFILE header "CE1" ;
WRITE AE1 to file IOFILE header "AE1" ;
WRITE TAX1 to file IOFILE header "TAX1" ;
WRITE SAX1 to file IOFILE header "SAX1" ;
WRITE CAX1 to file IOFILE header "CAX1" ;

WRITE OX1 to file IOFILE header "OX1" ;

WRITE CX1 to file IOFILE header "CX1" ;
```

APPENDIX E: IO_FISH.TAB

```
WRITE AMZ to file IOFILE header "AMZ" ;

WRITE OXX3 to file IOFILE header "OXX3" ;

WRITE COST to file IOFILE header "COST" ;

WRITE SALE to file IOFILE header "SALE";
```

APPENDIX F: FISH_DAT.TAB

```
! FISH_DAT10.TAB !

! TABLO FILE TO READ IN AGGREGATED                    !
! FEDERAL DATABASE, UPDATE TO 94/95                   !
! READ THE FISHING DATA, COMBINE                      !
! WITH AGGREGATE DATABASE, AND WRITE    !
! NEW DATABASE TO FILE                                !

!
1: COMMODITY AND INDUSTRY INFORMATION
   1.1: Industry Categories
   1.2: Commodity Categories
2: FILEs and SETs
   2.1: SETs defined.
   2.2: FILEs defined.
3. COEFFICIENTS
   3.1: 1992/93 14-Sector Coefficients
   3.2: 1994/95 TASFISH Database Coefficients
4: READS
   4.1: Read 1992/93 14 Sector Data
   4.2: Read 1994//95 Fishing Industry Data
5: INTEGRATION OF 14 SECTOR AND FISHING DATA
7: CHECK INPUT-OUTPUT BALANCE
8: BALANCE THE DATABASE
   8.1: Pass Number One
   8.2: Pass Number Two
   8.3: Pass Number Three
   8.4: Pass Number Four
   8.5: Pass Number Five
   8.6: Eliminate some zeroes in database
   8.7: Allocation of remaining cost differences
!


! Some History

FISHDATA10 from FISHDATA9
- Statements placing $1 in "0" cells in factor usage
  matrices and make matrix exclaimed out.
!

!
1.1: Industry Categories
I1:   Abalone
I2:   Rocklobster
I3:   Scalefish
I4:   Trawl
I5:   Salmon aquaculture
I6:   Oyster aquaculture
I7:   Mussel aquaculture
I8: Other seafood
I9: Other agriculture
I10: Hunting
I11: Mining
I12: Other manufacturing
I13: Processed seafood
I14: Public utilities
I15: Construction
I16: Trade
I17: Transport and communication
I18: Finance
I19: Housing
I20: Public services
I21: Community services
I22: Personal services

1.2: Commodity Categories
C1: ABALONE
C2: SALMON, ATLANTIC
C3: OYSTERS
C4: MUSSELS
C5: ROCK LOBSTER
C6: ORANGE ROUGHY
C7: SHARK
C8: TREVALLA
```

APPENDIX F: FISH_DAT.TAB

```
C9: BLUE GRENADIER
C10: Other Seafood
C11: Other Agriculture
C12: Hunting
C13: Mining
C14: Other manufacturing
C15: Seafood processing
C16: Public utilities
C17: Construction
C18: Trade
C19: Transport and communication
C20: Finance
C21: Housing
C22: Public services
C23: Community services
C24: Personal services

!

! 2: FILEs and SETs !

!   2.1: SETs defined. !


SET COM1 #14 sector commodities# (C11-C24);
SET COM # N Sector Commodities# (C1 - C24);
SET FCOM #Fishing Commodities# (C1-C10);

SET IND #21 Industries# (I1 - I22);
SET IND1 #14 sector industries# (I9 - I22);
SET FIND #Fishing Industries# (I1-I8);

SET SOU #sources# (A1 - A3);

SET OWNERS #primary factor OWNERS# (RoW, CGov, SGov, Tas, RoA);

SUBSET COM1 is subset of COM;
SUBSET FCOM is subset of COM;
SUBSET IND1 is subset of IND;
SUBSET FIND is subset of IND;

! 2.2: FILEs defined !
FILE (old,header) IOFILE;
FILE (new,header)  FISHDATA;
FILE (old, header) FISH_INPUT;


! Database Inflation Factor !
COEFFICIENT INFLATE;
COEFFICIENT PRICES #National GDP deflator#;
COEFFICIENT REAL_GSP #Tasmanian real GSP growth #;

FORMULA PRICES = 109.6/106.3;
FORMULA REAL_GSP = 0.988;
FORMULA INFLATE = PRICES * REAL_GSP;


! 3.1: 1992/93 14-Sector Coefficients !
COEFFICIENT (all,i,COM1) (all,j,IND1) FMA1(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1) FMA2(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  FMA3(i,j);
COEFFICIENT  (all,i,COM1) (all,j,IND1) FS11(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  FS12(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  FS13(i,j);

 COEFFICIENT (all,i,COM1) (all,j,IND1) FS31(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  FS32(i,j);
 COEFFICIENT (all,i,COM1) (all,j,IND1) FS33(i,j);

COEFFICIENT (all,j,IND1) FMU1(j);
COEFFICIENT (all,j,IND1) FMU2(j);
COEFFICIENT (all,j,IND1) FMU3(j);

COEFFICIENT (all,t,OWNERS) (all,j,IND1) FMV1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND1) FMV2(t,j);
```

APPENDIX F: FISH_DAT.TAB

```
COEFFICIENT (all,t,OWNERS) (all,j,IND1) FMV3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,IND1)  FMW1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND1)  FMW2(t,j);

COEFFICIENT (all,j,IND1) FMX3(j);

COEFFICIENT (all,j,IND1)  FMX1(j);
COEFFICIENT (all,j,IND1)  FMX2(j);

COEFFICIENT (all,i,COM1) (all,j,IND1) KS11(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1) KS12(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  KS13(i,j);

COEFFICIENT (all,i,COM1) (all,j,IND1)  FMG1(i,j);

COEFFICIENT (all,i,COM1) (all,j,IND1)  FMB2(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  FMB1(i,j);

COEFFICIENT (all,i,COM1) (all,j,IND1)  KS31(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  KS32(i,j);
COEFFICIENT (all,i,COM1) (all,j,IND1)  KS33(i,j);

COEFFICIENT (all,i,COM1) FMC1(i);
COEFFICIENT (all,i,COM1)  FMC2(i);
COEFFICIENT (all,i,COM1)  FMC3(i);

COEFFICIENT (all,i,COM1)  CS11(i);
COEFFICIENT (all,i,COM1)  CS12(i);
COEFFICIENT (all,i,COM1)  CS13(i);

COEFFICIENT (all,i,COM1)  CS31(i);
COEFFICIENT (all,i,COM1)  CS32(i);
COEFFICIENT (all,i,COM1)  CS33(i);

COEFFICIENT (all,i,COM1)  SME1(i);
COEFFICIENT (all,i,COM1)  SME2(i);
COEFFICIENT (all,i,COM1)  SME3(i);

COEFFICIENT (all,i,COM1)  CE1(i);
COEFFICIENT (all,i,COM1)  AE1(i);
COEFFICIENT (all,i,COM1)  CAX1(i);

COEFFICIENT (all,i,COM1)  OX1(i);

COEFFICIENT (all,i,COM1)  CX1(i);

COEFFICIENT (all,i,COM1)  AMZ(i);


COEFFICIENT (all,j,IND1) COST(j);



! 3.2: 1994/95 TASFISH Database Coefficients !

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ4(t,j);

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) BAS1(i,j,s);
COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) BAS2(i,j,s);
COEFFICIENT  (all,i,COM) (all,s,SOU) BAS3(i,s);
COEFFICIENT (all,i,COM) (all,s,SOU) BAS4(i,s);
COEFFICIENT (all,i,COM) BAS5(i);
COEFFICIENT (all,i,COM) BAS6(i);
COEFFICIENT (all,i,COM) BAS7(i);

COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP2(t,j);
```

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```
COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP3(t,j);

COEFFICIENT (all,j,IND) CTAX(j);

COEFFICIENT (all,j,IND) FIS1(j);

COEFFICIENT (all,j,IND) LAB1(j);
COEFFICIENT (all,j,ind) LAB2(j);
COEFFICIENT (all,j,IND) LAB3(j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) LAN1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) LAN2(t,j);


COEFFICIENT (all,m,COM) (all,j,IND) MAKE(m,j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL4(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL4(t,j);

COEFFICIENT (all,j,IND) OTHR_J(j);

COEFFICIENT (all,j,IND) PTAX(j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL4(t,j);


COEFFICIENT (all,i,COM) TARF(i);

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TX11(i,j,s);
COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TX12(i,j,s);
COEFFICIENT (all,i,COM) (all,s,SOU) TX13(i,s);

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TX31(i,j,s);
COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TX32(i,j,s);
COEFFICIENT (all,i,COM) (all,s,SOU) TX33(i,s);
COEFFICIENT (all,i,COM) TX36(i);
COEFFICIENT (all,i,COM) TX37(i);

COEFFICIENT (all,t,OWNERS) (all,j,IND)VES1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) VES2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) VES3(t,j);

COEFFICIENT (all,i,COM) TRN6(i);


! 3.3 1994/95 Fishing Data Coefficients !
COEFFICIENT (all,i,FCOM) (all,j,IND) SB11(i,j)
        #sales of Tas fish to all industries#;
COEFFICIENT (all,i,COM) (all,j,FIND) PB11(i,j)
        #purchases of commodities by fishing industries#;

COEFFICIENT (all,i,FCOM) (all,j,IND) SB12(i,j)
        #fishing commodities sourced from Mainland#;
COEFFICIENT (all,i,COM) (all,j,FIND) PB12(i,j)
        #purchase of Mainland commodities by fishing industries#;

COEFFICIENT (all,i,FCOM) (all,j,IND) SB13(i,j)
        #purchase of RoA fish by all industries#;
COEFFICIENT (all,i,COM) (all,j,FIND) PB13(i,j)
        #purchases of RoA commodities by fishing industries#;
```

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```
COEFFICIENT (all,i,FCOM) (all,j,IND) ST11(i,j)
        #Tas tax on Tas fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT11(i,j)
        #Tas tax on Tas inputs to fishing industry#;

COEFFICIENT (all,i,FCOM) (all,j,IND) ST12(i,j)
        #Tas tax on RoA fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT12(i,j)
        #Tas tax on RoA inputs to fishing industry#;

COEFFICIENT (all,i,FCOM) (all,j,IND) ST13(i,j)
        #Tas tax on RoW fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT13(i,j)
        #Tas tax on RoW inputs to fishing industry#;

COEFFICIENT (all,i,FCOM) (all,j,IND) ST31(i,j)
        #CW tax on Tas fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT31(i,j)
        #CW tax on Tas inputs to fishing industry#;

COEFFICIENT (all,i,FCOM) (all,j,IND) ST32(i,j)
        #CW tax on RoA fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT32(i,j)
        #CW tax on RoA inputs to fishing industry#;

COEFFICIENT (all,i,FCOM) (all,j,IND) ST33(i,j)
        #CW tax on RoW fishing commodities#;
COEFFICIENT (all,i,COM) (all,j,FIND) PT33(i,j)
        #CW tax on RoW inputs to fishing industry#;

COEFFICIENT (all,j,FIND) FL1(j)
        #take home pay in fish industry j#;

COEFFICIENT (all,j,FIND) FL2(j)
        #PAYE tax in fish industry j#;

COEFFICIENT (all,j,FIND) FL3(j)
        #Payroll tax in fish industry j#;

COEFFICIENT (all,t,OWNERS) (all,j,FIND) FC1(t,j)
        #net rental on capital in j#;
COEFFICIENT (all,t,OWNERS) (all,j,FIND) FC2(t,j)
        #tax on rental in  industry j#;
COEFFICIENT (all,t,OWNERS) (all,j,FIND) FC3(t,j)
        #residential land tax on rental in  industry j#;

COEFFICIENT (all,t,OWNERS) (all,j,FIND) V1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) V2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) V3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) Q1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) Q2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) Q3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) Q4(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) AD1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) AD2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) AD3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) R1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) R2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) R3(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) SL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) SL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) SL3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) SL4(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) OL1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) OL2(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) OL3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) OL4(t,j);

COEFFICIENT (all,t,OWNERS) (all,j,FIND) ML1(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) ML2(t,j);
```

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```
COEFFICIENT (all,t,OWNERS) (all,j,FIND) ML3(t,j);
COEFFICIENT (all,t,OWNERS) (all,j,FIND) ML4(t,j);

COEFFICIENT (all,j,FIND) F1(j);

COEFFICIENT (all,j,FIND) X1(j);
COEFFICIENT (all,j,FIND) X2(j);
COEFFICIENT (all,j,FIND) X3(j);

COEFFICIENT (all,i,COM) (all,j,FIND) PB21(i,j)
        #inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) PB22(i,j)
        #inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) PB23(i,j)
        #inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T121(i,j)
        #Tas tax on Tas inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T122(i,j)
        #Tas tax on RoA inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T123(i,j)
        #Tas tax on RoW inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T221(i,j)
        #Fed tax on Tas inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T222(i,j)
        #Fed tax on RoA inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,COM) (all,j,FIND) T223(i,j)
        #Fed tax on RoW inputs to K formation by Tas fishing firms#;

COEFFICIENT (all,i,FCOM) (all,s,SOU) B3(i,s)
        #fish commod i from source s consumed by Tas house#;

COEFFICIENT (all,i,FCOM) (all,s,SOU) T13(i,s)
        #Tas tax on fish i from s consumed by Tas house#;

COEFFICIENT (all,i,FCOM) (all,s,SOU) T33(i,s)
        #Federal tax on fish i from s consumed by Tas house#;

COEFFICIENT (all,i,FCOM) B6(i);

COEFFICIENT (all,i,FCOM) B7(i);

COEFFICIENT (all,i,FCOM) T36(i);
COEFFICIENT (all,i,FCOM) T37(i);

COEFFICIENT (all,i,FCOM) TF(i);




! 4. READS !
! 4.1: Read 1992/93 14 Sector Data !
READ FMA1 from file IOFILE header "FMA1" ;
READ FMA2 from file IOFILE header "FMA2" ;
READ FMA3 from file IOFILE header "FMA3" ;
READ FS11 from file IOFILE header "FS11" ;
READ FS12 from file IOFILE header "FS12" ;
READ FS13 from file IOFILE header "FS13" ;


READ FS31 from file IOFILE header "FS31" ;
READ FS32 from file IOFILE header "FS32" ;
READ FS33 from file IOFILE header "FS33" ;

READ FMU1 from file IOFILE header "FMU1" ;
READ FMU2 from file IOFILE header "FMU2" ;
READ FMU3 from file IOFILE header "FMU3" ;
```

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```
READ FMV1 from file IOFILE header "FMV1" ;
READ FMV2 from file IOFILE header "FMV2" ;
READ FMV3 from file IOFILE header "FMV3" ;

READ FMW1 from file IOFILE header "FMW1" ;
READ FMW2 from file IOFILE header "FMW2" ;

READ FMX3 from file IOFILE header "FMX3" ;

READ FMX1 from file IOFILE header "FMX1" ;
READ FMX2 from file IOFILE header "FMX2" ;

READ KS11 from file IOFILE header "KS11" ;
READ KS12 from file IOFILE header "KS12" ;
READ KS13 from file IOFILE header "KS13" ;

READ FMG1 from file IOFILE header "FMG1" ;

READ FMB2 from file IOFILE header "FMB2" ;
READ FMB1 from file IOFILE header "FMB1" ;

READ KS31 from file IOFILE header "KS31" ;
READ KS32 from file IOFILE header "KS32" ;
READ KS33 from file IOFILE header "KS33" ;

READ FMC1 from file IOFILE header "FMC1" ;
READ FMC2 from file IOFILE header "FMC2" ;
READ FMC3 from file IOFILE header "FMC3" ;

READ CS11 from file IOFILE header "CS11" ;
READ CS12 from file IOFILE header "CS12" ;
READ CS13 from file IOFILE header "CS13" ;

READ CS31 from file IOFILE header "CS31" ;
READ CS32 from file IOFILE header "CS32" ;
READ CS33 from file IOFILE header "CS33" ;

READ SME1 from file IOFILE header "SME1" ;
READ SME2 from file IOFILE header "SME2" ;
READ SME3 from file IOFILE header "SME3" ;

READ CE1 from file IOFILE header "CE1" ;
READ AE1 from file IOFILE header "AE1" ;

READ CAX1 from file IOFILE header "CAX1" ;

READ OX1 from file IOFILE header "OX1" ;

READ CX1 from file IOFILE header "CX1" ;

READ AMZ from file IOFILE header "AMZ" ;

READ COST from file IOFILE header "COST";


! 4.2: Read 1994//95 Fishing Industry Data !
READ SB11 from file FISH_INPUT header "SB11";
READ PB11 from file FISH_INPUT header "PB11";
READ SB12 from file FISH_INPUT header "SB12";
READ PB12 from file FISH_INPUT header "PB12";
READ SB13 from file FISH_INPUT header "SB13";
READ PB13 from file FISH_INPUT header "PB13";
READ ST11 from file FISH_INPUT header "ST11";
READ PT11 from file FISH_INPUT header "PT11";
READ ST12 from file FISH_INPUT header "ST12";
READ PT12 from file FISH_INPUT header "PT12";
READ ST13 from file FISH_INPUT header "ST13";
READ PT13 from file FISH_INPUT header "PT13";
READ ST31 from file FISH_INPUT header "ST31";
READ PT31 from file FISH_INPUT header "PT31";
READ ST32 from file FISH_INPUT header "ST32";
READ PT32 from file FISH_INPUT header "PT32";
READ ST33 from file FISH_INPUT header "ST33";
READ PT33 from file FISH_INPUT header "PT33";
```

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```
READ FL1 from file FISH_INPUT header "FL1";
READ FL2 from file FISH_INPUT header "FL2";
READ FL3 from file FISH_INPUT header "FL3";
READ FC1 from file FISH_INPUT header "FC1";
READ FC2 from file FISH_INPUT header "FC2";
READ FC3 from file FISH_INPUT header "FC3";
READ V1 from file FISH_INPUT header "V1";
READ V2 from file FISH_INPUT header "V2";
READ V3 from file FISH_INPUT header "V3";
READ Q1 from file FISH_INPUT header "Q1";
READ Q2 from file FISH_INPUT header "Q2";
READ Q3 from file FISH_INPUT header "Q3";
READ Q4 from file FISH_INPUT header "Q4";
READ AD1 from file FISH_INPUT header "AD1";
READ AD2 from file FISH_INPUT header "AD2";
READ AD3 from file FISH_INPUT header "AD3";
READ R1 from file FISH_INPUT header "R1";
READ R2 from file FISH_INPUT header "R2";
READ R3 from file FISH_INPUT header "R3";
READ SL1 from file FISH_INPUT header "SL1";
READ SL2 from file FISH_INPUT header "SL2";
READ SL3 from file FISH_INPUT header "SL3";
READ SL4 from file FISH_INPUT header "SL4";
READ OL1 from file FISH_INPUT header "OL1";
READ OL2 from file FISH_INPUT header "OL2";
READ OL3 from file FISH_INPUT header "OL3";
READ OL4 from file FISH_INPUT header "OL4";
READ ML1 from file FISH_INPUT header "ML1";
READ ML2 from file FISH_INPUT header "ML2";
READ ML3 from file FISH_INPUT header "ML3";
READ ML4 from file FISH_INPUT header "ML4";
READ F1 from file FISH_INPUT header "F1";
READ X1 from file FISH_INPUT header "X1";
READ X2 from file FISH_INPUT header "X2";
READ X3 from file FISH_INPUT header "X3";
READ PB21 from file FISH_INPUT header "PB21";
READ PB22 from file FISH_INPUT header "PB22";
READ PB23 from file FISH_INPUT header "PB23";
READ T121 from file FISH_INPUT header "T121";
READ T122 from file FISH_INPUT header "T122";
READ T123 from file FISH_INPUT header "T123";
READ T221 from file FISH_INPUT header "T221";
READ T222 from file FISH_INPUT header "T222";
READ T223 from file FISH_INPUT header "T223";
READ B3 from file FISH_INPUT header "B3";
READ T13 from file FISH_INPUT header "T13";
READ T33 from file FISH_INPUT header "T33";
READ B6 from file FISH_INPUT header "B6";
READ B7 from file FISH_INPUT header "B7";
READ T37 from file FISH_INPUT header "T37";
READ TF from file FISH_INPUT header "TF";
READ  T36 from file FISH_INPUT header "T36";
READ TRN6 from file FISH_INPUT header "TRN6";


! 5: INTEGRATION OF 14 SECTOR AND FISHING DATA !

! Creation of the Make Matrix !

! Insert 14 Sector data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) MAKE(i,j) = 0;

FORMULA  MAKE("C11","I9") =
            COST("I9")* INFLATE;

FORMULA  MAKE("C12","I10") =
            COST("I10")* INFLATE;

FORMULA  MAKE("C13","I11") =
            COST("I11")* INFLATE;

FORMULA  MAKE("C14","I12") =
            COST("I12")* INFLATE;

FORMULA  MAKE("C15","I13") =
```

```
            COST("I13")* INFLATE;

FORMULA  MAKE("C16","I14") =
            COST("I14")* INFLATE;

FORMULA  MAKE("C17","I15") =
            COST("I15")* INFLATE;

FORMULA  MAKE("C18","I16") =
            COST("I16")* INFLATE;

FORMULA  MAKE("C19","I17") =
            COST("I17")* INFLATE;

FORMULA  MAKE("C20","I18") =
            COST("I18")* INFLATE;

FORMULA  MAKE("C21","I19") =
            COST("I19")* INFLATE;

FORMULA  MAKE("C22","I20") =
            COST("I20")* INFLATE;

FORMULA  MAKE("C23","I21") =
            COST("I21")* INFLATE;

FORMULA  MAKE("C24","I22") =
            COST("I22") * INFLATE;

COEFFICIENT (all,i,COM) (all,j,FIND) FJMAKE(i,j)
            #production of commodities by fishing industries#;

READ FJMAKE from file FISH_INPUT header "FJMK";


! Separate out fish commodity from Hunting Commodity !
FORMULA  MAKE("C12","I10") = MAX[COST("I10") *
            INFLATE - sum(i,COM,sum(j,FIND,FJMAKE(i,j))), 0.01];

! Specify commodity production for fishing industries !
FORMULA (all,i,COM) (all,j,FIND) MAKE(i,j) = FJMAKE(i,j);


! 5.1: Creation of the BAS1 Matrix !
! 5.1.1 Usage of Tasmanian Commodities for current production !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS1(i,j,"A1")
            = FMA1(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
! Sales - Hunting Row !
FORMULA (all,j,IND1) BAS1("C12",j,"A1") =MAX[ FMA1("C12",j) * INFLATE
            - sum(i,FCOM,SB11(i,j)),0.01];

! Purchases - Hunting Column !
FORMULA (all,i,COM1) BAS1(i,"I10","A1") =
            MAX[FMA1(i,"I10") * INFLATE
            - sum(j,FIND,PB11(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix  !
! Sales - Rows !
FORMULA (all,i, FCOM) (all,j, IND) BAS1(i,j,"A1") =
            SB11(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) BAS1(i,j,"A1") =
            PB11(i,j);



! 5.1.2 Usage of Mainland Commodities for current production !
! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS1(i,j,"A2")
```

```
            = FMA2(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
! Sales - Hunting Row !
FORMULA (all,j,IND1) BAS1("C12",j,"A2") =MAX[ FMA2("C12",j) * INFLATE
            - sum(i,FCOM,SB12(i,j)),0.01];

! Purchases - Hunting Column !
FORMULA (all,i,COM1) BAS1(i,"I10","A2") = MAX[FMA2(i,"I10") * INFLATE
            - sum(j,FIND,PB12(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix  !
! Sales - Rows !
FORMULA (all,i, FCOM) (all,j, IND) BAS1(i,j,"A2") =
            SB12(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) BAS1(i,j,"A2") =
            PB12(i,j);


! 5.1.3 Usage of Imported Commodities for current production !


! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS1(i,j,"A3")
            = FMA3(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
! Sales - Hunting Row !
FORMULA (all,j,IND1) BAS1("C12",j,"A3") =MAX[ FMA3("C12",j) * INFLATE
            - sum(i,FCOM,SB13(i,j)),0.01];

! Purchases - Hunting Column !
FORMULA (all,i,COM1) BAS1(i,"I10","A3") = MAX[FMA3(i,"I10") * INFLATE
            - sum(j,FIND,PB13(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix  !
! Sales - Rows !
FORMULA (all,i, FCOM) (all,j, IND) BAS1(i,j,"A3") =
            SB13(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) BAS1(i,j,"A3") =
            PB13(i,j);


! 5.2: Creation of the TAX11 Matrix !
! 5.2.1 Tas. Sales taxes on Tas sourced goods !


! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX11(i,j,"A1") =
            FS11(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX11("C12",j,"A1") = MAX[FS11("C12",j) * INFLATE
            - sum(i,FCOM,ST11(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX11(i,"I10","A1") = MAX[FS11(i,"I10") * INFLATE
            - sum(j,FIND,PT11(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX11(i,j,"A1") = ST11(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX11(i,j,"A1") = PT11(i,j);


! 5.2.2 Tas. Sales taxes on RoA sourced goods !
```

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```
! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX11(i,j,"A2") =
        FS12(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX11("C12",j,"A2") = MAX[FS12("C12",j) * INFLATE
        - sum(i,FCOM,ST12(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX11(i,"I10","A2") = MAX[FS12(i,"I10") * INFLATE
        - sum(j,FIND,PT12(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX11(i,j,"A2") = ST12(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX11(i,j,"A2") = PT12(i,j);


! 5.2.3 Tas. Sales taxes on RoW sourced goods !


! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX11(i,j,"A3") =
        FS13(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX11("C12",j,"A3") = MAX[FS13("C12",j) * INFLATE
        - sum(i,FCOM,ST13(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX11(i,"I10","A3") = MAX[FS13(i,"I10") * INFLATE
        - sum(j,FIND,PT13(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX11(i,j,"A3") = ST13(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX11(i,j,"A3") = PT13(i,j);




! 5.3: Creation of the TAX31 Matrix !
! 5.2.1 CW. Sales taxes on Tas sourced goods !


! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX31(i,j,"A1") =
        FS31(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX31("C12",j,"A1") = MAX[FS31("C12",j) * INFLATE
        - sum(i,FCOM,ST31(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX31(i,"I10","A1") = MAX[FS31(i,"I10") * INFLATE
        - sum(j,FIND,PT31(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX31(i,j,"A1") = ST31(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX31(i,j,"A1") = PT31(i,j);


! 5.2.2 CW Sales taxes on RoA sourced goods !
```

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```
! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX31(i,j,"A2") =
        FS32(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX31("C12",j,"A2") = MAX[FS32("C12",j) * INFLATE
        - sum(i,FCOM,ST32(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX31(i,"I10","A2") = MAX[FS32(i,"I10") * INFLATE
        - sum(j,FIND,PT32(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX31(i,j,"A2") = ST32(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX31(i,j,"A2") = PT32(i,j);


! 5.2.3 CW Sales taxes on RoW sourced goods !


! Insert 14-sector data into 24 x 22 matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX31(i,j,"A3") =
        FS33(i,j) * INFLATE;

! Subtract fishing to create Hunting Industry !
! Sales - Hunting row !
FORMULA (all,j,IND1) TX31("C12",j,"A3") = MAX[FS33("C12",j) * INFLATE
        - sum(i,FCOM,ST33(i,j)),0.01];

! Purchases - Hunting column !
FORMULA (all,i,COM1) TX31(i,"I10","A3") = MAX[FS33(i,"I10") * INFLATE
        - sum(j,FIND,PT33(i,j)),0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
! Sales - Rows !
FORMULA (all,i,FCOM) (all,j,IND) TX31(i,j,"A3") = ST33(i,j);

! Purchases - Columns !
FORMULA (all,i,COM) (all,j,FIND) TX31(i,j,"A3") = PT33(i,j);




! 5.4 Creation of the LABOUR Matrices !

! Insert 14-Sector data into 24 x 22 matrix !
FORMULA (all,j,IND1) LAB1(j) = FMU1(j) * INFLATE;
FORMULA (all,j,IND1) LAB2 (j) = FMU2(j) * INFLATE;
FORMULA (all,j,IND1) LAB3 (j) = FMU3(j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA LAB1("I10") = MAX[FMU1("I10") * INFLATE -
        sum(j,FIND,FL1(j)), 0.01];

FORMULA LAB2("I10") = MAX[FMU2("I10") * INFLATE -
        sum(j,FIND,FL2(j)), 0.01];

FORMULA LAB3("I10") = MAX[FMU3("I10") * INFLATE -
        sum(j,FIND, FL3(j)), 0.01];

! Integrate Fishing Data in 24 x 22 Matrix !
FORMULA (all,j,FIND) LAB1(j) = FL1(j);
FORMULA (all,j,FIND) LAB2(j) = FL2(j);
FORMULA (all,j,FIND) LAB3(j) = FL3(j);

! Small amount of Labour in Housing Industry !
FORMULA LAB1("I19") = 0.01;
FORMULA LAB2("I19") = LAB1("I19") * 0.2;
```

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```
FORMULA LAB3("I19") = LAB1("I19") * .03;

! 5.5 Creation of the CAPITAL Matrices !


! Insert 14-Sector data into 24 x 22 matrix !
FORMULA (all,t,OWNERS) (all,j,IND1) CAP1(t,j) = FMV1(t,j) * INFLATE;
FORMULA (all,t,OWNERS) (all,j,IND1) CAP2 (t,j) = FMV2(t,j) * INFLATE;
FORMULA (all,t,OWNERS) (all,j,IND1) CAP3(t,j) = FMV3(t,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,t,OWNERS) CAP1(t,"I10") = MAX[FMV1(t,"I10") * INFLATE -
        sum(j,FIND,FC1(t,j)), 0.01];

FORMULA (all,t,OWNERS) CAP2(t,"I10") = MAX[FMV2(t,"I10") * INFLATE -
        sum(j,FIND,FC2(t,j)), 0.01];

FORMULA (all,t,OWNERS) CAP3(t,"I10") = MAX[FMV3(t,"I10") * INFLATE -
        sum(j,FIND, FC3(t,j)), 0.01];

! Integrate Fishing Data in 24 x 22 Matrix !
FORMULA (all,t,OWNERS) (all,j,FIND) CAP1(t,j) = FC1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) CAP2(t,j) = FC2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) CAP3(t,j) = FC3(t,j);

! 5.6 Creation of the LAND Matrices !
! No land in Fishing Industry !

! Insert 14-Sector data in 24 x 22 matrix !
FORMULA (all,t,OWNERS) (all,j,IND1) LAN1(t,j) = FMW1(t,j) *INFLATE;
FORMULA (all,t,OWNERS) (all,j,IND1) LAN2(t,j) = FMW2(t,j) * INFLATE;

! Provide data for fishing industry sectors !
FORMULA (all,t,OWNERS) (all,j,FIND) LAN1(t,j) = 0.01;
FORMULA (all,t,OWNERS) (all,j,FIND) LAN2(t,j) =0.01;


! 5.7  Creation of the VESSEL LICENCE rentals matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) VES1(t,j) = V1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) VES2(t,j) = V2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) VES3(t,j) = V3(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) VES1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) VES2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) VES3(t,j) = 0;

! 5.7  Creation of the ABALONE QUOTA UNIT rentals matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) ABQ1(t,j) = Q1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) ABQ2(t,j) = Q2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) ABQ3(t,j) = Q3(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) ABQ4(t,j) = Q4(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) ABQ1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) ABQ2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) ABQ3(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) ABQ4(t,j) = 0;

! 5.8  Creation of the ABALONE DIVE UNIT rentals matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) ABD1(t,j) = AD1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) ABD2(t,j) = AD2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) ABD3(t,j) = AD3(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) ABD1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) ABD2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) ABD3(t,j) = 0;


! 5.9  Creation of the ROCK LOBSTER POT rentals matrices !
```

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```
FORMULA (all,t,OWNERS) (all,j,FIND) RKL1(t,j) = R1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) RKL2(t,j) = R2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) RKL3(t,j) = R3(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) RKL1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) RKL2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) RKL3(t,j) = 0;

! 5.10  Creation of the SALMON AQUACULTURE matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) SAL1(t,j) = SL1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) SAL2(t,j) = SL2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) SAL3(t,j) = SL3(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) SAL4(t,j) = SL4(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) SAL1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) SAL2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) SAL3(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) SAL4(t,j) = 0;

! 5.11  Creation of the OYSTER AQUACULTURE matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) OAL1(t,j) = OL1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) OAL2(t,j) = OL2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) OAL3(t,j) = OL3(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) OAL4(t,j) = OL4(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) OAL1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) OAL2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) OAL3(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) OAL4(t,j) = 0;

! 5.11  Creation of the MUSSEL AQUACULTURE matrices !


FORMULA (all,t,OWNERS) (all,j,FIND) MAL1(t,j) = ML1(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) MAL2(t,j) = ML2(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) MAL3(t,j) = ML3(t,j);
FORMULA (all,t,OWNERS) (all,j,FIND) MAL4(t,j) = ML4(t,j);

FORMULA (all,t,OWNERS) (all,j,IND1) MAL1(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) MAL2(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) MAL3(t,j) = 0;
FORMULA (all,t,OWNERS) (all,j,IND1) MAL4(t,j) = 0;

! 5.12 Creation of the Fishermen's Licence Rentals !


FORMULA (all,j,FIND) FIS1(j) = F1(j);

FORMULA (all,j,IND1) FIS1(j) = 0;

! 5.13 Working Capital Matrices - Other Costs !
! Insert 14-Sector data in 24 x 22 matrix !
FORMULA (all,j,IND1) OTHR_J(j) = FMX3(j) * INFLATE;
FORMULA (all,j,IND1) CTAX(j) = FMX2(j) * INFLATE;
FORMULA (all,j,IND1) PTAX(j) = FMX1(j) * INFLATE;

! Subtract fishing to create hunting industry !
FORMULA OTHR_J("I10") = MAX[FMX3("I10") * INFLATE -
        sum(j,FIND,X3(j)), 0.01];

FORMULA PTAX("I10") = MAX[FMX1("I10") * INFLATE -
        sum(j,FIND,X1(j)), 0.01];

FORMULA CTAX("I10") = MAX[FMX2("I10") * INFLATE -
        sum(j,FIND,X2(j)), 0.01];

! Integrate Fishing Data in 24 x 22 Matrix !
FORMULA (all,j,FIND) OTHR_J(j) = X3(j);
FORMULA (all,j,FIND) PTAX(j) = X1(j);
FORMULA (all,j,FIND) CTAX(j) = X2(j);
```

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```
! Convert OTHR_J(j) vector to (t x j) Matrix !
COEFFICIENT (all,t,OWNERS) (all,j,IND) OTHR(t,j);
FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
        (CAP1(t,j) / (SUM(k,OWNERS,CAP1(k,j)) ) )*
        OTHR_J(j);



! 5.14 Capital Creation Matrices  !
! 5.14.1 Usage of Tasmanian Products !


! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS2(i,j,"A1") =
        FMB1(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) BAS2(i,"I10","A1") =
        MAX[FMB1(i,"I10") * INFLATE  -
        sum(j,FIND,PB21(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) BAS2(i,j,"A1") = 0;

FORMULA (all,i,COM) (all,j,FIND) BAS2(i,j,"A1") =
        PB21(i,j);

! 5.14.2 Usage of Mainland Products !


! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS2(i,j,"A2") =
        FMB2(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) BAS2(i,"i10","A2") =
        MAX[FMB2(i,"I10") * INFLATE  -
        sum(j,FIND,PB22(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) BAS2(i,j,"A2") = 0;

FORMULA (all,i,COM) (all,j,FIND) BAS2(i,j,"A2") =
        PB22(i,j);



! 5.14.3 Usage of Imported Products !


! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) BAS2(i,j,"A3") =
        FMG1(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) BAS2(i,"I10","A3") =
        MAX[FMG1(i,"I10") * INFLATE  -
        sum(j,FIND,PB23(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) BAS2(i,j,"A3") = 0;

FORMULA (all,i,COM) (all,j,FIND) BAS2(i,j,"A3") =
        PB23(i,j);


! 5.14.4 Tas taxes on Tas sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX12(i,j,"A1") =
        KS11(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX12(i,"I10","A1") =
```

```
            MAX[KS11(i,"I10") * INFLATE  -
            sum(j,FIND,T121(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX12(i,j,"A1") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX12(i,j,"A1") =
            T121(i,j);


! 5.14.5 Tas taxes on RoA sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX12(i,j,"A2") =
            KS12(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX12(i,"I10","A2") =
            MAX[KS12(i,"I10") * INFLATE  -
            sum(j,FIND,T122(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX12(i,j,"A2") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX12(i,j,"A2") =
            T122(i,j);



! 5.14.6 Tas taxes on overseas sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX12(i,j,"A3") =
            KS13(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX12(i,"I10","A3") =
            MAX[KS13(i,"I10") * INFLATE  -
            sum(j,FIND,T123(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX12(i,j,"A3") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX12(i,j,"A3") =
            T123(i,j);

! 5.14.7 Federal taxes on Tas sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX32(i,j,"A1") =
            KS31(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX32(i,"I10","A1") =
            MAX[KS31(i,"I10") * INFLATE  -
            sum(j,FIND,T221(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX32(i,j,"A1") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX32(i,j,"A1") =
            T221(i,j);


! 5.14.8 Federal taxes on RoA sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX32(i,j,"A2") =
            KS32(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX32(i,"I10","A2") =
            MAX[KS32(i,"I10") * INFLATE  -
            sum(j,FIND,T222(i,j)), 0.01];
```

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```
! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX32(i,j,"A2") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX32(i,j,"A2") =
        T222(i,j);


! 5.14.9 Federal taxes on RoW sourced K inputs !

! Insert 14-Sector Data into 24 x 22 Matrix !
FORMULA (all,i,COM1) (all,j,IND1) TX32(i,j,"A3") =
        KS33(i,j) * INFLATE;

! Subtract fishing to create Hunting industry !
FORMULA (all,i,COM1) TX32(i,"I10","A3") =
        MAX[KS33(i,"I10") * INFLATE  -
        sum(j,FIND,T223(i,j)), 0.01];

! Integrate Fishing Data into 24 x 22 Matrix !
FORMULA (all,i,FCOM) (all,j,IND) TX32(i,j,"A3") = 0;

FORMULA (all,i,COM) (all,j,FIND) TX32(i,j,"A3") =
        T223(i,j);



! 5.15 Tasmanian Household Consumption !

! Insert 14 - Sector Data in 24 x 3 Matrix !
FORMULA (all,i,COM1) BAS3(i,"A1") = FMC1(i);
FORMULA (all,i,COM1) BAS3(i,"A2") = FMC2(i);
FORMULA (all,i,COM1) BAS3(i,"A3") = FMC3(i);

! Consumption of Hunting !
FORMULA BAS3("C12", "A1") = max[FMC1("C12") * INFLATE
        - sum(i,FCOM,B3(i,"A1")),0.01];

FORMULA BAS3("C12", "A2") = max[FMC2("C12") * INFLATE
        - sum(i,FCOM,B3(i,"A2")),0.01];

FORMULA BAS3("C12", "A3") = max[FMC3("C12") * INFLATE
        - sum(i,FCOM,B3(i,"A3")),0.01];

! Sales of Fish to Households !
FORMULA (all, i, FCOM) (all,s,SOU) BAS3(i,s) = B3(i,s);

! 5.15.2 Tas tax on  Tas Consumption !

! Insert 14 - Sector Data in 24 x 3 Matrix !
FORMULA (all,i,COM1) TX13(i,"A1") = CS11(i);
FORMULA (all,i,COM1) TX13(i,"A2") = CS12(i);
FORMULA (all,i,COM1) TX13(i,"A3") = CS13(i);

! Tax on Consumption of Hunting !
FORMULA TX13("C12", "A1") = max[CS11("C12") * INFLATE
        - sum(i,FCOM,T13(i,"A1")),0.01];

FORMULA TX13("C12", "A2") = max[CS11("C12") * INFLATE
        - sum(i,FCOM,T13(i,"A2")),0.01];

FORMULA TX13("C12", "A3") = max[CS11("C12") * INFLATE
        - sum(i,FCOM,T13(i,"A3")),0.01];

! Tax on  Sales of Fish to Households !
FORMULA (all, i, FCOM) (all,s,SOU) TX13(i,s) = T13(i,s);


! 5.15.3 Federal tax on  Tas Consumption !

! Insert 14 - Sector Data in 24 x 3 Matrix !
FORMULA (all,i,COM1) TX33(i,"A1") = CS31(i);
FORMULA (all,i,COM1) TX33(i,"A2") = CS32(i);
FORMULA (all,i,COM1) TX33(i,"A3") = CS33(i);
```

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```
! Tax on Consumption of Hunting !
FORMULA TX33("C12", "A1") = max[CS33("C12") * INFLATE
        - sum(i,FCOM,T33(i,"A1")),0.01];

FORMULA TX33("C12", "A2") = max[CS33("C12") * INFLATE
        - sum(i,FCOM,T33(i,"A2")),0.01];

FORMULA TX33("C12", "A3") = max[CS33("C12") * INFLATE
        - sum(i,FCOM,T33(i,"A3")),0.01];

! Tax on  Sales of Fish to Households !
FORMULA (all, i, FCOM) (all,s,SOU) TX33(i,s) = T33(i,s);


! 5.16 State government spending !
! State government spending on fishing output          !
! is assumed to be zero                                !

FORMULA (all,i,COM1)  BAS4(i,"A1") =
        SME1(i) * INFLATE;

FORMULA (all,i,COM1)  BAS4(i,"A2") =
        SME2(i) * INFLATE;

FORMULA (all,i,COM1)  BAS4(i,"A3") =
        SME3(i) * INFLATE;

FORMULA (all,i,FCOM) (all,s,SOU) BAS4(i,s) = 0;

! 5.17 Federal government spending !
! Federal government spending on fishing output        !
! is assumed to be zero                                !

FORMULA (all,i,COM1)  BAS5(i) =
        CE1(i) * INFLATE;

FORMULA (all,i,FCOM) BAS5(i) = 0;


! 5.18 Exports to the Mainland !
! Integrate 14 - Sector Data !
FORMULA (all,i,COM1) BAS6(i) = AE1(i) *INFLATE;

! Calculate Hunting Exports !
FORMULA BAS6("C12") = max[AE1("C12") * INFLATE -
        sum(i,FCOM, B6(i)), 0.01];

! Integrate fishing data !
FORMULA (all,i,FCOM) BAS6(i) = B6(i);

! 18.1.n Commonwealth tax on exports to the Mainland !

! Integrate 14-Sector Data !
FORMULA (all,i,COM1) TX36(i) = CAX1(i) * INFLATE;

! Calculate Tax on Hunting Exports !
FORMULA TX36("C12") = max[CAX1("C12") * INFLATE -
        sum(i,FCOM,T36(i)),0.01];

! Integrate Fishing Data !
FORMULA (all,i,FCOM) TX36(i) = T36(i);


! 5.18.1 Tasmanian export Overseas !
! Integrate 14 - Sector Data !
FORMULA (all,i,COM1) BAS7(i) = OX1(i) *INFLATE;

! Calculate Hunting Exports !
FORMULA BAS7("C12") = max[OX1("C12") * INFLATE -
        sum(i,FCOM, B7(i)), 0.01];

! Integrate fishing data !
FORMULA (all,i,FCOM) BAS7(i) = B7(i);
```

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```
! 5.18.2 Commonwealth tax on Overseas Exports !


! Integrate 14 - Sector Data !
FORMULA (all,i,COM1) TX37(i) = CX1(i) *INFLATE;

! Calculate Hunting Exports !
FORMULA TX37("C12") = max[CX1("C12") * INFLATE -
        sum(i,FCOM, T37(i)), 0.01];

! Integrate fishing data !
FORMULA (all,i,FCOM) TX37(i) = T37(i);

! 5.19 Tariff Rates !


! Integrate 14 sector data !
FORMULA (all,i,COM1) TARF(i) = AMZ(i) * INFLATE;

! Separate out Hunting sector !
FORMULA TARF("C12") = max[ AMZ("C12") * INFLATE -
        sum(i,FCOM,TF(i)), 0.01];

! Integrate data on tariffs on fish products !
FORMULA (all,i,FCOM) TARF(i) =  TF(i);



! CHECK INPUT-OUTPUT TABLE BALANCE !
File (new, header) BALANCE;

! Calculate Total Production of Good i !
COEFFICIENT (all,i,COM) PRODN(i)
        #output of commodity i#;
FORMULA (all,i,COM) PRODN(i) = sum(j,IND,MAKE(i,j));

! Calculate total sales of Tasmanian good i !
COEFFICIENT (all,i,COM) SALE_I(i)
        #Sales of Tasmanian commodity i#;
FORMULA (all,i,COM) SALE_I(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

! Production of Commodity i must equal sales !
COEFFICIENT (all,i,COM) DIFF_SALE(i)
        #Difference between value of sales and output#;
FORMULA (all,i,COM) DIFF_SALE(i) =
        SALE_I(i) - PRODN(i);


! Value of Sales of Industry j !
COEFFICIENT (all,j,IND) SALE_J(j)
        #sales of industry j#;
FORMULA (all,j,IND) SALE_J(j) = sum(i,COM,
        MAKE(i,j));

! Costs of Industry j !
COEFFICIENT (all,j,IND) COST_J(j)
        #Total costs of industry j#;

FORMULA (all,j,IND) COST_J(j)
        = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
        + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
        + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
        + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
        + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
        + PTAX(j);

! Industry j's costs must equal its sales !
COEFFICIENT (all,j,IND) DIFF_J(j)
        #difference between industry j's sales and costs#;
```

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```
FORMULA (all,j,IND) DIFF_J(j) = SALE_J(j) - COST_J(j);

! Print out differences to file for inspection !
! Writes to BALANCE file !
WRITE PRODN to file BALANCE header "PROD";
WRITE SALE_I to file BALANCE header "SALI";
WRITE DIFF_SALE to file BALANCE header "DFSA";
WRITE SALE_J to file BALANCE header "SALJ";
WRITE COST_J to file BALANCE header "COSJ";
WRITE DIFF_J to file BALANCE header "DIFJ";


! 8: BALANCE THE DATABASE !
!   8.1: Pass Number One!
! Target Costs !
COEFFICIENT (all,j,IND) RAS_C_1(j);

FORMULA (all,j,IND) RAS_C_1(j) = SALE_J(j)-
COST_J(j);


FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) BAS1(i,j,s) =
        BAS1(i,j,s) + {[BAS1(i,j,s) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX11(i,j,s) =
        TX11(i,j,s) + {[TX11(i,j,s) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX31(i,j,s) =
        TX31(i,j,s) + {[TX31(i,j,s) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) LAB1(j) =
        LAB1(j) + {[LAB1(j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) LAB2(j) =
        LAB2(j) + {[LAB2(j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) LAB3(j) =
        LAB3(j) + {[LAB3(j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j) =
        CAP1(t,j) + {[CAP1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j) =
        CAP2(t,j) + {[CAP2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j) =
        CAP3(t,j) + {[CAP3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j) =
        LAN1(t,j) + {[LAN1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j) =
        LAN2(t,j) + {[LAN2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES1(t,j) =
        VES1(t,j) + {[VES1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =
        VES2(t,j) + {[VES2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =
        VES3(t,j) + {[VES3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j) =
        ABQ1(t,j) + {[ABQ1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j) =
        ABQ2(t,j) + {[ABQ2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j) =
        ABQ3(t,j) + {[ABQ3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j) =
        ABQ4(t,j) + {[ABQ4(t,j) / COST_J(j)] * RAS_C_1(j) };
```

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```
FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j) =
        ABD1(t,j) + {[ABD1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j) =
        ABD2(t,j) + {[ABD2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j) =
        ABD3(t,j) + {[ABD3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL1(t,j) =
        RKL1(t,j) + {[RKL1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL2(t,j) =
        RKL2(t,j) + {[RKL2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL3(t,j) =
        RKL3(t,j) + {[RKL3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j) =
        SAL1(t,j) + {[SAL1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL2(t,j) =
        SAL2(t,j) + {[SAL2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL3(t,j) =
        SAL3(t,j) + {[SAL3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL4(t,j) =
        SAL4(t,j) + {[SAL4(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =
        OAL1(t,j) + {[OAL1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =
        OAL2(t,j) + {[OAL2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =
        OAL3(t,j) + {[OAL3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =
        OAL4(t,j) + {[OAL4(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =
        MAL1(t,j) + {[MAL1(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =
        MAL2(t,j) + {[MAL2(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =
        MAL3(t,j) + {[MAL3(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =
        MAL4(t,j) + {[MAL4(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
        OTHR(t,j) + {[OTHR(t,j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) FIS1(j) =
        FIS1(j) + {[ FIS1(j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) CTAX(j) =
        CTAX(j) + {[ CTAX(j) / COST_J(j)] * RAS_C_1(j) };

FORMULA (all,j,IND) PTAX(j) =
        PTAX(j) + {[ PTAX(j) / COST_J(j)] * RAS_C_1(j) };


! Target Sales !
! Calculate NEW total sales of Tas good i after cost allocn!
COEFFICIENT (all,i,COM) SALE_I2(i)
        #Sales of Tasmanian commodity i#;

FORMULA (all,i,COM) SALE_I2(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);
```

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```
COEFFICIENT (all,i,COM) RAS_S_1(i);

FORMULA (all,i,COM) RAS_S_1(i) = PRODN(i)-
SALE_I2(i);



FORMULA (all,i,COM) (all,j,IND) BAS1(i,j,"A1") =
        BAS1(i,j,"A1") + {[BAS1(i,j,"A1") / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) (all,j,IND) BAS2(i,j,"A1") =
        BAS2(i,j,"A1") + {[BAS2(i,j,"A1") / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) BAS3(i,"A1") =
        BAS3(i,"A1") + {[BAS3(i,"A1") / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) BAS4(i,"A1") =
        BAS4(i,"A1") + {[BAS4(i,"A1") / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) BAS5(i) =
        BAS5(i) + {[BAS5(i) / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) BAS6(i) =
        BAS6(i) + {[BAS6(i) / SALE_I2(i)]
        * RAS_S_1(i)};

FORMULA (all,i,COM) BAS7(i) =
        BAS7(i) + {[BAS7(i) / SALE_I2(i)]
        * RAS_S_1(i)};


!   8.2: Pass Number Two!
! Target Costs !
! Calculate New Costs and Sales !
COEFFICIENT (all,j,IND) COST_J2(j)
        #Total costs of industry j#;

FORMULA (all,j,IND) COST_J2(j)
        = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
        + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
        + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
        + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
        + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
        + PTAX(j);


COEFFICIENT (all,j,IND) RAS_C_2(j);

FORMULA (all,j,IND) RAS_C_2(j) = SALE_J(j)-
COST_J2(j);


FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) BAS1(i,j,s) =
        BAS1(i,j,s) + {[BAS1(i,j,s) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX11(i,j,s) =
        TX11(i,j,s) + {[TX11(i,j,s) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX31(i,j,s) =
        TX31(i,j,s) + {[TX31(i,j,s) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,j,IND) LAB1(j) =
        LAB1(j) + {[LAB1(j) / COST_J2(j)] * RAS_C_2(j) };
```

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```
FORMULA (all,j,IND) LAB2(j) =
        LAB2(j) + {[LAB2(j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,j,IND) LAB3(j) =
        LAB3(j) + {[LAB3(j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j) =
        CAP1(t,j) + {[CAP1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j) =
        CAP2(t,j) + {[CAP2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j) =
        CAP3(t,j) + {[CAP3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j) =
        LAN1(t,j) + {[LAN1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j) =
        LAN2(t,j) + {[LAN2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES1(t,j) =
        VES1(t,j) + {[VES1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =
        VES2(t,j) + {[VES2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =
        VES3(t,j) + {[VES3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j) =
        ABQ1(t,j) + {[ABQ1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j) =
        ABQ2(t,j) + {[ABQ2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j) =
        ABQ3(t,j) + {[ABQ3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j) =
        ABQ4(t,j) + {[ABQ4(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j) =
        ABD1(t,j) + {[ABD1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j) =
        ABD2(t,j) + {[ABD2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j) =
        ABD3(t,j) + {[ABD3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL1(t,j) =
        RKL1(t,j) + {[RKL1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL2(t,j) =
        RKL2(t,j) + {[RKL2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL3(t,j) =
        RKL3(t,j) + {[RKL3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j) =
        SAL1(t,j) + {[SAL1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL2(t,j) =
        SAL2(t,j) + {[SAL2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL3(t,j) =
        SAL3(t,j) + {[SAL3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL4(t,j) =
        SAL4(t,j) + {[SAL4(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =
        OAL1(t,j) + {[OAL1(t,j) / COST_J2(j)] * RAS_C_2(j) };
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =
        OAL2(t,j) + {[OAL2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =
        OAL3(t,j) + {[OAL3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =
        OAL4(t,j) + {[OAL4(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =
        MAL1(t,j) + {[MAL1(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =
        MAL2(t,j) + {[MAL2(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =
        MAL3(t,j) + {[MAL3(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =
        MAL4(t,j) + {[MAL4(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
        OTHR(t,j) + {[OTHR(t,j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,j,IND) FIS1(j) =
        FIS1(j) + {[ FIS1(j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,j,IND) CTAX(j) =
        CTAX(j) + {[ CTAX(j) / COST_J2(j)] * RAS_C_2(j) };

FORMULA (all,j,IND) PTAX(j) =
        PTAX(j) + {[ PTAX(j) / COST_J2(j)] * RAS_C_2(j) };


! Target Sales !

! Calculate NEW total sales of Tas good i after cost allocn!
COEFFICIENT (all,i,COM) SALE_I3(i)
        #Sales of Tasmanian commodity i#;

COEFFICIENT (all,i,COM) RAS_S_2(i);

FORMULA (all,i,COM) SALE_I3(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

FORMULA (all,i,COM) RAS_S_2(i) = PRODN(i)-
        SALE_I3(i);

FORMULA (all,i,COM) (all,j,IND) BAS1(i,j,"A1") =
        BAS1(i,j,"A1") + {[BAS1(i,j,"A1") / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) (all,j,IND) BAS2(i,j,"A1") =
        BAS2(i,j,"A1") + {[BAS2(i,j,"A1") / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) BAS3(i,"A1") =
        BAS3(i,"A1") + {[BAS3(i,"A1") / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) BAS4(i,"A1") =
        BAS4(i,"A1") + {[BAS4(i,"A1") / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) BAS5(i) =
        BAS5(i) + {[BAS5(i) / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) BAS6(i) =
        BAS6(i) + {[BAS6(i) / SALE_I3(i)]
        * RAS_S_2(i)};

FORMULA (all,i,COM) BAS7(i) =
```

```
        BAS7(i) + {[BAS7(i) / SALE_I3(i)]
        * RAS_S_2(i)};




!   8.2: Pass Number Three!
! Target Costs !
! Calculate New Costs and Sales !
COEFFICIENT (all,j,IND) COST_J3(j)
        #Total costs of industry j#;

FORMULA (all,j,IND) COST_J3(j)
        = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
        + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
        + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
        + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
        + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
        + PTAX(j);


COEFFICIENT (all,j,IND) RAS_C_3(j) ;

FORMULA (all,j,IND) RAS_C_3(j) = SALE_J(j)-
        COST_J3(j);

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) BAS1(i,j,s) =
        BAS1(i,j,s) + {[BAS1(i,j,s) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX11(i,j,s) =
        TX11(i,j,s) + {[TX11(i,j,s) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX31(i,j,s) =
        TX31(i,j,s) + {[TX31(i,j,s) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) LAB1(j) =
        LAB1(j) + {[LAB1(j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) LAB2(j) =
        LAB2(j) + {[LAB2(j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) LAB3(j) =
        LAB3(j) + {[LAB3(j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j) =
        CAP1(t,j) + {[CAP1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j) =
        CAP2(t,j) + {[CAP2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j) =
        CAP3(t,j) + {[CAP3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j) =
        LAN1(t,j) + {[LAN1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j) =
        LAN2(t,j) + {[LAN2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES1(t,j) =
        VES1(t,j) + {[VES1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =
        VES2(t,j) + {[VES2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =
        VES3(t,j) + {[VES3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j) =
```

```
            ABQ1(t,j) + {[ABQ1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j) =
            ABQ2(t,j) + {[ABQ2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j) =
            ABQ3(t,j) + {[ABQ3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j) =
            ABQ4(t,j) + {[ABQ4(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j) =
            ABD1(t,j) + {[ABD1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j) =
            ABD2(t,j) + {[ABD2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j) =
            ABD3(t,j) + {[ABD3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL1(t,j) =
            RKL1(t,j) + {[RKL1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL2(t,j) =
            RKL2(t,j) + {[RKL2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL3(t,j) =
            RKL3(t,j) + {[RKL3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j) =
            SAL1(t,j) + {[SAL1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL2(t,j) =
            SAL2(t,j) + {[SAL2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL3(t,j) =
            SAL3(t,j) + {[SAL3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL4(t,j) =
            SAL4(t,j) + {[SAL4(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =
            OAL1(t,j) + {[OAL1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =
            OAL2(t,j) + {[OAL2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =
            OAL3(t,j) + {[OAL3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =
            OAL4(t,j) + {[OAL4(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =
            MAL1(t,j) + {[MAL1(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =
            MAL2(t,j) + {[MAL2(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =
            MAL3(t,j) + {[MAL3(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =
            MAL4(t,j) + {[MAL4(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
            OTHR(t,j) + {[OTHR(t,j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) FIS1(j) =
            FIS1(j) + {[ FIS1(j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) CTAX(j) =
            CTAX(j) + {[ CTAX(j) / COST_J3(j)] * RAS_C_3(j) };

FORMULA (all,j,IND) PTAX(j) =
```

```
        PTAX(j) + {[ PTAX(j) / COST_J3(j)] * RAS_C_3(j) };


! Target Sales !

! Calculate NEW total sales of Tas good i after cost allocn!
COEFFICIENT (all,i,COM) SALE_I4(i)
        #Sales of Tasmanian commodity i#;

COEFFICIENT (all,i,COM) RAS_S_3(i);

FORMULA (all,i,COM) SALE_I4(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

FORMULA (all,i,COM) RAS_S_3(i) = PRODN(i)-
        SALE_I4(i);

FORMULA (all,i,COM) (all,j,IND) BAS1(i,j,"A1") =
        BAS1(i,j,"A1") + {[BAS1(i,j,"A1") / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) (all,j,IND) BAS2(i,j,"A1") =
        BAS2(i,j,"A1") + {[BAS2(i,j,"A1") / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) BAS3(i,"A1") =
        BAS3(i,"A1") + {[BAS3(i,"A1") / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) BAS4(i,"A1") =
        BAS4(i,"A1") + {[BAS4(i,"A1") / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) BAS5(i) =
        BAS5(i) + {[BAS5(i) / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) BAS6(i) =
        BAS6(i) + {[BAS6(i) / SALE_I4(i)]
        * RAS_S_3(i)};

FORMULA (all,i,COM) BAS7(i) =
        BAS7(i) + {[BAS7(i) / SALE_I4(i)]
        * RAS_S_3(i)};



!   8.4: Pass Number Four!
! Target Costs !
! Calculate New Costs and Sales !
COEFFICIENT (all,j,IND) COST_J4(j)
        #Total costs of industry j#;

FORMULA (all,j,IND) COST_J4(j)
        = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
        + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
        + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
        + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
        + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
        + PTAX(j);


COEFFICIENT (all,j,IND) RAS_C_4(j) ;

FORMULA (all,j,IND) RAS_C_4(j) = SALE_J(j)-
        COST_J4(j);

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) BAS1(i,j,s) =
        BAS1(i,j,s) + {[BAS1(i,j,s) / COST_J4(j)] * RAS_C_4(j) };
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX11(i,j,s) =
        TX11(i,j,s) + {[TX11(i,j,s) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX31(i,j,s) =
        TX31(i,j,s) + {[TX31(i,j,s) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) LAB1(j) =
        LAB1(j) + {[LAB1(j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) LAB2(j) =
        LAB2(j) + {[LAB2(j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) LAB3(j) =
        LAB3(j) + {[LAB3(j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j) =
        CAP1(t,j) + {[CAP1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j) =
        CAP2(t,j) + {[CAP2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j) =
        CAP3(t,j) + {[CAP3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j) =
        LAN1(t,j) + {[LAN1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j) =
        LAN2(t,j) + {[LAN2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES1(t,j) =
        VES1(t,j) + {[VES1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =
        VES2(t,j) + {[VES2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =
        VES3(t,j) + {[VES3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j) =
        ABQ1(t,j) + {[ABQ1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j) =
        ABQ2(t,j) + {[ABQ2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j) =
        ABQ3(t,j) + {[ABQ3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j) =
        ABQ4(t,j) + {[ABQ4(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j) =
        ABD1(t,j) + {[ABD1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j) =
        ABD2(t,j) + {[ABD2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j) =
        ABD3(t,j) + {[ABD3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL1(t,j) =
        RKL1(t,j) + {[RKL1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL2(t,j) =
        RKL2(t,j) + {[RKL2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL3(t,j) =
        RKL3(t,j) + {[RKL3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j) =
        SAL1(t,j) + {[SAL1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL2(t,j) =
        SAL2(t,j) + {[SAL2(t,j) / COST_J4(j)] * RAS_C_4(j) };
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,t,OWNERS) (all,j,IND) SAL3(t,j) =
        SAL3(t,j) + {[SAL3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL4(t,j) =
        SAL4(t,j) + {[SAL4(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =
        OAL1(t,j) + {[OAL1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =
        OAL2(t,j) + {[OAL2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =
        OAL3(t,j) + {[OAL3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =
        OAL4(t,j) + {[OAL4(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =
        MAL1(t,j) + {[MAL1(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =
        MAL2(t,j) + {[MAL2(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =
        MAL3(t,j) + {[MAL3(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =
        MAL4(t,j) + {[MAL4(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
        OTHR(t,j) + {[OTHR(t,j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) FIS1(j) =
        FIS1(j) + {[ FIS1(j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) CTAX(j) =
        CTAX(j) + {[ CTAX(j) / COST_J4(j)] * RAS_C_4(j) };

FORMULA (all,j,IND) PTAX(j) =
        PTAX(j) + {[ PTAX(j) / COST_J4(j)] * RAS_C_4(j) };


! Target Sales !

! Calculate NEW total sales of Tas good i after cost allocn!
COEFFICIENT (all,i,COM) SALE_I5(i)
        #Sales of Tasmanian commodity i#;

COEFFICIENT (all,i,COM) RAS_S_4(i);

FORMULA (all,i,COM) SALE_I5(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

FORMULA (all,i,COM) RAS_S_4(i) = PRODN(i)-
        SALE_I5(i);

FORMULA (all,i,COM) (all,j,IND) BAS1(i,j,"A1") =
        BAS1(i,j,"A1") + {[BAS1(i,j,"A1") / SALE_I5(i)]
        * RAS_S_4(i)};

FORMULA (all,i,COM) (all,j,IND) BAS2(i,j,"A1") =
        BAS2(i,j,"A1") + {[BAS2(i,j,"A1") / SALE_I5(i)]
        * RAS_S_4(i)};

FORMULA (all,i,COM) BAS3(i,"A1") =
        BAS3(i,"A1") + {[BAS3(i,"A1") / SALE_I5(i)]
        * RAS_S_4(i)};

FORMULA (all,i,COM) BAS4(i,"A1") =
        BAS4(i,"A1") + {[BAS4(i,"A1") / SALE_I5(i)]
        * RAS_S_4(i)};

FORMULA (all,i,COM) BAS5(i) =
```

```
            BAS5(i) + {[BAS5(i) / SALE_I5(i)]
            * RAS_S_4(i)};

FORMULA (all,i,COM) BAS6(i) =
            BAS6(i) + {[BAS6(i) / SALE_I5(i)]
            * RAS_S_4(i)};

FORMULA (all,i,COM) BAS7(i) =
            BAS7(i) + {[BAS7(i) / SALE_I5(i)]
            * RAS_S_4(i)};




!   8.5: Pass Number Five!
! Target Costs !
! Calculate New Costs and Sales !
COEFFICIENT (all,j,IND) COST_J5(j)
            #Total costs of industry j#;

FORMULA (all,j,IND) COST_J5(j)
            = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
            TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
            + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
            + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
            ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
            + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
            + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
            + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
            + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
            + PTAX(j);


COEFFICIENT (all,j,IND) RAS_C_5(j) ;

FORMULA (all,j,IND) RAS_C_5(j) = SALE_J(j)-
            COST_J5(j);

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) BAS1(i,j,s) =
            BAS1(i,j,s) + {[BAS1(i,j,s) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX11(i,j,s) =
            TX11(i,j,s) + {[TX11(i,j,s) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,i,COM) (all,j,IND) (all,s,SOU) TX31(i,j,s) =
            TX31(i,j,s) + {[TX31(i,j,s) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,j,IND) LAB1(j) =
            LAB1(j) + {[LAB1(j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,j,IND) LAB2(j) =
            LAB2(j) + {[LAB2(j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,j,IND) LAB3(j) =
            LAB3(j) + {[LAB3(j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j) =
            CAP1(t,j) + {[CAP1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j) =
            CAP2(t,j) + {[CAP2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j) =
            CAP3(t,j) + {[CAP3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j) =
            LAN1(t,j) + {[LAN1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j) =
            LAN2(t,j) + {[LAN2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES1(t,j) =
            VES1(t,j) + {[VES1(t,j) / COST_J5(j)] * RAS_C_5(j) };
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =
        VES2(t,j) + {[VES2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =
        VES3(t,j) + {[VES3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j) =
        ABQ1(t,j) + {[ABQ1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j) =
        ABQ2(t,j) + {[ABQ2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j) =
        ABQ3(t,j) + {[ABQ3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j) =
        ABQ4(t,j) + {[ABQ4(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j) =
        ABD1(t,j) + {[ABD1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j) =
        ABD2(t,j) + {[ABD2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j) =
        ABD3(t,j) + {[ABD3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL1(t,j) =
        RKL1(t,j) + {[RKL1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL2(t,j) =
        RKL2(t,j) + {[RKL2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) RKL3(t,j) =
        RKL3(t,j) + {[RKL3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j) =
        SAL1(t,j) + {[SAL1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL2(t,j) =
        SAL2(t,j) + {[SAL2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL3(t,j) =
        SAL3(t,j) + {[SAL3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) SAL4(t,j) =
        SAL4(t,j) + {[SAL4(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =
        OAL1(t,j) + {[OAL1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =
        OAL2(t,j) + {[OAL2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =
        OAL3(t,j) + {[OAL3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =
        OAL4(t,j) + {[OAL4(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =
        MAL1(t,j) + {[MAL1(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =
        MAL2(t,j) + {[MAL2(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =
        MAL3(t,j) + {[MAL3(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =
        MAL4(t,j) + {[MAL4(t,j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j) =
        OTHR(t,j) + {[OTHR(t,j) / COST_J5(j)] * RAS_C_5(j) };
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,j,IND) FIS1(j) =
        FIS1(j) + {[ FIS1(j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,j,IND) CTAX(j) =
        CTAX(j) + {[ CTAX(j) / COST_J5(j)] * RAS_C_5(j) };

FORMULA (all,j,IND) PTAX(j) =
        PTAX(j) + {[ PTAX(j) / COST_J5(j)] * RAS_C_5(j) };


! Target Sales !

! Calculate NEW total sales of Tas good i after cost allocn!
COEFFICIENT (all,i,COM) SALE_I6(i)
        #Sales of Tasmanian commodity i#;

COEFFICIENT (all,i,COM) RAS_S_5(i);

FORMULA (all,i,COM) SALE_I6(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

FORMULA (all,i,COM) RAS_S_5(i) = PRODN(i)-
        SALE_I6(i);

FORMULA (all,i,COM) (all,j,IND) BAS1(i,j,"A1") =
        BAS1(i,j,"A1") + {[BAS1(i,j,"A1") / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) (all,j,IND) BAS2(i,j,"A1") =
        BAS2(i,j,"A1") + {[BAS2(i,j,"A1") / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) BAS3(i,"A1") =
        BAS3(i,"A1") + {[BAS3(i,"A1") / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) BAS4(i,"A1") =
        BAS4(i,"A1") + {[BAS4(i,"A1") / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) BAS5(i) =
        BAS5(i) + {[BAS5(i) / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) BAS6(i) =
        BAS6(i) + {[BAS6(i) / SALE_I6(i)]
        * RAS_S_5(i)};

FORMULA (all,i,COM) BAS7(i) =
        BAS7(i) + {[BAS7(i) / SALE_I6(i)]
        * RAS_S_5(i)};




! Write the successive cost and sales difference to file !
WRITE RAS_S_1 TO FILE BALANCE HEADER "RSS1";
WRITE RAS_S_2 TO FILE BALANCE HEADER "RSS2";
WRITE RAS_S_3 TO FILE BALANCE HEADER "RSS3";
WRITE RAS_S_4 TO FILE BALANCE HEADER "RSS4";
WRITE RAS_S_5 TO FILE BALANCE HEADER "RSS5";



WRITE RAS_C_1 TO FILE BALANCE HEADER "RSC1";
WRITE RAS_C_2 TO FILE BALANCE HEADER "RSC2";
WRITE RAS_C_3 TO FILE BALANCE HEADER "RSC3";
WRITE RAS_C_4 TO FILE BALANCE HEADER "RSC4";
WRITE RAS_C_5 TO FILE BALANCE HEADER "RSC5";


!   8.6 Eliminate all zeroes in the database !
```

APPENDIX F: FISH_DAT.TAB

```
!FORMULA (all,t,OWNERS) (all,j,IND) ABD1(t,j)
=MAX[ABD1(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) ABD2(t,j)
 =MAX[ABD2(t,j) ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) ABD3(t,j)
=MAX[ABD3(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) ABQ1(t,j)
 =MAX[ABQ1(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) ABQ2(t,j)
=MAX[ABQ2(t,j) ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) ABQ3(t,j)
=MAX[ABQ3(t,j) ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) ABQ4(t,j)
=MAX[ABQ4(t,j)  ,0.000001]; !

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
BAS1(i,j,s) =MAX[BAS1(i,j,s) ,0.000001];
FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
BAS2(i,j,s) =MAX[BAS2(i,j,s) ,0.000001];
FORMULA  (all,i,COM) (all,s,SOU) BAS3(i,s)
=MAX[BAS3(i,s) ,0.000001];
FORMULA (all,i,COM) (all,s,SOU) BAS4(i,s)
=MAX[BAS4(i,s),0.000001];
FORMULA (all,i,COM) BAS5(i)
=MAX[BAS5(i) ,0.000001];
FORMULA (all,i,COM) BAS6(i)
=MAX[BAS6(i) ,0.000001];
FORMULA (all,i,COM) BAS7(i)
=MAX[BAS7(i),0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) CAP1(t,j)
=MAX[CAP1(t,j)  ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) CAP2(t,j)
=MAX[CAP2(t,j) ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) CAP3(t,j)
=MAX[CAP3(t,j) ,0.000001];

FORMULA (all,j,IND) CTAX(j)
=MAX[CTAX(j) ,0.000001];

FORMULA (all,j,IND) FIS1(j)
=MAX[FIS1(j)  ,0.000001];

FORMULA (all,j,IND) LAB1(j)
=MAX[LAB1(j) ,0.000001];
FORMULA (all,j,ind) LAB2(j)
=MAX[LAB2(j) ,0.000001];
FORMULA (all,j,IND) LAB3(j)
=MAX[LAB3(j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) LAN1(t,j)
        =MAX[LAN1(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) LAN2(t,j)
        =MAX[LAN2(t,j) ,0.000001];

!FORMULA (all,m,COM) (all,j,IND) MAKE(m,j)
        =MAX[MAKE(m,j) ,0.000001]; !

!FORMULA (all,t,OWNERS) (all,j,IND) MAL1(t,j) =MAX[MAL1(t,j)  ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) MAL2(t,j) =MAX[MAL2(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) MAL3(t,j) =MAX[MAL3(t,j),0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) MAL4(t,j) =MAX[MAL4(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) OAL1(t,j) =MAX[OAL1(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) OAL2(t,j) =MAX[OAL2(t,j) ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) OAL3(t,j) =MAX[OAL3(t,j)  ,0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) OAL4(t,j) =MAX[OAL4(t,j) ,0.000001];!
```

APPENDIX F: FISH_DAT.TAB

```
FORMULA (all,t,OWNERS) (all,j,IND) OTHR(t,j)=
        MAX[OTHR(t,j),0.000001];

FORMULA (all,j,IND)
        PTAX(j) =MAX[PTAX(j),0.000001];

!FORMULA (all,t,OWNERS) (all,j,IND)
        RKL1(t,j) =MAX[RKL1(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND)
        RKL2(t,j) =MAX[RKL2(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND)
        RKL3(t,j) =MAX[RKL3(t,j),0.000001];

FORMULA (all,t,OWNERS) (all,j,IND) SAL1(t,j)
         =MAX[SAL1(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND)
        SAL2(t,j) =MAX[SAL2(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND)
        SAL3(t,j) =MAX[SAL3(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND)
        SAL4(t,j) =MAX[SAL4(t,j),0.000001];!


FORMULA (all,i,COM) TARF(i) =MAX[TARF(i),0.000001];

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
         TX11(i,j,s) =MAX[TX11(i,j,s),0.000001];
FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
         TX12(i,j,s) =MAX[TX12(i,j,s),0.000001];
FORMULA (all,i,COM) (all,s,SOU) TX13(i,s) =MAX[TX13(i,s) ,0.000001];

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) TX31(i,j,s)
        =MAX[TX31(i,j,s) ,0.000001];
FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
        TX32(i,j,s) =MAX[TX32(i,j,s),0.000001];
FORMULA (all,i,COM) (all,s,SOU) TX33(i,s) =MAX[TX33(i,s) ,0.000001];
FORMULA (all,i,COM) TX36(i) =MAX[TX36(i) ,0.000001];
FORMULA (all,i,COM) TX37(i) =MAX[TX37(i),0.000001];

!FORMULA (all,t,OWNERS) (all,j,IND)VES1(t,j) =MAX[VES1(t,j) ,0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) VES2(t,j) =MAX[VES2(t,j),0.000001];
FORMULA (all,t,OWNERS) (all,j,IND) VES3(t,j) =MAX[VES3(t,j),0.000001];!

FORMULA (all,i,COM) TRN6(i) =MAX[TRN6(i) ,0.000001];




!   8.7: Allocation of remaining cost differences!

! Figures in BALANCE.DAT should be checked !
! for large differences !
! If SALE_J(j) dne COST_J(j) then the difference !
! is subtracted from/added to other costs !
! If PRODN(i) dne SALE_I(i) then the difference !
! is subtracted from/added to final demands, in !
! proportion to the shares of final demands in total finals !

COEFFICIENT (all,i,COM) SALE_FINAL(i)
        #Sales of Tasmanian commodity i#;
FORMULA (all,i,COM) SALE_FINAL(i) = sum(j,IND,BAS1(i,j,"A1") +
        BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
        + BAS5(i) + BAS6(i) + BAS7(i);

COEFFICIENT (all,j,IND) COST_FINAL(j)
        #Total costs of industry j#;

FORMULA (all,j,IND) COST_FINAL(j)
        = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
```

```
            ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
            + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
            + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
            + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
            + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
            + PTAX(j);


COEFFICIENT (all,i,COM) FINAL_DEMAND(i);

FORMULA (all,i,COM) FINAL_DEMAND(i) =
            sum(m,COM,BAS3(m,"A1") + BAS4(m,"A1")
            + BAS5(m) + BAS6(m) + BAS7(m) );


FORMULA(all,i,COM) BAS3(i,"A1") = BAS3(i,"A1")
            + {[PRODN(i) - SALE_FINAL(i)]
            * [BAS3(i,"A1") / FINAL_DEMAND(i)]};

FORMULA (all,i,COM) BAS4(i,"A1") = BAS4(i,"A1")
            + {[PRODN(i) - SALE_FINAL(i)]
            * [BAS4(i,"A1") / FINAL_DEMAND(i)]};

FORMULA (all,i,COM) BAS5(i) = BAS5(i)
            + {[PRODN(i) - SALE_FINAL(i)]
            * [BAS5(i) / FINAL_DEMAND(i)]};

FORMULA(all,i,COM) BAS6(i) = BAS6(i)
                        + {[PRODN(i) - SALE_FINAL(i)]
            * [BAS6(i) / FINAL_DEMAND(i)]};

FORMULA (ALL,i,COM) BAS7(i) = BAS7(i)
            + {[PRODN(i) - SALE_FINAL(i)]
            * [BAS7(i) / FINAL_DEMAND(i)]};

FORMULA (all,j,IND) PTAX(j)
            = PTAX(j) + SALE_J(j) - COST_FINAL(j);



! Check Balance Again !
COEFFICIENT (all,j,IND) DIFF_COST2(j)
            #Total costs of industry j#;

FORMULA (all,j,IND) DIFF_COST2(j)
            = sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
            TX11(i,j,s) + TX31(i,j,s))) + LAB1(j) + LAB2(j)
            + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
            + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
            ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
            + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
            + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
            + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
            + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
            + PTAX(j) - sum(i,COM,
            MAKE(i,j));

COEFFICIENT (all,i,COM) DIFF_SALE2(i);

FORMULA (all,i,COM) DIFF_SALE2(i) =
            sum(j,IND,MAKE(i,j)) -  (sum(j,IND,BAS1(i,j,"A1") +
            BAS2(i,j,"A1")) + BAS3(i,"A1") + BAS4(i,"A1")
            + BAS5(i) + BAS6(i) + BAS7(i));

WRITE DIFF_SALE2 to file BALANCE header "DFS2";
WRITE DIFF_COST2 to file BALANCE header "DFC2";



! WRITES !
WRITE ABD1 to file  FISHDATA header "ABD1";
WRITE ABD2 to file  FISHDATA header "ABD2";
WRITE ABD3 to file  FISHDATA header "ABD3";
WRITE ABQ1 to file  FISHDATA header "ABQ1";
WRITE ABQ2 to file  FISHDATA header "ABQ2";
```

APPENDIX F: FISH_DAT.TAB

```
WRITE ABQ3 to file  FISHDATA header "ABQ3";
WRITE ABQ4 to file  FISHDATA header "ABQ4";

WRITE BAS1 to file  FISHDATA header "BAS1";
WRITE  BAS2 to file  FISHDATA header "BAS2";
WRITE BAS3 to file  FISHDATA header "BAS3";
WRITE   BAS4 to file  FISHDATA header "BAS4";
WRITE  BAS5 to file  FISHDATA header "BAS5";
WRITE  BAS6 to file  FISHDATA header "BAS6";
WRITE  BAS7 to file  FISHDATA header "BAS7";

WRITE   CAP1 to file  FISHDATA header "CAP1";
WRITE   CAP2 to file  FISHDATA header "CAP2";
WRITE   CAP3 to file  FISHDATA header "CAP3";

WRITE  FIS1 to file  FISHDATA header "FIS1";

WRITE  LAB1 to file  FISHDATA header "LAB1";
WRITE  LAB2 to file  FISHDATA header "LAB2";
WRITE  LAB3 to file  FISHDATA header "LAB3";

WRITE   MAKE to file  FISHDATA header "MAKE";

WRITE   MAL1 to file  FISHDATA header "MAL1";
WRITE   MAL2 to file  FISHDATA header "MAL2";
WRITE   MAL3 to file  FISHDATA header "MAL3";
WRITE   MAL4 to file  FISHDATA header "MAL4";

WRITE   OAL1 to file  FISHDATA header "OAL1";
WRITE   OAL2 to file  FISHDATA header "OAL2";
WRITE   OAL3 to file  FISHDATA header "OAL3";
WRITE   OAL4 to file  FISHDATA header "OAL4";

WRITE   OTHR to file  FISHDATA header "OTHR";

WRITE  PTAX to file  FISHDATA header "PTAX";
WRITE CTAX to file  FISHDATA header "CTAX";

WRITE RKL1 to file  FISHDATA header "RKL1";
WRITE RKL2 to file  FISHDATA header "RKL2";
WRITE RKL3 to file  FISHDATA header "RKL3";

WRITE SAL1 to file  FISHDATA header "SAL1";
WRITE SAL2 to file  FISHDATA header "SAL2";
WRITE SAL3 to file  FISHDATA header "SAL3";
WRITE SAL4 to file  FISHDATA header "SAL4";

WRITE TARF to file  FISHDATA header "TARF";

WRITE TRN6 to file FISHDATA header "TRN6";

WRITE TX11 to file  FISHDATA header "TX11";
WRITE TX12 to file  FISHDATA header "TX12";
WRITE TX13 to file  FISHDATA header "TX13";

WRITE TX31 to file  FISHDATA header "TX31";
WRITE TX32 to file  FISHDATA header "TX32";
WRITE TX33 to file  FISHDATA header "TX33";
WRITE TX36 to file  FISHDATA header "TX36";
WRITE TX37 to file  FISHDATA header "TX37";

WRITE VES1 to file  FISHDATA header "VES1";
WRITE VES2 to file  FISHDATA header "VES2";
WRITE VES3 to file  FISHDATA header "VES3";

WRITE LAN1 to file FISHDATA header "LAN1";
WRITE LAN2 to file FISHDATA header "LAN2";
```

APPENDIX G: TASFISH1.TAB

! TASFISH14.TAB !

! NOTES !

! The TASFISH Industries
I1: Abalone
I2: Rocklobster
I3: Scalefish
I4: Trawl
I5: Salmon aquaculture
I6: Oyster aquaculture
I7: Mussel aquaculture
I8: Other seafood
I9: Other agriculture
I10: Hunting
I11: Mining
I12: Processed seafood
I13: Other manufacturing
I14: Public utilities
I15: Construction
I16: Trade
I17: Transport and communication
I18: Finance
I19: Housing
I20: Public services
I21: Community services
I22: Personal services

CONTENTS

APPENDIX G: TASFISH1.TAB

```
  7.28: OPI - Overseas export price index
  7.29: Real wages
  7.30: Aggregate capital stock
  7.31: Gross houeshold wages income
  7.32: Gross capital income to Tasmanian households
  7.33: Gross licence income to Tasmanian households
  7.34: Income tax paid by Tasmanian residents
  7.35: PAYE tax paid by Tasmanian residents
  7.36: PAYE tax per unit of labour
  7.37: Income tax on capital rentals by Tasmanians
  7.38: Income tax per unit of capital
  7.39: Income tax on vessel licence rentals
  7.40: Income tax paid by Tas HH's on abalone quota unit rentals
  7.41: Income tax paid by Tas HH's on abalone dive licence rents
  7.42: Income tax paid on rock lobster pot rentals
  7.43: Income tax paid on Salmon lease area rentals
  7.44: Income tax paid on oyster lease area rentals
  7.45: Income tax paid on mussel lease area rentals
  7.46: Licence fees paid by Tasmanian households
  7.47: Gross incomes received by Tasmanian households
  7.48: Total taxes, fees, rentals, etc paid by Tas households
  7.49: Net disposable income of Tasmanian households
  7.50: Household aggregate expenditure
  7.51: Real Tasmanian household expenditure
  7.52: Next period's capital stock
  7.53: Equalisation of expected rates of return
  7.54: Aggregate Tasmanian Investment spending
  7.55: Current rates of return
!


! 1: FILEs and SETs   !

!    1.1: SETs defined. !
SET COM #commodities# (C1-C24);
SET SOU #sources of commodities# (A1-A3);
SET IND #industries# (I1-I22);

SET EXP #export commodities# (C2 - C15);
SET NONEXP #non-export commodities# (C1, C16 - C24);
SET FAC #primary factors#
( lab, cap, land, ves_lic, ab_quota,ab_dive,
pot_lic, aq_sal, aq_mus, aq_oys,fis);

SET OWNERS #primary factor owners# (RoW, CGov, SGov, Tas, RoA);
SET LICENCE #various fishing licences#
 (ves_lic, ab_quota,ab_dive,pot_lic, aq_sal
, aq_mus, aq_oys, fis) ;

SUBSET EXP IS SUBSET OF COM;
SUBSET LICENCE IS SUBSET OF FAC;
SUBSET NONEXP IS SUBSET OF COM;

SET FISH #fish commodities# (C1 - C10);
SUBSET FISH is subset of COM;
SET INTERCOM #intermediate input commodities# (fish,C11-C24);
SET NONFISH #non-fish commodities# (C11-C24);
SUBSET NONFISH is subset of COM;




!            1.2                        FILEs defined.          !
File IOFILE              # Main file of updatable data #;
File PARAM               # Parameter file # ;
File GACC                          #Government accounts data#;
FILE (NEW, text,spreadsheet, separator= ",") CHKFISH;



! 2: VARIABLES                                                  !

!    2.1 Scalar variables in alphabetical order !
VARIABLE b1
            #income tax paid on labour income#;
```

APPENDIX G: TASFISH1.TAB

VARIABLE b2
#income tax paid on capital income#;

VARIABLE b3
#income tax paid on vessel licence rental#;

VARIABLE b4
#income tax paid on abalone quota units#;

VARIABLE b5
#income tax paid on abalone dive licence rentals#;

VARIABLE b6
#income tax paid on rock lobster pot rentals#;

VARIABLE b7
#income tax paid on salmon lease area rentals#;

VARIABLE b8
#income tax paid on oyster lease area rentals#;

VARIABLE b9
#income tax paid on mussel lease are rentals#;

VARIABLE b10
#residential land tax paid#;

VARIABLE c #nominal Tasmanian household consumption#;

VARIABLE cap_income #income to Tas households from capital#;

VARIABLE capital #Supply of capital in Tasmania#;

VARIABLE cpi #Consumer price index#;

VARIABLE c_real #real consumption#;

VARIABLE delPSBR #change in public sector borrowing requirement#;

VARIABLE f_apc #average propensity to consume#;

VARIABLE f_wage #nominal wage shifter#;

VARIABLE f_p_abquota #shifter on abalone quota price#;

VARIABLE f_p_abdive #shifter on abalone dive licence price#;

VARIABLE f_p_ves_lic #shifter on vessel licence rentals#;

VARIABLE f_p_potlic #shifter on rock lobster pot rentals#;

VARIABLE f_p_aqsalm #aquaculture salmon rental shifter#;

VARIABLE f_p_aqmus #mussel aquaculture rental shifter#;

VARIABLE f_p_aqoys #oyster aquaculture rental shifter#;

VARIABLE f5_cw #general shifter on CW govt demands#;

VARIABLE f3_state #general State govt demand shifter#;

VARIABLE ffland_tax #Exogenous shifter on fed agric land tax#;

VARIABLE gov_expend #State government expenditure#;

VARIABLE gov_revenue #State government revenue#;

VARIABLE gpi #government price index#;

VARIABLE gross_wage #gross wage income earned by Tas households#;

VARIABLE gross_income
#gross income received by Tas all sources#;

APPENDIX G: TASFISH1.TAB

```
VARIABLE gsp_def #gsp deflator#;

VARIABLE income_tax #income tax paid by Tas households#;

VARIABLE ipi #investment price index#;

VARIABLE labour #Tasmanian labour supply#;

VARIABLE land_rent
         #returns to land owners#;

VARIABLE land_tax
         #Commonwealth income tax on land rents#;

VARIABLE l_ves_lic #quantity of vessel licences#;

VARIABLE l_ab_quota #quantity of abalone quota#;

VARIABLE l_ab_dive #quantity of abalone dive licences#;

VARIABLE l_pot_lic #quantity of pot licence#;

VARIABLE l_aq_sal  #salmon aquaculture lease area#;

VARIABLE l_aq_mus #mussel aquaculture lease area#;

VARIABLE l_aq_oys #oyster lease area#;

VARIABLE l_fis #fishermen licences#;

VARIABLE lic_income #gross licence income to Tasmanian households#;

VARIABLE licence_fee #licence, royalty and renewal fees paid by Tas#;

VARIABLE mpi # mainland export price index#;

VARIABLE net_income
         #net income of Tasmanian households#;

VARIABLE omega #economy-wide rate of return#;

VARIABLE opi #overseas export price index#;

VARIABLE other_gov_exp #Other government expenditure#;

VARIABLE other_revenue #other government revenue#;

VARIABLE tot_tax #total taxes, fees, licences, royalty etc paid by Tas HH#;

VARIABLE total_invest #total Tasmanian investment spending#;

VARIABLE x_rate #nominal exchange rate#;

!   2.2 Vector variables in alphabetical order !
VARIABLE (all,j,IND) a_prim(j)
         #tek change in use of primary factors ind j#;

VARIABLE (all,j,IND) cprodtax(j)
         #Commonwealth production tax on industry j#;


VARIABLE (all,j,IND) crates(j)
         #current rate of return on capital in industry j#;

VARIABLE (all,j,IND) f_abdive(j)
         # shifter on per unit ab dive income tax#;

VARIABLE (all,j,IND) f_abqtax(j)
         #shifter on per unit abalone quota unit income tax#;

VARIABLE (all,i,COM) f_cw_i(i)
         # commodity specific shifter on CW demands#;

VARIABLE (all,j,IND) fee_abd(j)
         #abalone dive licence annual fee#;
```

APPENDIX G: TASFISH1.TAB

```
VARIABLE (all,j,IND) fee_abq(j)
        #abalone quota unit annual fee#;

VARIABLE (all,j,IND) fee_mus(j)
        #annual fee on mussel aquaculture lease areas#;

VARIABLE (all,j,IND) fee_oys(j)
        #annual fee on oyster marine farm lease areas#;

VARIABLE (all,j,IND) fee_rl(j)
        #annual rock lobster pot licence fee#;

VARIABLE (all,j,IND) fee_sal(j)
        #annual fee on salmon aquaculture licence#;

VARIABLE (all,J,ind) fee_vl(j)
        #vessel licence renewal fee#;

VARIABLE (all,i,COM) f2_state(i)
        #good i shifter on State govt demands#;

VARIABLE (all,j,IND) f_ktax(j)
        #shifter on per-unit income tax on capital#;

VARIABLE (all,j,IND) f_mustax(j)
        #shifter on per unit mussel lease income tax#;

VARIABLE (all,j,IND) f_oytax(j)
        #shifter on per unit oyster lease area income tax#;

VARIABLE (all,j,IND) f_paye(j)
        #shifter on PAYE tax per unit labour#;

VARIABLE (all,j,IND) f_rltax(j)
        #shifter on per-unit rl income tax#;

VARIABLE (all,j,IND) f_royalty(j)
        #shifter on abalone royalty per kilogram#;

VARIABLE (all,j,IND) f_saltax(j)
        #shifter on per unit salmon lease area income tax#;

VARIABLE (all,i,COM) f_six(i)
        #shifter on Mainland export demand function#;

VARIABLE (all,i,EXP) f_seven(i)
        #shifter on Foreign export demand function#;

VARIABLE (all,j,IND) f_vltax(j)
        #shift variable on per unit vessel lic income tax#;

VARIABLE (all,i,NONEXP) f_xfordem(i)
        #quantity shifter export demands#;

VARIABLE (all,j,IND) hous_wage(j)
        #household gross wages before PAYE#;

VARIABLE (all,j,IND) invest(j)
        # investment by industry j #;

VARIABLE (all,j,IND)  p_ves_lic(j)
        #price of fishing licence vessel#;

VARIABLE (all,j,IND) p_abquota(j)
        #price of abalone units#;

VARIABLE (all,j,IND) p_abdive(j)
         #price of abalone dive licence#;

VARIABLE (all,j,IND) p_potlic(j)
        #price per rock lobster pot#;

VARIABLE (all,j,IND) p_aqsalm(j)
         #price per salmon aquauculture lease area#;
```

APPENDIX G: TASFISH1.TAB

```
VARIABLE (all,j,IND) p_aqmus(j)
        #price per mussel aquaculture lease area#;

VARIABLE (all,j,IND) p_aqoys(j)
        #price per oyster aquaculture lease area#;

VARIABLE (all,j,IND) p_fish_lic(j)
        #price per fishing licence#;

VARIABLE (all,j,IND) k_0(j)
        #capital stock in industry (j)#;

VARIABLE (all,j,IND) k_1(j)
        #next period's capital stock in industry j#;

VARIABLE (all,l,licence) lic_supply(l)
        #supply of licence type l#;

VARIABLE (all,j,IND) p_cap(j)
        #price of capital to industry j#;

VARIABLE (all,j,IND) p_capital(j)
        #before tax rental rate on capital in ind j#;

VARIABLE (all,i,COM) p_imp(i)
        #foreign currency price of imported good i#;

VARIABLE (all,j,IND) p_labour(j)
        #price of labour to industry j#;

VARIABLE (all,i,COM) p_main_m(i)
        #price of imports from the mainland#;

VARIABLE (all,j,IND) p_nine(j)
        #post tax rental rate on capital#;

VARIABLE (all,j,IND) p_ptax(j)
        #price of production tax units#;

VARIABLE (all,i,COM) p3_comp(i)
        #price of composite good i to Tas Housheholds#;

VARIABLE (all,i,EXP) p_seven(i)
        #Foreign currency price of good i#;

VARIABLE (all,i,COM) p_six(i)
        #Mainland price of Tas good i#;

VARIABLE (all,i,COM) p_tran6(i)
        #Transport on exports to Mainland#;

VARIABLE (all,j,IND) real_hh_wage(j)
        #real household wage in industry j#;

VARIABLE (all,j,IND) rent_mus(j)
        #annual rent to govt on mussel lease area#;

VARIABLE (all,j,IND) rent_oys(j)
        #oyster lease area rental to State governemnt#;

VARIABLE (all,j,IND) rent_sal(j)
        #annual salmon lease area rental State govt#;

VARIABLE (all,j,IND) reslndtax(j)
        #residential land tax per unit capital in industry j#;

VARIABLE (all,j,IND) royalty_ab(j)
        #royalty per kilogram of abalone#;

VARIABLE (all,j,IND) t_abdtax(j)
        #per unit income tax on dive licence rentals#;

VARIABLE (all,j,IND) t_abqtax(j)
        #per unit income tax on abalone quota unit rentals#;
```

APPENDIX G: TASFISH1.TAB

```
VARIABLE (all,i,COM) tariff(i);

VARIABLE (all,j,IND) t_kytax(j)
        #income tax paid per unit of capital in industry j#;

VARIABLE (all,j,IND) t_mustax(j)
        #income tax paid per unit lease area in mussels#;

VARIABLE (all,j,IND) t_oytax(j)
        #per unit Y tax on aquaculture lease areas#;

VARIABLE (all,j,IND) t_payroll(j)
        #payroll tax rate industry (j)#;

VARIABLE (all,j,IND) t_paye(j)
        #PAYE tax per unit of labour#;

VARIABLE (all,i,EXP) ti7(i)
        #per-unit export tax on good i#;

VARIABLE (all,j,IND) t_rltax(j)
        #per unit income tax on pot licences#;

VARIABLE (all,j,IND) t_saltax(j)
        #per unit income tax on aquaculture rentals#;

VARIABLE (all,j,IND) t_vltax(j)
        #per unit income tax on vessel lic in (j)#;

VARIABLE (all,i,COM) t_36(i)
        #Commonwealth sales tax on exports of i to Mainland#;

VARIABLE (all,i,COM) x_cw(i)
        # CW government demands for Tasmanian commodities#;

VARIABLE (all,i,COM) x_hous(i)
        #household demand for composite commodity i#;

VARIABLE (all,j,IND) x_prim(j)
        #demand for primary factors by ind j#;

VARIABLE (all,j,IND) x_ptax(j)
        #quantity of production tax units#;

VARIABLE (all,i,COM) x_six(i)
        #Mainland demand for Tasmanian commodity i#;

VARIABLE (all,i,COM) x_seven(i)
        #Foreign demand for good i#;

VARIABLE (all,j,IND) z(j)
        #activity level of industry j#;

! 2.3 Matrix varaibles in alphabetical order !

VARIABLE (all,i,INTERCOM) (all,j,IND) a_one(i,j)
        #tek change in use of i by j for intermediate#;

! WAS !
! VARIABLE (all,i,COM) (all,j,IND) a_one(i,j)
        #tek change in use of i by j for intermediate#; !

VARIABLE (all,i,COM) (all,j,IND) a_inv(i,j)
        #tek change in use of i by j in K creation#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) a2(i,s,j)
        #tek change in use of (i,s) by (j) for K formation#;

VARIABLE (all,i,COM) (all,s,SOU) f1_state(i,s)
        #(i,s) shifter on State govt demands#;

VARIABLE (all,j,IND) (all,m,COM) f_out(j,m)
        #output shifter good m by industry j#;
```

APPENDIX G: TASFISH1.TAB

```
VARIABLE  (all,i,COM) (all,s,SOU) (all,j,IND) p1(i,s,j)
          #price of (is) used by industry j#;

VARIABLE (all,i,COM) (all,s,SOU) p_state(i,s)
          #price of (i,s) to State government#;

VARIABLE (all,i,COM) (all,s,SOU) p_basic(i,s)
          #basic price of commodity i from source s#;

VARIABLE (all,t,OWNERS) (all,j,IND) p_oc(t,j)
          #price of other cost tickets to industry j#;

VARIABLE (all,i,COM) (all,s,SOU) p3_is(i,s)
          #price of good i from s to Tas Households#;

VARIABLE (all,v,FAC) (all,j,IND) p_fac(v,j)
          #price of factor v to industry j#;

VARIABLE (all,i,COM) (all,t,SOU) (all,j,IND) p_inv(i,t,j)
          #price of i from s used by ind j for K creation#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) t1_tax_11(i,s,j)
          #State government Sales tax on intermediate inputs#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) t1_tax_31(i,s,j)
          #Federal government Sales tax on intermediate inputs#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) tax_21(i,s,j)
          #State tax on use of (i,s,j) for capital formation#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) tax_23(i,s,j)
          #Federal tax on use of (i,s,j) for capital formation#;

VARIABLE (all,i,COM) (all,s,SOU) tax_31(i,s)
          #State tax on good (i,s) consumed by households#;

VARIABLE (all,i,COM) (all,s,SOU) tax_33(i,s)
          #Federal tax on good (i,s) consumed by households#;

VARIABLE (all,v,FAC) (all,j,IND) x_fac(v,j)
          #ind j demand for primary factor v#;

VARIABLE (all,i,COM) (all,s,SOU) x_hous_is(i,s)
          #HH demand for good (i,s) #;

VARIABLE (all,i,COM) (all,j,IND) x_inv(i,j)
          #demand for i by j for capital creation#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) x_inv_s(i,s,j)
          #demand for i from s by j for K creation#;

VARIABLE (all,t,OWNERS) (all,j,IND) x_oc(t,j)
          #quantity of other cost tickets used by j#;

VARIABLE (all,i,INTERCOM) (all,j,IND) x1(i,j)
          #intermediate demand for i by j#;

! WAS !
! VARIABLE (all,i,COM) (all,j,IND) x1(i,j)
          #intermediate demand for i by j#;!

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND)
          x1isj(i,s,j)
          #demand for (i,s) by j as intermediate input#;

VARIABLE (all,j,IND) (all,m,COM) x_out(j,m)
          #output of commodity m by industry j#;

VARIABLE (all,i,COM) (all,s,SOU) x_state(i,s)
          #demand for (is) by Tasmanian State governemnt#;

VARIABLE (all,i,COM) (all,s,SOU) x_supply(i,s)
          #supply of good i from source s#;
```

APPENDIX G: TASFISH1.TAB

```
! 3: COEFFICIENTS IN ALPHABETICAL ORDER    !
COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD1(t,j)
        #net abalone dive licence rental#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD2(t,j)
        #Income tax on dive licence rental#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABD3(t,j)
        #Reneweal fee on dive licences#;

COEFFICIENT AB_DIVE
        #total gross abalone dive licence returns#;


COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ1(t,j)
        #Net return to abalone quota units#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ2(t,j)
        #Income tax on abalone quota units#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ3(t,j)
        #Royalty fee on abalone quota units#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) ABQ4(t,j)
        #Renewal fee on abalone quota units#;

COEFFICIENT (all,j,IND) ABQ_TAX(j)
        #share of Y tax paid by Tas HH's on Ab rentals of tax on (j) quota#;

COEFFICIENT AB_QUOTA
        #Total value of abalone quota units#;


COEFFICIENT (all,m,COM) (all,s,SOU) (all,j,IND) BAS1(m,j,s)
        #basic value of (is) used by j for intermediate input#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) BAS2(i,j,s)
        #basic value of (i,s) used by j for K creation#;

COEFFICIENT (all,i,COM) (all,s,SOU) BAS3(i,s)
        #basic value of HH purchases of (i,s) #;

COEFFICIENT (all,i,COM) (all,s,SOU) BAS4(i,s)
        #State govt demands for Tas output#;

COEFFICIENT (all,i,COM) BAS5(i)
        #Commonwealth demands for Tas output#;

COEFFICIENT (all,i,COM) BAS6(i)
        #Basic price of Tas exports to Mainland#;

COEFFICIENT (all,i,COM) BAS7(i)
        #Basic price of Tas exports to overseas#;

COEFFICIENT (all,i,COM) BAS_IMP(i)
        #basic value of imported good i#;

COEFFICIENT B_ONE
        #share of PAYE taxes in total tax paid#;

COEFFICIENT (all,j,IND) BETA(j)
        #sensitivity of expected ROR to increase in K#;

COEFFICIENT B_TWO
        # share of capital taxes in total tax paid#;

COEFFICIENT B_THREE
        #share of tax on vessel licence rentals#;


COEFFICIENT B_FOUR
        #share of tax on abalone quota unit rentals#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT B_FIVE
        #share of tax on abalone dive licence rentals#;

COEFFICIENT B_SIX
        #share of tax on rock lobster pot rentals#;

COEFFICIENT B_SEVEN
        #share of tax paid on salmon lease area rentals#;

COEFFICIENT B_EIGHT
        #share of tax paid on oyster lease area rentals#;

COEFFICIENT B_NINE
        #share of tax paid on mussel leaes area rentals#;

COEFFICIENT B_TEN
        #share of household taxes paid as residental land tax#;

COEFFICIENT B_ELEVEN
        #share of income taxes paid on agricultural land#;

COEFFICIENT INC_TAX
        #Total income tax paid by Tasmanian households#;


COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP1(t,j)
        #net rental on capital#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP2(t,j)
        #Commonwealth income tax on capital rents#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) CAP3(t,j)
        #State residential land tax#;


COEFFICIENT (all,i,COM) (all,s,SOU) CPI_SH(i,s)
        #share of good (i,s) in total household outlays#;


COEFFICIENT (all,j,IND) H_CTAX(j)
        #share of Commonwealth tax in total costs of ind j#;

COEFFICIENT (all,i,COM) CW_SHR(i)
        #share of CW demands for (i) in total output of (i)#;


COEFFICIENT (all,j,IND) DL_TAX(j)
        #share of ind j dive licence tax in total dive licence tax#;


COEFFICIENT (all,j,IND) FIS1(j)
        #fishermen's licence#;

COEFFICIENT (all,j,IND) G(j)
        #ratio of investment to next period's capital stock#;

COEFFICIENT   GOV_REV
        #Government revenue#;

COEFFICIENT G_LAND;

COEFFICIENT (all,i,COM) (all,s,SOU) G_EXP(i,s)
        #Share of gov expenditure on good (is) in total expenditure#;

COEFFICIENT GROSS_LIC
        #gross licence income to Tasmanian households#;

COEFFICIENT (all,j,IND) G_SH(j)
        #share of industry (j) gross wage in total household wage#;

COEFFICIENT G_W
        #share of gross wages in gross income#;

COEFFICIENT G_D
        #share of gross capital income in gross income#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT G_L
        #share of gross licence income in gross income#;

COEFFICIENT GRSS_INC
        # gross income of Tasmanian households#;

COEFFICIENT (all,i,COM) GSP_SH(i)
        #share of value of commodity i in total Tas output#;

COEFFICIENT (all,j,IND) H_ABQTAX(j)
        #parameter indexing per unit ab quota Y tax to rental rate#;

COEFFICIENT (all,i,COM) H0I6(i)
        #Share of basic price of i in Mainland export price#;

COEFFICIENT (all,i,COM) H3I6(i)
        #Share of Federal sales tax in Mainland export price#;

COEFFICIENT (all,j,IND) H_ABROY(j)
        #parameter indexing royaly per kg to beach price#;

COEFFICIENT (all,j,IND) H_DTAX(j)
        #parameter indexing per unit dive incomet tax to rental rate#;

COEFFICIENT (all,j,IND) H_RLTAX(j)
        #parameter indexing per unit rck lob pot tax to rental rate#;

COEFFICIENT (all,v,FAC) (all,j,IND) H_FAC(v,j)
        #share of factor v in total cost of j#;

COEFFICIENT (all,j,IND) H_KTAX(j)
        #indexing parameter on per unit capital income tax#;

COEFFICIENT (all,i,COM) HMI6(i)
        #share of transport cost in Mainland export price#;

COEFFICIENT (all,j,IND) H_OYTAX(j)
        #parameter indexing per unit tax to rental rate#;

COEFFICIENT (all,j,IND) H_PAYE(j)
        #parameter indexing per-unit paye tax and gross wage rate#;

COEFFICIENT (all,j,IND) H_PT(j)
        #share of State govt prodn tax in total cost of j#;

COEFFICIENT (all,j,IND) H_SALTAX(j)
        #parameter indexing per-unit salmon lease tax to rent rate#;

COEFFICIENT (all,i,COM) H_STATE(i)
        #indexing parameter, State govt demands#;

COEFFICIENT (all,i,COM) H_CW(i)
        #indexing parameter, CW Govt demands#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) H_INT(i,s,j)
        #share of (is) in total costs of industry j#;

COEFFICIENT (all,j,IND) H_MUSTAX(j)
        #parameter indexing income tax per unit to rental rate#;

COEFFICIENT (all,t,OWNERS) (all,j,IND)
        H_OC(t,j)
        #share of other costs in total costs#;

COEFFICIENT (all,j,IND) (all,m,COM) H_SALES(j,m)
        #share of sales of m in total sales by j#;

COEFFICIENT (all,j,IND) H_VLTAX(j)
        #indexing parameter on per unit ves lic income tax#;

COEFFICIENT (all,i,COM) HOUS_SHR(i)
        #share of HH demands for (i,1) in total output of i#;

COEFFICIENT (all,j,IND) H_W(j)
```

APPENDIX G: TASFISH1.TAB

```
        #parameter indexing changes in nominal wage to Tas CPI#;

COEFFICIENT HOUSE_TAX
        #taxes, fees, royalties, etc paid by Tasmanian households#;

COEFFICIENT (all,i,COM) (all,j,IND) INT_SHR(i,j)
        #share of intermediate demands for (i,1) in total output of i#;

COEFFICIENT (all,i,COM) (all,j,IND) INV_SHR(i,j)
        #share of K input demands for (i,1) in total output of i#;

COEFFICIENT (all,j,IND) INVESTMENT(j)
        #total investment in industry j#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) IPI_SH(i,s,j)
        #share of (i,s) used by j in total investment#;

COEFFICIENT (all,j,IND) J_SHARE(j)
        #share of Tas capital income from industry j#;

COEFFICIENT (all,j,IND) K_TAX(j)
        #share of capital tax paid on earnings from industry j#;

COEFFICIENT (all,j,IND) LAB1(j)
        #net take home pay paid by ind j#;

COEFFICIENT (all,j,ind) LAB2(j)
        #PAYE tax paid on ind j labour#;

COEFFICIENT (all,j,IND) LAB3(j)
        #Payroll tax paid on ind j labour#;


COEFFICIENT (all,i,COM) LAMBDA6(i)
        #Mainland export price elasticity#;

COEFFICIENT (all,i,EXP) LAMBDA7(i)
        #Mainland export price elasticity#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) LAN1(t,j)
        #land rentals#;
COEFFICIENT (all,t,OWNERS) (all,j,IND) LAN2(t,j)
        # land tax#;


COEFFICIENT (all,l,LICENCE) (all,j,IND) LIC_SHR(l,j)
        #Share of licence type l used by industry j#;

COEFFICIENT (all,m,COM) MAIN_EXP(m)
        #exports of commodity m to Mainland#;

COEFFICIENT (all,i,COM) MAIN_IMP(i)
        #imports of i from mainland#;

COEFFICIENT (all,m,COM) (all,j,IND)
        MAKE(m,j);

COEFFICIENT (all,i,COM) MEX_PI(i)
        #share of good i in total exports to mainland#;

COEFFICIENT (all,j,IND) (all,i,COM) MK_SHR(j,i)
        #share of output of i by j in total output of i#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL1(t,j)
        #aquaculture lease net rental - mussel #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL2(t,j)
        #aquaculture lease rental tax - mussel #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL3(t,j)
        #aquaculture marine farm licence fee - mussel#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) MAL4(t,j)
        #aquaculture lease fee - mussel#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT (all,i,COM) MEX_SHR(i)
        #share of output of i that is exported to Mainland#;

COEFFICIENT MUS_LIC
        #total gross returns to mussel aquaculture lease area holders#;

COEFFICIENT (all,j,IND) MUS_TAX(j)
        #share of mus licence income tax from j in total mus lic tax#;

COEFFICIENT NET1
        #ratio of gross to net income#;

COEFFICIENT NET2
        #ratio of taxes to net income#;

COEFFICIENT NET_INC
        #Net income of Tasmanian residents#;


COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL1(t,j)
        #aquaculture lease net rental - oyster #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL2(t,j)
        #aquaculture lease rental tax - oyster #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL3(t,j)
        #aquaculture marine farm licence fee - oyster#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) OAL4(t,j)
        #aquaculture lease fee - oyster#;

COEFFICIENT (all,i,COM) OEX_PI(i)
        #share of good i in total Tasmanian os exports#;

COEFFICIENT  (all,i,COM) OEX_SHR(i)
        #share of OS exports of (i) in total output of (i)#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) OTHR(t,j)
        #other cost tickets#;

COEFFICIENT OTH_REV
        #Other state governemtn revenue#;

COEFFICIENT R_OTH_REV
        #Other state governemtn revenue as share of total revenue#;


COEFFICIENT OTHR_EXP
        #Other State government outlays#;

COEFFICIENT  S_OTHR_EXP
        #Other State government expenditure#;

COEFFICIENT OYS_LIC
        #total gross returns to oyster aquaculture lease area holders#;

COEFFICIENT (all,j,IND) OY_TAX(j)
        #share of Y tax paid on oys lease in j in total tax on oys leases#;

COEFFICIENT (all,j,IND) PAYE(j)
        #share of total PAYE tax paid by labour in j#;

COEFFICIENT POT_LIC
        #Total value of pot licences#;

COEFFICIENT (all,j,IND) PTAX(j)
        #State production tax paid by j#;

COEFFICIENT (all,j,IND) CTAX(j)
        #Commonwealth productiont tax paid by j#;

COEFFICIENT (all,j,IND) Q(j)
        #ratio of gross to net rate of return#;

COEFFICIENT (all,j,IND) Q_S(j)
```

APPENDIX G: TASFISH1.TAB

```
        #ratio of pre- to post-tax rental rate#;

COEFFICIENT (all,j,IND) R_ABD(j)
        #share of ab dive licence annual fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_ABQ(j)
        #share of ab quota unit annual fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_RENT_OYS(j)
        #share of rent on oyster leases in State gov revenue#;

COEFFICIENT (all,j,IND) R_RENT_SAL(j)
        #share of rent in salmon leases in State gov revenue#;

COEFFICIENT (all,j,IND) RESL_TAX(j)
        #ratio of residential land tax to pre-tax rental rate#;

COEFFICIENT (all,j,IND) R_RESLND(j)
        #share of state gov revenue from residential land tax receipts#;

COEFFICIENT (all,j,IND) R_FEE_MUS(j)
        #share of mussel aq annual fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_FEE_RL(j)
        #share of rck lob pot licence fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_FEE_SAL(j)
        #share of salmon aq lic fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_FEE_VL(j)
        #share of vessel licence renewal fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_RENT_MUS(j)
        #share of mussel aq fee in total state gov rev#;

COEFFICIENT (all,j,IND) R_FEE_OYS(j)
        #share of oyster aq fee in total state gov rev#;


COEFFICIENT (all,j,IND) R_ROY_AB(j)
        #share of abalone royalty in total state gov rev#;

COEFFICIENT (all,j,IND) R_PAYROLL(j)
        #share of payroll revenue in total rev of state gov#;

COEFFICIENT (all,j,IND) R_PTAX(j)
        #share of production tax revenue in state gov revenue#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) R_TAX11(i,s,j)
        #share of tax on intermed inputs in state gov revenue#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) R_TAX21(i,s,j)
        #share of tax on inputs to capital formation in state gov revenue#;

COEFFICIENT (all,i,COM) (all,s,SOU) R_TAX31(i,s)
        #share of tax on HH consumption in state gov revenue#;

COEFFICIENT (all,j,IND) RESTAX(j)
#share of res land tax receipts from j in total res lnd recs#;

COEFFICIENT (all,j,IND) (all,m,COM) REV_SHARE_M(j,m);

COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL1(t,j)
        #net rock lobster pot rental#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL2(t,j)
        #federal rock lobster pot rental tax#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) RKL3(t,j)
        #rock lobster pot renewal fee#;

COEFFICIENT (all,j,IND) RL_TAX(j);

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S_BAS1(i,s,j)
        #share of basic price in intermediate input costs#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S_TAX11(i,s,j)
        #share of State government tax in intermediate input cost#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S_TAX31(i,s,j)
        #share of Federal government sales tax in intermed. Input costs#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL1(t,j)
        #aquaculture lease net rental - salmon #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL2(t,j)
        #aquaculture lease rental tax - salmon #;

COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL3(t,j)
        #aquaculture marine farm licence fee - salmon#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) SAL4(t,j)
        #aquaculture lease fee - salmon#;

COEFFICIENT SAL_LIC
        #total gross returns to salmon aquaculture lease area holders#;

COEFFICIENT (all,j,IND) SAL_TAX(j)
        #share of Y tax on ind j salmon lease rentals paid by Tas HH's#;

COEFFICIENT (all,j,IND) (all,v,FAC) S_FAC(v,j)
        #share of factor v in total factor costs of j#;

COEFFICIENT (all,j,IND) S_INVEST(j);

COEFFICIENT (all,j,IND) SH_CAP(j)
        #share of Tas capital stock in industry j#;

COEFFICIENT (all,j,IND) SH_H_WAGE(j)
        #share of pre payroll tax wage in employer wage#;

COEFFICIENT (all,j,IND) SH_PAYROLL(j)
        #share of payroll tax in employer wage#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S1(i,s,j)
        #share of (is) in total use of (i) by (j)#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S2(i,s,j)
        #share of (i,s) in j's total use of i for K creation#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S2_BAS(i,s,j)
        #share of basic price in total cost of (i,s,j) for cap formation#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S2_T21(i,s,j)
        #share of State taxes in total price of (i,s,j) for cap formation#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S2_T23(i,s,j)
        #share of Federal taxes in total price of (i,s,j) for cap formation#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) S2_IS(i,s,j)
        #share of (is) in j's total cost of creating unit of K#;

COEFFICIENT (all,i,COM) (all,s,SOU) S3(i,s)
        #share of (i,t) in HH cons of i#;

COEFFICIENT (all,i,COM) (all,s,SOU) S3_BAS(i,s)
        #share of basic price in household price#;

COEFFICIENT (all,i,COM) (all,s,SOU) S3_T31(i,s)
        #share of State tax in household price#;

COEFFICIENT (all,i,COM) (all,s,SOU) S3_T33(i,s)
        #share of Federal tax in household price#;

COEFFICIENT (all,j,IND) SH_LAB(j);

COEFFICIENT (all,j,IND) SIG(j);

COEFFICIENT (all,i,COM) S_IMP(i)
        #share of $A pre-tariff import price in landed price#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT S_LFEE
        #share of fees etc in total taxes, fees, royalty paid by Tas HH#;

COEFFICIENT (all,j,IND) SL_FEE_ABD(j)
        #share of annual abalone dive licence fee in total fees#;

COEFFICIENT (all,j,IND) SL_FEE_ABQ(j)
        #share of annual abalone quota unit fee in total fees#;

COEFFICIENT (all,j,IND) SL_FEE_MUS(j)
        #share of mussel aquaculture licence fees in total fees#;

COEFFICIENT (all,j,IND) SL_FEE_OYS(j)
        #share of annual oyster lease fee in total fees#;

COEFFICIENT (all,j,IND) SL_FEE_RL(j)
        #share of rock lobster renewal fee in total fee#;

COEFFICIENT (all,j,IND) SL_FEE_SAL(j)
        #share of salmon licence fees in total fees paid#;

COEFFICIENT (all,j,IND) SL_FEE_VES(j)
        #share of vessel licence fees in total fees paid by Tas house#;

COEFFICIENT (all,j,IND) SL_RENT_MUS(j)
        #share of mussel area rent in total fees paid by Tas hous#;

COEFFICIENT (all,j,IND) SL_RENT_OYS(j)
        #share of oyster lease area annual rent in total fees#;

COEFFICIENT (all,j,IND) SL_RENT_SAL(j)
        #share of salmon lease rent in total fees paid by Tas hous#;

COEFFICIENT (all,j,IND) SL_ROY_ABQ(j)
        #abalone royalty fee in total fees paid by Tas house#;

COEFFICIENT (all,i,COM) S_TARIFF(i)
        #share of tariff in landed import price#;

COEFFICIENT S_YTAX
        #share of income taxes in total tax, fees, royalty paid by Tas HH#;

COEFFICIENT (all,i,COM) STATE_SHR(i)
        #share of Tas govt demand for (i,1) in total output of i#;

COEFFICIENT (all,i,EXP) SX_BASIC(i)
        #Share of basic price in at-port value of exports#;

COEFFICIENT (all,i,EXP) S_XTAX(i)
        #Share of export tax in at-port value of exports#;

COEFFICIENT (all,i,COM) TARF(i)
        #Tariff on imported good i#;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TAX12(i,j,s)
        #state govt tax on (is) used by j for K formation#;

COEFFICIENT (all,i,COM) (all,s,SOU) TAX13(i,s)
        #Tasmanian sales tax on HH purchases of (i,s) #;

COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) TAX32(i,j,s)
        #Commonwealth sales tax on (is) used by j for K formation#;

COEFFICIENT (all,i,COM) (all,s,SOU) TAX33(i,s)
        #CW sales tax on Tas HH purchases of (i,s) #;

COEFFICIENT (all,m,COM) (all,j,IND) (all,s,SOU) TAX11(m,j,s)
        #Tas sales tax on purchase of m from s by j for intermediate#;

COEFFICIENT (all,m,COM) (all,j,IND) (all,s,SOU) TAX31(m,j,s)
        #Federal sales tax on purchase of m from s by j for intermediate#;

COEFFICIENT (all,m,COM) TAX36(m)
        #Federal sales tax on Tas sales to Mainland#;
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT (all,i,COM) TAX37(i)
        #Federal tax on overseas exports#;

COEFFICIENT (all,j,IND) TOT_COST(j)
        #total cost of industry j#;

COEFFICIENT TOT_INVEST
        #Total Tasmanian Investment#;

COEFFICIENT TOT_LIC_FEE
        #Total lic fees, royalty etc paid by Tas households#;

COEFFICIENT (all,i,COM) TOT_OUTPUT(i)
        #total output of Tas commodity i#;

COEFFICIENT (all,j,IND) TOT_FAC(j)
        #total cost of primary factors, industry j#;

COEFFICIENT GOV_EX
        #Total state government outlays#;

COEFFICIENT (all,i,COM) OS_IMP(i)
        #total imports of i from overseas#;

COEFFICIENT (all,m,COM) TRAN6(m)
        #Mainland transport margin on Tas exports to Mainland#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) VES1(t,j)
        #net vessel licence rental#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) VES2(t,j)
        #vessel licence rental tax#;

COEFFICIENT (all,t,OWNERS) (all,j,IND) VES3(t,j)
        #vessel licence renewal fee#;

COEFFICIENT VES_LIC
        #total value of vessel licences#;

COEFFICIENT (all,j,IND) V_TAX(j)
        #share of tax on ves lic in j in total ves lic tax#;

COEFFICIENT (all,i,COM) (all,j,IND) W1(i,j)
        #share of imports of (i,"A2") used as intermediate input#;

COEFFICIENT (all,i,COM) (all,j,IND) W2(i,j)
        #share of (i,"A2") used as input to K formation#;

COEFFICIENT (all,i,COM) W3(i)
        #share of (i,"A2") used as input to household consumption#;

COEFFICIENT (all,i,COM) W4(i)
        #share of (i,"A2") used by Tasmanian government#;


COEFFICIENT (all,i,COM) (all,j,IND) WW1(i,j)
        #share of imports of (i,"A3") used as intermediate input#;

COEFFICIENT (all,i,COM) (all,j,IND)  WW2(i,j)
        #share of (i,"A3") used as input to K formation#;

COEFFICIENT (all,i,COM) WW3(i)
        #share of (i,"A3") used as input to household consumption#;

COEFFICIENT (all,i,COM) WW4(i)
        #share of (i,"A3") used by Tasmanian government#;

COEFFICIENT (all,t,LICENCE) (all,j,IND) YLIC_SHARE(j,t)
        #share of gross returns from licence t in j in total licence income#;

COEFFICIENT (all,j,IND) YTAX_P9(j)
        #ratio of capital income tax to pre-tax rental rate#;

! 4: READS IN ALPHABETICAL ORDER !
```

APPENDIX G: TASFISH1.TAB

```
READ ABD1 from file IOFILE header "ABD1";
READ ABD2 from file IOFILE header "ABD2";
READ ABD3 from file IOFILE header "ABD3";

READ ABQ1 from file IOFILE header "ABQ1";
READ ABQ2 from file IOFILE header "ABQ2";
READ ABQ3 from file IOFILE header "ABQ3";
READ ABQ4 from file IOFILE header "ABQ4";

READ BAS1 from file IOFILE header "BAS1";
READ BAS2 from file IOFILE header "BAS2";
READ BAS3 from file IOFILE header "BAS3";
READ BAS4 from file IOFILE header "BAS4";
READ BAS5 from file IOFILE header "BAS5";
READ BAS6 from file IOFILE header "BAS6";
READ BAS7 from file IOFILE header "BAS7";

READ BETA from file PARAM header "BETA";

READ CAP1 from file IOFILE header "CAP1";
READ CAP2 from file IOFILE header "CAP2";
READ CAP3 from file IOFILE header "CAP3";

READ Q from file PARAM header "QQQQ";

READ FIS1 from file IOFILE header "FIS1";

READ G from file PARAM header "IKRA";

READ H_ABQTAX from file PARAM header "HABQ";

READ H_ABROY from file PARAM header "HBRY";

READ H_DTAX from file PARAM header "HDTX";

READ H_STATE from file PARAM header "HSTA";

READ H_VLTAX from file PARAM header "HVLT";

READ H_W from file PARAM header "HW";

READ H_CW from file PARAM header "HCWI";

READ H_PAYE from file PARAM header "HPAY";

READ H_KTAX from file PARAM header "HKTX";

READ H_MUSTAX from file  PARAM header "HMTX";

READ H_OYTAX from file PARAM header  "HOTX";

READ H_RLTAX from file PARAM header "RLTX";

READ H_SALTAX from file PARAM header "HSTX";

READ LAB1 from file IOFILE header "LAB1";
READ LAB2 from file IOFILE header "LAB2";
READ LAB3 from file IOFILE header "LAB3";

READ LAN1 from file IOFILE header "LAN1";
READ LAN2 from file IOFILE header "LAN2";

READ LAMBDA6 from file PARAM header "LAM6";
READ LAMBDA7 from file PARAM header "LAM7";

READ MAKE from file IOFILE Header "MAKE";

READ MAL1 from file IOFILE header "MAL1";
READ MAL2 from file IOFILE header "MAL2";
READ MAL3 from file IOFILE header "MAL3";
READ MAL4 from file IOFILE header "MAL4";


READ OAL1 from file IOFILE header "OAL1";
READ OAL2 from file IOFILE header "OAL2";
```

APPENDIX G: TASFISH1.TAB

```
READ OAL3 from file IOFILE header "OAL3";
READ OAL4 from file IOFILE header "OAL4";


READ OTHR from file IOFILE header "OTHR";

READ OTHR_EXP from file GACC header "OTEX";

READ OTH_REV from file GACC header "OTRV";

READ PTAX from file IOFILE header "PTAX";
READ CTAX from file IOFILE header "CTAX";



READ RKL1 from file IOFILE header "RKL1";
READ RKL2 from file IOFILE header "RKL2";
READ RKL3 from file IOFILE header "RKL3";


READ SAL1 from file IOFILE header "SAL1";
READ SAL2 from file IOFILE header "SAL2";
READ SAL3 from file IOFILE header "SAL3";
READ SAL4 from file IOFILE header "SAL4";

READ SIG from file PARAM Header "SIG";

READ TARF from file IOFILE header "TARF";

READ TAX11 from file IOFILE Header "TX11";

READ TAX12  from file IOFILE Header "TX12";

READ TAX13 from file IOFILE header "TX13";

READ TAX31 from file IOFILE header "TX31";

READ TAX32 from file IOFILE Header "TX32";

READ TAX33 from file IOFILE header "TX33";

READ TAX36 from file IOFILE Header "TX36";

READ TAX37 from file IOFILE header "TX37";

READ TRAN6 from file IOFILE header "TRN6";

READ VES1 from file IOFILE Header "VES1";
READ VES2 from file IOFILE Header "VES2";
READ VES3 from file IOFILE Header "VES3";


! 5: FORMULAE  !
FORMULA  (all,i,COM) (all,s,SOU) S3(i,s) =
            (BAS3(i,s)+TAX13(i,s)+TAX33(i,s) ) /
            sum(t,SOU, (BAS3(i,t)+TAX13(i,t)+TAX33(i,t)));

FORMULA (all,i,COM) (all,s,SOU) S3_BAS(i,s) =
            BAS3(i,s) / (BAS3(i,s)+TAX13(i,s)+TAX33(i,s) );

FORMULA (all,i,COM) (all,s,SOU) S3_T31(i,s) =
            TAX13(i,s) / (BAS3(i,s)+TAX13(i,s)+TAX33(i,s) );

FORMULA (all,i,COM) (all,s,SOU) S3_T33(i,s) =
            TAX33(i,s) / (BAS3(i,s)+TAX13(i,s)+TAX33(i,s) );

FORMULA (all,i,COM) (all,t,SOU) (all,j,IND) S2(i,t,j) =
            (BAS2(i,j,t) + TAX12(i,j,t) + TAX32(i,j,t)) /
            sum(s,SOU, (BAS2(i,j,s) + TAX12(i,j,s) + TAX32(i,j,s)));

FORMULA (all,i,COM) (all,t,SOU) (all,j,IND) S2_BAS(i,t,j) =
            BAS2(i,j,t) / (BAS2(i,j,t) + TAX12(i,j,t) + TAX32(i,j,t));

FORMULA (all,i,COM) (all,t,SOU) (all,j,IND) S2_T21(i,t,j) =
            TAX12(i,j,t) / (BAS2(i,j,t) + TAX12(i,j,t) + TAX32(i,j,t));
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,i,COM) (all,t,SOU) (all,j,IND) S2_T23(i,t,j) =
        TAX32(i,j,t) / (BAS2(i,j,t) + TAX12(i,j,t) + TAX32(i,j,t));



FORMULA (all,j,IND) (all,m,COM) REV_SHARE_M(j,m) =
        MAKE(m,j) / (sum(i,COM,MAKE(i,j)));

FORMULA (all,j,IND) (all,m,COM) H_SALES(j,m) =
        MAKE(m,j) / sum(i,COM, MAKE(i,j));

FORMULA (all,j,IND) TOT_COST(j) =
        sum(i,COM,sum(s,SOU,BAS1(i,j,s) +
        TAX11(i,j,s) + TAX31(i,j,s))) + LAB1(j) + LAB2(j)
        + LAB3(j) + sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)
        + LAN1(t,j) + LAN2(t,j) + VES1(t,j) + VES2(t,j) + VES3(t,j) +
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j) + ABD1(t,j)
        + ABD2(t,j) + ABD3(t,j) + RKL1(t,j) + RKL2(t,j) + RKL3(t,j)
        + SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j) + OAL1(t,j)
        + OAL2(t,j) + OAL3(t,j) + OAL4(t,j ) + MAL1(t,j) + MAL2(t,j)
        + MAL3(t,j) + MAL4(t,j) + OTHR(t,j)) + FIS1(j) + CTAX(j)
        + PTAX(j);


FORMULA (all,j,IND) H_CTAX(j) = CTAX(j) / TOT_COST(j);

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) H_INT(i,s,j) =
        (BAS1(i,j,s) + TAX11(i,j,s) + TAX31(i,j,s)) /
        TOT_COST(j);

FORMULA (all,j,IND) TOT_FAC(j)
        = LAB1(j) + LAB2(j) + LAB3(j) +
        (sum(t,owners,CAP1(t,j) + CAP2(t,j) + CAP3(t,j))) +
        (sum(t,owners, VES1(t,j) + VES2(t,j) + VES3(t,j))) +
        (sum(t,owners, RKL1(t,j) + RKL2(t,j) + RKL3(t,j))) +
        (sum(t,owners,SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j))) +
        (sum(t,owners,MAL1(t,j) + MAL2(t,j) + MAL3(t,j) + MAL4(t,j))) +
        (sum(t,owners,OAL1(t,j) + OAL2(t,j) + OAL3(t,j) + OAL4(t,j))) +
        (sum(t,owners, LAN1(t,j) + LAN2(t,j))) +
        (sum(t,owners, ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j))) +
        (sum(t,owners, ABD1(t,j) + ABD2(t,j) + ABD3(t,j)) )+
        FIS1(j);


FORMULA (all,j,IND) H_FAC("ab_quota",j) =
        (sum(t,owners,ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j)
        + ABQ4(t,j))) / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("ab_dive",j) =
        (sum(t,owners,ABD1(t,j) + ABD2(t,j) + ABD3(t,j)
        )) / TOT_COST(j);


FORMULA (all,j,IND) H_FAC("lab",j) =
        (LAB1(j) + LAB2(j) + LAB3(j)) / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("cap",j) =
        (sum(t,owners,CAP1(t,j) + CAP2(t,j) + CAP3(t,j))) / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("land",j) =
        (sum(t,owners,LAN1(t,j) + LAN2(t,j) )) / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("ves_lic",j) =
        (sum(t,owners, VES1(t,j) + VES2(t,j) + VES3(t,j)))
        / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("pot_lic",j) =
        (sum(t,owners, RKL1(t,j) + RKL2(t,j) + RKL3(t,j)))
        / TOT_COST(j);

FORMULA (all,j,IND) H_FAC("aq_sal",j) =
        (sum(t,owners,SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j))) /
        TOT_COST(j);
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,j,IND) H_FAC("aq_mus",j) =
        (sum(t,owners,MAL1(t,j) + MAL2(t,j) + MAL3(t,j) + MAL4(t,j))) /
        TOT_COST(j);

FORMULA (all,j,IND) H_FAC("aq_oys",j) =
        (sum(t,owners,OAL1(t,j) + OAL2(t,j) + OAL3(t,j) + OAL4(t,j))) /
        TOT_COST(j);

FORMULA (all,j,IND) H_FAC("fis",j) =
        FIS1(j) / TOT_COST(j);


FORMULA (all,j,IND) S_FAC("ab_dive",j) =
        sum(t,owners,ABD1(t,j) +ABD2(t,j) +ABD3(t,j))
         / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("ab_quota",j) =
        sum(t,owners,ABQ1(t,j) +ABQ2(t,j)+ ABQ3(t,j)
        +ABQ4(t,j)) / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("lab",j) =
        (LAB1(j) + LAB2(j) + LAB3(j)) / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("land",j) =
        (sum(t,owners,LAN1(t,j) + LAN2(t,j) ))
        / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("cap",j) =
        (sum(t,owners,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)))
         / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("ves_lic",j) =
        (sum(t,owners, VES1(t,j) + VES2(t,j) + VES3(t,j)))
        / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("pot_lic",j) =
        (sum(t,owners, RKL1(t,j) + RKL2(t,j) + RKL3(t,j)))
        / TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("aq_sal",j) =
        (sum(t,owners,SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j))) /
        TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("aq_mus",j) =
        (sum(t,owners,MAL1(t,j) + MAL2(t,j) + MAL3(t,j) + MAL4(t,j))) /
        TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("aq_oys",j) =
        (sum(t,owners,OAL1(t,j) + OAL2(t,j) + OAL3(t,j) + OAL4(t,j))) /
        TOT_FAC(j);

FORMULA (all,j,IND) S_FAC("fis",j) =
        FIS1(j) / TOT_FAC(j);

FORMULA (all,j,IND) H_PT(j) = PTAX(j) /
        TOT_COST(j);

FORMULA (all,j,IND) (all,t,OWNERS) H_OC(t,j) =
        OTHR(t,j) / TOT_COST(j);

FORMULA (all,i,COM) (all,t,SOU) (all,j,IND) S2(i,t,j) =
        (BAS2(i,j,t) + TAX12(i,j,t) + TAX32(i,j,t)) /
        sum(s,SOU, (BAS2(i,j,s) +
        TAX12(i,j,s) + TAX32(i,j,s)));

FORMULA (all,m,COM) MAIN_EXP(m) = BAS6(m) +
        TAX36(m) +TRAN6(m);

FORMULA (all,i,COM) H0I6(i) = BAS6(i) / MAIN_EXP(i);

FORMULA (all,i,COM) HMI6(i) = TRAN6(i) / MAIN_EXP(i);

FORMULA (all,i,COM) H3I6(i) = TAX36(i) / MAIN_EXP(i);

FORMULA (all,i,COM) BAS_IMP(i) =
```

APPENDIX G: TASFISH1.TAB

```
            sum(j,IND,BAS1(i,j,"A3") + BAS2(i,j,"A3"))
            + BAS3(i,"A3") + TARF(i);

FORMULA (all,i,COM) S_IMP(i)
            = (BAS_IMP(i) - TARF(i)) / BAS_IMP(i);

FORMULA (all,i,COM) S_TARIFF(i) =
            TARF(i) / BAS_IMP(i);

FORMULA (all,i,EXP) SX_BASIC(i) =
            BAS7(i) / (BAS7(i) + TAX37(i));

FORMULA (all,i,EXP) S_XTAX(i) =
            TAX37(i) / (BAS7(i) + TAX37(i));

FORMULA (all,i,COM) (all,j,IND) MK_SHR(j,i) = MAKE(i,j)
            / sum(k,IND,MAKE(i,k));

FORMULA (all,i,COM) TOT_OUTPUT(i) =
            sum(j,IND,BAS1(i,j,"A1") + BAS2(i,j,"A1"))
            + BAS3(i,"A1") + BAS4(i,"A1") + BAS5(i)
            + BAS6(i) + BAS7(i);

FORMULA (all,i,COM) (all,j,IND) INT_SHR(i,j) =
            BAS1(i,j,"A1") / TOT_OUTPUT(i);

FORMULA (all,i,COM) (all,j,IND) INV_SHR(i,j) =
            BAS2(i,j,"A1") / TOT_OUTPUT(i);

FORMULA (all,i,COM) HOUS_SHR(i) = BAS3(i,"A1") /
            TOT_OUTPUT(i);

FORMULA (all,i,COM) STATE_SHR(i) = BAS4(i,"A1") /
            TOT_OUTPUT(i);

FORMULA (all,i,COM) CW_SHR(i) = BAS5(i) /
            TOT_OUTPUT(i);

FORMULA (all,i,COM) MEX_SHR(i) =
            BAS6(i) / TOT_OUTPUT(i);

FORMULA (all,i,COM) OEX_SHR(i) =
            BAS7(i) / TOT_OUTPUT(i);

FORMULA (all,i,COM) MAIN_IMP(i) =
            sum(j,IND,BAS1(i,j,"A2")
            + BAS2(i,j,"A2") )
            + BAS3(i,"A2") + BAS4(i,"A2");

FORMULA (all,i,COM) (all,j,IND) W1(i,j) =
            BAS1(i,j,"A2") / MAIN_IMP(i);

FORMULA (all,i,COM) (all,j,IND) W2(i,j) = BAS2(i,j,"A2") /
            MAIN_IMP(i);

FORMULA (all,i,COM) W3(i) =
            BAS3(i,"A2") / MAIN_IMP(i);

FORMULA (all,i,COM) W4(i) =
            BAS4(i,"A2") / MAIN_IMP(i);

FORMULA (all,i,COM) OS_IMP(i) =
            sum(j,IND,BAS1(i,j,"A3") +
            BAS2(i,j,"A3")) +
            BAS3(i,"A3") +
            BAS4(i,"A3");

FORMULA (all,i,COM) (all,j,IND) WW1(i,j) =
            BAS1(i,j,"A3") / OS_IMP(i);

FORMULA (all,i,COM) (all,j,IND) WW2(i,j) = BAS2(i,j,"A3") /
            OS_IMP(i);

FORMULA (all,i,COM) WW3(i) =
            BAS3(i,"A3") / OS_IMP(i);
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,i,COM) WW4(i) =
        BAS4(i,"A3") / OS_IMP(i);

FORMULA (all,j,IND) SH_CAP(j) =
        sum(t,OWNERS,CAP1(t,j) + CAP2(t,j) + CAP3(t,j)) /
        sum(t,OWNERS,sum(k,IND,CAP1(t,k) + CAP2(t,k)
        + CAP3(t,k)));

FORMULA VES_LIC =
        sum(t,OWNERS,sum(j,IND,VES1(t,j) +
        VES2(t,j) + VES3(t,j)));

FORMULA (all,j,IND) LIC_SHR("ves_lic",j) =
        sum(t,OWNERS,VES1(t,j) + VES2(t,j) + VES3(t,j)) /
        VES_LIC;

FORMULA POT_LIC =
        sum(t,OWNERS,sum(j,IND,RKL1(t,j)
        + RKL2(t,j) + RKL3(t,j)));

FORMULA (all,j,IND) LIC_SHR("pot_lic",j) =
        sum(t,OWNERS,RKL1(t,j) + RKL2(t,j) + RKL3(t,j)) /
        POT_LIC;

FORMULA AB_QUOTA = sum(t,OWNERS,sum(j,IND,
        ABQ1(t,j) + ABQ2(t,j) + ABQ3(t,j) + ABQ4(t,j)));

FORMULA (all,j,IND) LIC_SHR("ab_quota",j) =
        sum(t,OWNERS, ABQ1(t,j) + ABQ2(t,j) +
        ABQ3(t,j) + ABQ4(t,j)) / AB_QUOTA;

FORMULA AB_DIVE = sum(t,OWNERS,sum(j,IND,
        ABD1(t,j) + ABD2(t,j) + ABD3(t,j)));

FORMULA (all,j,IND) LIC_SHR("ab_dive",j) = sum(t,OWNERS,
        ABD1(t,j) + ABD2(t,j) + ABD3(t,j)) / AB_DIVE;

FORMULA SAL_LIC = sum(t,OWNERS,sum(j,IND,
        SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j)));

FORMULA (all,j,IND) LIC_SHR("aq_sal",j) = sum(t,OWNERS,
        SAL1(t,j) + SAL2(t,j) + SAL3(t,j) + SAL4(t,j)) /
        SAL_LIC;

FORMULA OYS_LIC = sum(t,OWNERS,sum(j,IND,
        OAL1(t,j) + OAL2(t,j) + OAL3(t,j) + OAL4(t,j)));

FORMULA (all,j,IND) LIC_SHR("aq_oys",j) = sum(t,OWNERS,
        OAL1(t,j) + OAL2(t,j) + OAL3(t,j) + OAL4(t,j)) /
        OYS_LIC;

FORMULA MUS_LIC = sum(t,OWNERS,sum(j,IND,
        MAL1(t,j) + MAL2(t,j) + MAL3(t,j) + MAL4(t,j)));

FORMULA (all,j,IND) LIC_SHR("aq_mus",j) = sum(t,OWNERS,
        MAL1(t,j) + MAL2(t,j) + MAL3(t,j) + MAL4(t,j)) /
        MUS_LIC;

FORMULA (all,j,IND) LIC_SHR("fis",j) = FIS1(j) /
        sum(k,IND,FIS1(k));

FORMULA (all,j,IND) SH_LAB(j) =
        (LAB1(j) + LAB2(j) + LAB3(j)) /
        sum(k,IND,LAB1(k) + LAB2(k) + LAB3(k));

FORMULA  (all,j,IND) SH_H_WAGE(j) =
        (LAB1(j) + LAB2(j)) /
        (LAB1(j) + LAB2(j) + LAB3(j));

FORMULA  (all,j,IND) SH_PAYROLL(j) =
        LAB3(j) / (LAB1(j) + LAB2(j) + LAB3(j));

FORMULA (all,i,COM) GSP_SH(i) = sum(j,IND,MAKE(i,j)) /
        sum(j,IND,sum(m,COM,MAKE(m,j)));
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,i,COM) (all,s,SOU) CPI_SH(i,s) =
        (BAS3(i,s) + TAX13(i,s) + TAX33(i,s)) /
        sum(m,COM,sum(t,SOU, (BAS3(m,t) +
        TAX13(m,t) + TAX33(m,t))));

FORMULA TOT_INVEST =
        sum(i,COM,sum(s,SOU,
        sum(j,IND,BAS2(i,j,s) +
        TAX12(i,j,s) + TAX32(i,j,s))));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) IPI_SH(i,s,j)
        = ( BAS2(i,j,s) +
        TAX12(i,j,s) + TAX32(i,j,s) ) / TOT_INVEST;

FORMULA (all,i,COM) MEX_PI(i) =
        (BAS6(i) + TAX36(i)) / sum(m,COM,
        (BAS6(m) + TAX36(m)) );

FORMULA (all,i,COM) OEX_PI(i) =
        (BAS7(i) + TAX37(i)) / sum(m,COM,
        (BAS7(m) + TAX37(m))) ;

FORMULA (all,j,IND) G_SH(j) =  (LAB1(j) + LAB2(j))
        / sum(k,IND, LAB1(k) + LAB2(k));

FORMULA (all,j,IND) J_SHARE(j) =
        (CAP1("Tas",j) + CAP2("Tas",j) + CAP3("Tas",j)) /
        sum(k,IND, (CAP1("Tas",k) + CAP2("Tas",k) + CAP3("Tas",k)));

FORMULA GROSS_LIC = sum(j,IND,(VES1("Tas",j)
        + VES2("Tas",j) + VES3("Tas",j)
        +ABQ1("Tas",j) +ABQ2("Tas",j)
        +ABQ3("Tas",j) +ABQ4("Tas",j)
        + ABD1("Tas",j) + ABD2("Tas",j)
        + ABD3("Tas",j) + RKL1("Tas",j)
        + RKL2("Tas",j) + RKL3("Tas",j)
        + SAL1("Tas",j) + SAL2("Tas",j)
        + SAL3("Tas",j) + SAL4("Tas",j)
        + OAL1("Tas",j) + OAL2("Tas",j)
        + OAL3("Tas",j) + OAL4("Tas",j)
        + MAL1("Tas",j) + MAL2("Tas",j)
        + MAL3("Tas",j) + MAL4("Tas",j)));

FORMULA (all,j,IND) YLIC_SHARE(j,"ves_lic")
        = (VES1("Tas",j) + VES2("Tas",j)
        + VES3("Tas",j) ) / GROSS_LIC;

FORMULA (all,j,IND) YLIC_SHARE(j,"pot_lic") =
        (RKL1("Tas",j) + RKL2("Tas",j) + RKL3("Tas",j))/
        GROSS_LIC;

FORMULA (all,j,IND) YLIC_SHARE(j, "ab_quota") =
        (+ABQ1("Tas",j) +ABQ2("Tas",j)
        +ABQ3("Tas",j) +ABQ4("Tas",j) ) / GROSS_LIC;

FORMULA (all,j,IND) YLIC_SHARE(j,"ab_dive") =
        (+ ABD1("Tas",j) + ABD2("Tas",j)
        + ABD3("Tas",j) ) / GROSS_LIC ;

FORMULA (all,j,IND) YLIC_SHARE(j,"aq_sal") =
        ( SAL1("Tas",j) + SAL2("Tas",j)
        + SAL3("Tas",j) + SAL4("Tas",j)) /
        GROSS_LIC;

FORMULA (all,j,IND) YLIC_SHARE(j,"aq_mus") =
        (MAL1("Tas",j) + MAL2("Tas",j)
        + MAL3("Tas",j) + MAL4("Tas",j) ) /
        GROSS_LIC;

FORMULA (all,j,IND) YLIC_SHARE(j,"aq_oys") =
        (OAL1("Tas",j) + OAL2("Tas",j)
        + OAL3("Tas",j) + OAL4("Tas",j)) /
        GROSS_LIC;
```

APPENDIX G: TASFISH1.TAB

```
FORMULA INC_TAX =
            sum(j,IND, LAB2(j) + CAP2("Tas",j) + CAP3("Tas",j) + VES2("Tas",j)
            + ABQ2("Tas",j) + ABD2("Tas",j) + RKL2("Tas",j) + SAL2("Tas",j)
             + OAL2("Tas",j) + MAL2("Tas",j) + LAN2("Tas",j));

FORMULA  B_ONE
            = sum(j,IND, LAB2(j)) / INC_TAX;


FORMULA  B_TWO
            = sum(j,IND,CAP2("Tas",j)) / INC_TAX;

FORMULA  B_THREE =
            sum(j,IND,VES2("Tas",j)) / INC_TAX;

FORMULA  B_FOUR = sum(j,IND,ABQ2("Tas",j)) / INC_TAX;

FORMULA B_FIVE = sum(j,IND,ABD2("Tas",j)) / INC_TAX;

FORMULA  B_SIX = sum(j,IND,RKL2("Tas",j)) / INC_TAX;

FORMULA B_SEVEN = sum(j,IND,SAL2("Tas",j)) / INC_TAX;

FORMULA B_EIGHT = sum(j,IND,OAL2("Tas",j)) / INC_TAX;

FORMULA B_NINE = sum(j,IND,MAL2("Tas",j)) / INC_TAX;

FORMULA B_TEN = sum(j,IND,CAP3("Tas",j)) / INC_TAX;

FORMULA B_ELEVEN = sum(j,IND,LAN2("Tas",j)) / INC_TAX;

FORMULA (all,j,IND) PAYE(j) =
             LAB2(j) / sum(k,IND,LAB2(k));

FORMULA (all,j,IND) K_TAX(j) =
            CAP2("Tas",j) / sum(k,IND,CAP2("Tas",k));

FORMULA (all,j,IND) V_TAX(j) =
            VES2("Tas",j) / sum(k,IND, VES2("Tas",k));

FORMULA (all,j,IND) ABQ_TAX(j) =
            ABQ2("Tas",j) / sum(k,IND, ABQ2("Tas",k));

FORMULA (all,j,IND) SAL_TAX(j) =
            SAL2("Tas",j) / sum(k,IND,SAL2("Tas",k));

FORMULA (all,j,IND) RL_TAX(j) = RKL2("Tas",j) /
            sum(k,IND,RKL2("Tas",k));

FORMULA (all,j,IND) OY_TAX(j) = OAL2("Tas",j) /
            sum(k,IND, OAL2("Tas",k));

FORMULA (all,j,IND) MUS_TAX(j) =
            MAL2("Tas",j) / sum(k,IND, MAL2("Tas",k));

FORMULA TOT_LIC_FEE =
             sum(j,IND,VES3("Tas",j)
            + ABQ3("Tas",j) + ABQ4("Tas",j)
            + ABD3("Tas",j) + RKL3("Tas",j)
            + SAL3("Tas",j) + SAL4("Tas",j)
            + OAL3("Tas",j) + OAL4("Tas",j)
            + MAL3("Tas",j) + MAL4("Tas",j));

FORMULA (all,j,IND) SL_FEE_VES(j) = VES3("Tas",j) /
            TOT_LIC_FEE;

FORMULA (all,j,IND) SL_ROY_ABQ(j) = ABQ3("Tas",j) /
            TOT_LIC_FEE;

FORMULA (all,j,IND) SL_FEE_ABQ(j) = ABQ4("Tas",j) /
            TOT_LIC_FEE;

FORMULA (all,j,IND) SL_FEE_ABD(j) = ABD3("Tas",j) /
            TOT_LIC_FEE;
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,j,IND) SL_FEE_RL(j) = RKL3("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_RENT_SAL(j) = SAL4("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_FEE_SAL(j) = SAL3("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_RENT_OYS(j) = OAL4("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_FEE_OYS(j) = OAL3("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_RENT_MUS(j) = MAL4("Tas",j) /
        TOT_LIC_FEE;

FORMULA (all,j,IND) SL_FEE_MUS(j) = MAL3("Tas",j) /
        TOT_LIC_FEE;

FORMULA GRSS_INC =
        (sum(j,IND,LAB1(j) + LAB2(j)) +
        sum(j,IND,CAP1("Tas",j) + CAP2("Tas",j) +
        CAP3("Tas",j))+ SUM(j,ind,LAN1("Tas",j) +
        LAN2("Tas",j)) + GROSS_LIC);


FORMULA G_W = sum(j,IND,LAB1(j) + LAB2(j)) /
        GRSS_INC;

FORMULA G_D = sum(j,IND,CAP1("Tas",j) + CAP2("Tas",j) +
        CAP3("Tas",j)) / GRSS_INC;

FORMULA G_L = GROSS_LIC /
        GRSS_INC;

FORMULA G_LAND = sum(j,IND,LAN1("Tas",j) +
        LAN2("Tas",j)) / GRSS_INC;


FORMULA S_YTAX = INC_TAX /
        (TOT_LIC_FEE + INC_TAX) ;

FORMULA S_LFEE = TOT_LIC_FEE /
        (TOT_LIC_FEE + INC_TAX) ;

FORMULA HOUSE_TAX = TOT_LIC_FEE + INC_TAX +
        sum(j,IND, CAP3("Tas",j) + LAN2("Tas",j));

FORMULA NET_INC = GRSS_INC - HOUSE_TAX;

FORMULA NET1  = GRSS_INC / NET_INC;

FORMULA NET2 = HOUSE_TAX / NET_INC;

FORMULA (all,j,IND) INVESTMENT(j) =
         sum(m,COM,sum(s,SOU,BAS2(m,j,s) +
         TAX12(m,j,s) + TAX32(m,j,s)));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND)
        S2_IS(i,s,j) = (BAS2(i,j,s) + TAX12(i,j,s) + TAX32(i,j,s)) /
        INVESTMENT(j);

FORMULA (all,j,IND) S_INVEST(j) =
        INVESTMENT(j) / sum(k,IND,INVESTMENT(k));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) S1(i,s,j) =
        (BAS1(i,j,s) + TAX11(i,j,s) + TAX31(i,j,s) ) /
        sum(t,SOU, (BAS1(i,j,t) + TAX11(i,j,t) + TAX31(i,j,t) ));

FORMULA (all,j,IND) DL_TAX(j) = ABD2("Tas",j) /
        sum(k,IND, ABD2("Tas",k));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) S_BAS1(i,s,j) = BAS1(i,j,s) /
```

APPENDIX G: TASFISH1.TAB

```
            (BAS1(i,j,s) + TAX11(i,j,s) + TAX31(i,j,s));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) S_TAX11(i,s,j) =
            TAX11(i,j,s) / (BAS1(i,j,s) + TAX11(i,j,s) + TAX31(i,j,s));

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) S_TAX31(i,s,j) =
            TAX31(i,j,s) / (BAS1(i,j,s) + TAX11(i,j,s) + TAX31(i,j,s));

FORMULA  GOV_REV = sum(j,IND,sum(t,OWNERS,ABD3(t,j)
            + ABQ3(t,j) + ABQ4(t,j) + RKL3(t,j) + VES3(t,j) + CAP3(t,j)
            + SAL3(t,j) + SAL4(t,j) + OAL4(t,j) + OAL3(t,j)
            + MAL3(t,j) + MAL4(t,j))) + sum(j,IND,PTAX(j) + LAB3(j) )
            + sum(i,COM,sum(s,SOU,sum(j,IND,TAX11(i,j,s) + TAX12(i,j,s))))
            + sum(i,COM,sum(s,SOU,TAX13(i,s))) + OTH_REV;

FORMULA R_OTH_REV = OTH_REV / GOV_REV;

FORMULA (all,j,IND) Q_S(j) = sum(t,OWNERS,CAP1(t,j) +
             CAP2(t,j) + CAP3(t,j)) / sum(t,OWNERS,CAP1(t,j));

FORMULA (all,j,IND) YTAX_P9(j) = sum(t,OWNERS,CAP2(t,j))/
            sum(t,OWNERS, CAP1(t,j) + CAP2(t,j) + CAP3(t,j));

FORMULA (all,j,IND) RESL_TAX(j) = sum(t,OWNERS,CAP3(t,j))/
            sum(t,OWNERS, CAP1(t,j) + CAP2(t,j) + CAP3(t,j));

FORMULA  (all,j,IND) R_RESLND(j) = sum(t,OWNERS,CAP3(t,j)) /
            GOV_REV;

FORMULA GOV_EX = sum(i,COM,sum(s,SOU,
            BAS4(i,s))) + OTHR_EXP;

FORMULA (all,i,COM) (all,s,SOU) G_EXP(i,s) =
            BAS4(i,s) / GOV_EX;

FORMULA S_OTHR_EXP = OTHR_EXP / GOV_EX;

FORMULA (all,j,IND) R_RENT_OYS(j) = sum(t,OWNERS,OAL4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_RENT_SAL(j) = sum(t,OWNERS,SAL4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_ABD(j) = sum(t,OWNERS, ABD3(t,j))/
            GOV_REV;

FORMULA (all,j,IND) R_ABQ(j) =  sum(t,OWNERS, ABQ4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_RENT_OYS(j) = sum(t,OWNERS,OAL4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_RENT_SAL(j) = sum(t,OWNERS,SAL4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_FEE_MUS(j) = sum(t,OWNERS,MAL3(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_FEE_RL(j) = sum(t,OWNERS,RKL3(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_FEE_SAL(j) = sum(t,OWNERS,SAL3(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_FEE_VL(j) = sum(t,OWNERS,VES3(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_RENT_MUS(j) = sum(t,OWNERS,MAL4(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_ROY_AB(j) = sum(t,OWNERS, ABQ3(t,j)) /
            GOV_REV;

FORMULA (all,j,IND) R_FEE_OYS(j) = sum(t,OWNERS,OAL3(t,j)) /
            GOV_REV;
```

APPENDIX G: TASFISH1.TAB

```
FORMULA (all,j,IND) R_PAYROLL(j) = LAB3(j) / GOV_REV;

FORMULA (all,j,IND) R_PTAX(j) = PTAX(j) / GOV_REV;

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) R_TAX11(i,s,j) = TAX11(i,j,s) /
        GOV_REV;

FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) R_TAX21(i,s,j) = TAX12(i,j,s) /
        GOV_REV;

FORMULA (all,i,COM) (all,s,SOU) R_TAX31(i,s) =
        TAX13(i,s) / GOV_REV;

FORMULA  (all,j,IND) RESTAX(j) = sum(t,OWNERS,CAP3(t,j)) /
        sum(t,OWNERS,sum(k,IND,CAP3(t,k)));



! STOP !

! 6: UPDATES AND CHECK DISPLAYS IN              !
!    ALPHABETICAL ORDER                         !



! 7: EQUATIONS IN THEMATIC ORDER                !
!   7.1: Household demands for composite commodities              !
EQUATION E_7_1
        (all,i,COM) x_hous(i) = c - p3_comp(i);

!   7.2: Household demands for commodities by source !
Equation E_7_2
        (all,i,COM) (all,s,SOU) x_hous_is(i,s) =
        x_hous(i) - (p3_is(i,s) - sum(t,SOU,S3(i,t) * p3_is(i,t)));


!   7.3: Government demands for commodities           !
EQUATION E_7_3a
        (all,i,COM) (all,s,SOU) x_state(i,s) = H_STATE(i)* c_real
        + f1_state(i,s) + f2_state(i) + f3_state;

EQUATION E_7_3b
        (all,i,COM) x_cw(i) = H_CW(i)*c_real + f_cw_i(i)
        + f5_cw;

! 7_4: Demands for commodities in capital creation !
EQUATION E_7_4a
        (all,i,COM) (all,j,IND) x_inv(i,j) = invest(j) + a_inv(i,j);

EQUATION E_7_4b
        (all,i,COM) (all,s,SOU) (all,j,IND) x_inv_s(i,s,j) =
        x_inv(i,j) - (p_inv(i,s,j) - sum(t,SOU,S2(i,t,j)*p_inv(i,t,j)));

! 7_5: Mainland export demand functions !
EQUATION E_7_5 (all,i,COM) p_six(i)
        = LAMBDA6(i)*x_six(i)+f_six(i);

! 7_6: Foreign export demand functions !
EQUATION E_7_6 (all,i,EXP) p_seven(i) =
        LAMBDA7(i)*x_seven(i) + f_seven(i);

EQUATION E_7_6A (all,i,NONEXP)
        x_seven(i) = f_xfordem(i);

! 7_7: Commodity composition of output of industry j !
EQUATION E_7_7
        (all,j,IND) (all,m,COM) x_out(j,m) =
        z(j) - SIG(j)*(p_basic(m,"A1") - sum(k,COM,
        REV_SHARE_M(j,k)*p_basic(k,"A1"))) + f_out(j,m);


! 7_8: Intermediate input demands !
! EQUATION E_7_8b (all,i,COM) (all,j,IND) x1(i,j) =
```

APPENDIX G: TASFISH1.TAB

```
            z(j) + a_one(i,j);!

!EQUATION W_7_8c (all,i,COM) (all,s,SOU) (all,j,IND)
            x1isj(i,s,j) = x1(i,j) - (p1(i,s,j) - SUM(t,SOU,
            S1(i,t,j) * p1(i,t,j)));!


VARIABLE (all,f,FISH) (all,j,IND) x_fish_j(f,j)
            #demand for fish commodity f by industry j#;

VARIABLE (all,f,FISH) (all,j,IND) p_fish_j(f,j)
            #price of fish f to industry j#;

COEFFICIENT (all,k,FISH) (all,j,IND) SFISH(k,j)
            #share of fish type k industry j's total usage of fish#;

COEFFICIENT (all,s,SOU) (all,f,FISH) (all,j,IND) SFISH_S(s,f,j)
            #share of fish f from source s in industry j's total use of fish#;

COEFFICIENT (all,j,IND) TOTFISH(j)
            #total usage of fish by industry j#;

COEFFICIENT (all,s,SOU) (all,f,FISH) (all,j,IND)
            FISH_SH2(s,f,j);

FORMULA (all,s,SOU) (all,f,FISH) (all,j,IND)
            FISH_SH2(s,f,j) = (BAS1(f,j,s) + TAX11(f,j,s) + TAX31(f,j,s)) /
            sum(t,SOU, BAS1(f,j,t) + TAX11(f,j,t) + TAX31(f,j,t));

FORMULA (all,j,IND) TOTFISH(j)=
             sum(i,FISH,sum(s,SOU,BAS1(i,j,s) +
             TAX11(i,j,s) + TAX31(i,j,s)));

FORMULA (all,k,FISH) (all,j,IND) SFISH(k,j) =
            sum(s,SOU,BAS1(k,j,s) + TAX11(k,j,s) + TAX31(k,j,s))
             / TOTFISH(j) ;

FORMULA (all,s,SOU) (all,k,FISH) (all,j,IND) SFISH_S(s,k,j) =
            (BAS1(k,j,s)+ TAX11(k,j,s) + TAX31(k,j,s)) / TOTFISH(j) ;

! Demand for intermediate inputs regardless of source (Level 1) !
EQUATION E_N1
(all,i,INTERCOM) (all,j,IND) x1(i,j) =
            z(j) + a_one(i,j);

! WAS !
! EQUATION E_7_8b (all,i,COM) (all,j,IND) x1(i,j) =
            z(j) + a_one(i,j); !

! Demand for FISH by industry j (Level 2) !
EQUATION E_N2
(all,f,FISH) (all,j,IND) x_fish_j(f,j) =
            x1("fish",j) - [p_fish_j(f,j) -
            sum(k,FISH,SFISH(k,j) * p_fish_j(k,j))];

EQUATION W_7_8c (all,i,NONFISH) (all,s,SOU) (all,j,IND)
            x1isj(i,s,j) = z(j) - (p1(i,s,j) - SUM(t,SOU,
            S1(i,t,j) * p1(i,t,j)));

! Price of fish f to industry j !
EQUATION E_N3
(all,f,FISH) (all,j,IND) p_fish_j(f,j) = sum(s,SOU,
            FISH_SH2(s,f,j) * p1(f,s,j));


! Demand for fish f from source s by industry j !
EQUATION E_N4
(all,f,FISH) (all,s,SOU) (all,j,IND) x1isj(f,s,j) =
            x_fish_j(f,j) -
            [p1(f,s,j) - sum(t,SOU,FISH_SH2(t,f,j) * p1(f,t,j))];

! 7_9: Demand for primary factor inputs !
EQUATION E_7_9a
            (all,j,IND) x_prim(j) = z(j) + a_prim(j);
```

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```
EQUATION E_7_9b
        (all,j,IND) (all,v,FAC) x_fac(v,j) = x_prim(j)
        - (p_fac(v,j) - sum(t,FAC,S_FAC(t,j)*p_fac(t,j)));

VARIABLE (all,j,IND) (all,v,FAC) test(v,j);

Equation E_test
        (all,j,IND) (all,v,FAC) test(v,j) = x_prim(j)
        - (p_fac(v,j) - sum(t,FAC,S_FAC(t,j)*p_fac(v,j)));


! 7_10: Zero pure profits in production !
EQUATION E_7_10
        (all,j,IND) sum(m,COM,H_SALES(j,m)*p_basic(m,"A1"))
        = sum(i,COM,sum(s,SOU, H_INT(i,s,j)* p1(i,s,j) ))
        + sum(v,FAC,H_FAC(v,j) * p_fac(v,j) )
        + H_PT(j) * p_ptax(j)
        + sum(t,OWNERS, H_OC(t,j) * p_oc(t,j) )
        + H_CTAX(j) * cprodtax(j);

! WAS !
! 7_10: Zero pure profits in production !
! EQUATION E_7_10
        (all,j,IND) sum(m,COM,H_SALES(j,m)*(p_basic(m,"A1") + x_out(j,m)))
        = sum(i,COM,sum(s,SOU, H_INT(i,s,j)*(p1(i,s,j) + x1isj(i,s,j))))
        +  sum(v,FAC,H_FAC(v,j)*(p_fac(v,j) + x_fac(v,j)))
        + H_PT(j) * (p_ptax(j) + x_ptax(j))
        + sum(t,OWNERS, H_OC(t,j) * (p_oc(t,j) + x_oc(t,j)))
        + H_CTAX(j) * cprodtax(j);!

EQUATION E_7_10A
        (all,i,COM) (all,s,SOU) (all,j,IND) p1(i,s,j) = S_BAS1(i,s,j) * p_basic(i,s)
        + S_TAX11(i,s,j) * t1_tax_11(i,s,j) + S_TAX31(i,s,j) * t1_tax_31(i,s,j);


! 7_11: Zero pure profits in creation of composite goods for HH consumption !
EQUATION E_7_11
        (ALL,i,COM) p3_comp(i)  =
        sum(s,SOU,S3(i,s) *  p3_is(i,s) );

! 7_11A: Zero pure profits in supply of goods to households !
EQUATION E_7_11A
        (all,i,COM) (all,s,SOU) p3_is(i,s) = S3_BAS(i,s) * p_basic(i,s)
        + S3_T31(i,s) * tax_31(i,s) + S3_T33(i,s) * tax_33(i,s);

! 7_12: Zero pure profits in capital creation !
EQUATION E_7_12 (all,j,IND) p_cap(j) =
        sum(i,COM,sum(s,SOU,S2_IS(i,s,j) * (p_inv(i,s,j) + a2(i,s,j)))) ;

EQUATION E_7_12A (all,i,COM) (all,s,SOU) (all,j,IND) p_inv(i,s,j) =
        S2_BAS(i,s,j) * p_basic(i,s) + S2_T21(i,s,j) * tax_21(i,s,j)
        + S2_T23(i,s,j) * tax_23(i,s,j);


! 7_13: Zero pure profits in exporting goods to the Mainland !
EQUATION E_7_13
        (all,i,COM) p_six(i) = H0I6(i) * p_basic(i,"A1") +
        HMI6(i) * p_tran6(i) + H3I6(i) * t_36(i) ;

! 7_14: Zero pure profits in exporting goods overseas !
EQUATION E_7_14
        (all,i,EXP) p_seven(i) + x_rate = SX_BASIC(i) * p_basic(i,"A1")
        + S_XTAX(i) * ti7(i);

! 7_15: Zero pure profits in importing goods from overseas !
EQUATION E_7_15
        (all,i,COM) p_basic(i,"A3") =  S_IMP(i) *(x_rate + p_imp(i))
        + S_TARIFF(i) * tariff(i);


! 7_15A: Zero pure profits in importing goods from the Mainland !
EQUATION E_7_15A
        (all,i,COM) p_basic(i,"A2") = p_main_m(i);

! 7_16: Demand equals supply for Tasmanian produced commodities !
```

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```
EQUATION E_7_16a
        (all,i,COM) x_supply(i,"A1") =
        sum(j,IND, INT_SHR(i,j) *  x1isj(i,"A1",j) )+
        sum(j,IND, INV_SHR(i,j) * x_inv_s(i,"A1",j) )+
        HOUS_SHR(i) * x_hous_is(i,"A1")+
        STATE_SHR(i) *x_state(i,"A1")+
        CW_SHR(i) *  x_cw(i) +
        MEX_SHR(i) *  x_six(i)  +
        OEX_SHR(i) *  x_seven(i);

EQUATION E_7_16b
        (all,i,COM) x_supply(i,"A1") =
        sum(j,IND, MK_SHR(j,i) * x_out(j,i));


! 7_17: Demand equals supply of imports from Mainland !
EQUATION E_7_17
        (all,i,COM) x_supply(i,"A2") = W3(i) *  x_hous_is(i,"A2")
        +  W4(i) * x_state(i,"A2")
        + sum(j,IND, W2(i,j) *  x_inv_s(i,"A2",j))
        + sum(j,IND, W1(i,j) *  x1isj(i,"A2",j));


! 7_18: Demand equals supply of overseas imports !
EQUATION E_7_18
        (all,i,COM) x_supply(i,"A3") = WW3(i) * x_hous_is(i,"A3")
        + WW4(i) *  x_state(i,"A3")
        + sum(j,IND, WW2(i,j) * x_inv_s(i,"A3",j))
        + sum(j,IND, WW1(i,j) * x1isj(i,"A3",j));

! 7_19: Demand equals supply of labour !
EQUATION E_7_19
        sum(j,IND, SH_LAB(j) *  x_fac("lab",j)) =
        labour;


! Demand equals supply of land !

VARIABLE land
        #supply of agricultural land#;

COEFFICIENT (all,j,IND) SH_LAND(j);

FORMULA (all,j,IND) SH_LAND(j) =
        sum(t,OWNERS,LAN1(t,j) + LAN2(t,j)) /
        sum(h,OWNERS,sum(k,IND,LAN1(h,k)
        + LAN2(h,k)));

EQUATION E_7_x
        sum(j,IND, SH_LAND(j) *  x_fac("land",j)) =
        land;


! 7_20: Demand equals supply of capital !
EQUATION E_7_20
        (all,j,IND) x_fac("cap",j)  =  k_0(j);


! 7_21: Demand equals supply of licence type t  !
EQUATION E_7_21A
        (all,l,LICENCE) lic_supply(l) =
        sum(j,IND,LIC_SHR(l,j) * x_fac(l,j));

! 7_22: Prices of goods to the Tasmanian State government !
EQUATION E_7_22
        (all,i,COM) (all,s,SOU) p_state(i,s) = p_basic(i,s);

! 7_23: GSP deflator !
EQUATION E_7_23
        gsp_def =
        sum(i,COM,GSP_SH(i) * p_basic(i,"A1"));

! 7_24: CPI !
EQUATION E_7_24
        cpi = sum(i,COM, sum(s,SOU,
```

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```
            CPI_SH(i,s) * p3_is(i,s)));

! 7_25: IPI  !
EQUATION E_7_25
            ipi = sum(i,COM, sum(s,SOU,sum(j,IND,
            IPI_SH(i,s,j) * p_inv(i,s,j)))) ;

 ! 7_26: GPI !
EQUATION E_7_26
            gpi = sum(i,COM,sum(s,SOU, (BAS4(i,s) /
            ( sum(t,COM,sum(k,SOU,BAS4(t,k)  )  )  ) )* p_state(i,s) ))  ;

! 7_27: MPI - Mainland export price index !
            EQUATION E_7_27
            mpi = sum(i,COM, MEX_PI(i) * p_six(i)) ;

! 7_28: OPI - Overseas export price index !
EQUATION E_7_28
            opi = sum(i,COM,OEX_PI(i) * p_basic(i,"A1"));

! 7_29: Real household wages  !
EQUATION E_7_29
            (all,j,IND) hous_wage(j) = H_W(j) * cpi
            + real_hh_wage(j);

! Producer Wage !
EQUATION E_7_29A
            (all,j,IND) p_fac("lab",j) = SH_H_WAGE(j) * hous_wage(j)
            + SH_PAYROLL(j) * t_payroll(j);

! 7_30: Aggregate capital stock  !
EQUATION E_7_30
            capital = sum(j,IND, SH_CAP(j) * k_0(j));

! 7_31: Gross houeshold wages income !
EQUATION E_7_31
            gross_wage  = sum(j,IND,G_SH(j) * (hous_wage(j) +
            x_fac("lab",j)));

! 7_32: Gross capital income to Tasmanian households !
EQUATION E_7_32
            cap_income = sum(j,IND, J_SHARE(j) * (p_capital(j) +
            x_fac("cap",j)));

! 7_33 Gross licence income to Tasmanian households !
EQUATION E_7_33
            lic_income = sum(t,LICENCE,sum(j,IND,YLIC_SHARE(j,t) *
            (p_fac(t,j) + x_fac(t,j))));

! 7_34 Income tax paid by Tasmanian residents !
EQUATION E_7_34
            income_tax = B_ONE * b1 + B_TWO * b2 + B_THREE * b3
            + B_FOUR * b4 + B_FIVE * b5 + B_SIX * b6 + B_SEVEN * b7
            + B_EIGHT * b8 + B_NINE * b9 + B_TEN * b10 + B_ELEVEN
            * land_tax;

! 7_331 Residential Land Tax !
EQUATION E_7_331
            b10 = sum(j,IND, RESTAX(j) * (x_fac("cap",j) + reslndtax(j)));

! 7_35: PAYE tax paid by Tasmanian residents !
EQUATION E_7_35
            b1 = sum(j,IND,PAYE(j)*(t_paye(j) + x_fac("lab",j)));

! 7_36: PAYE tax per unit of labour !
EQUATION E_7_36
            (all,j,IND) t_paye(j) = H_PAYE(j) * hous_wage(j) + f_paye(j) ;

! 7_37: income tax on capital rentals by Tasmanians !
EQUATION E_7_37
            b2 = sum(j,IND,K_TAX(j) * (t_kytax(j) + x_fac("cap",j)));

!  7_38: income tax per unit of capital  !
EQUATION E_7_38
            (all,j,IND) t_kytax(j) =  H_KTAX(j) * p_capital(j) +
```

```
            f_ktax(j);

! 7_39: Income tax on vessel licence rentals !
EQUATION E_7_39a
            b3 = sum(j,IND,V_TAX(j) * (t_vltax(j) + x_fac("ves_lic",j)));

EQUATION E_7_39b
            (all,j,IND) t_vltax(j) = H_VLTAX(j) * p_fac("ves_lic",j)
            + f_vltax(j);

! 7_40: Income tax paid by Tas HH's on abalone quota unit rentals !
EQUATION E_7_40a
            b4 = sum(j,IND,ABQ_TAX(j) * (t_abqtax(j) + x_fac("ab_quota",j)));

EQUATION E_7_40b
            (all,j,IND) t_abqtax(j) = H_ABQTAX(j) * p_abquota( j)
            + f_abqtax(j);

! 7_41: Income tax paid by Tas HH's on abalone dive licence rents !
EQUATION E_7_41
            b5 = sum(j,IND,DL_TAX(j) * (t_abdtax(j) + x_fac("ab_dive",j)));

EQUATION E_7_41a
            (all,j,IND) t_abdtax(j) = H_DTAX(j) * p_abdive(j) + f_abdive(j) ;

! 7_42: Income tax paid on rock lobster pot rentals  !
EQUATION E_7_42a
            b6 = sum(j,IND,RL_TAX(j)*(t_rltax(j) + x_fac("pot_lic",j)));

EQUATION E_7_42b
            (all,j,IND) t_rltax(j) = H_RLTAX(j) * p_potlic(j) + f_rltax(j);

! 7_43: Income tax paid on Salmon lease area rentals !
EQUATION E_7_43
            b7 = sum(j,IND,SAL_TAX(j) * (x_fac("aq_sal",j) + t_saltax(j)));

EQUATION E_7_43a
            (all,j,IND) t_saltax(j) = H_SALTAX(j) * p_aqsalm(j) + f_saltax(j);

! 7_44 Income tax paid on oyster lease area rentals !
EQUATION E_7_44a
            b8 = sum(j,IND,OY_TAX(j) * (x_fac("aq_oys",j) + t_oytax(j)));

EQUATION E_7_44b
            (all,j,IND) t_oytax(j) = H_OYTAX(j) * p_aqoys(j) + f_oytax(j);

! 7_45: Income tax paid on mussel lease area rentals !
EQUATION E_7_45a
            b9 = sum(j,IND,MUS_TAX(j) * (t_mustax(j) + x_fac("aq_mus",j)));

EQUATION E_7_45b
            (all,j,IND) t_mustax(j) = H_MUSTAX(j) * p_aqmus(j) + f_mustax(j);

! 7_46: Licence fees paid by Tasmanian households !
EQUATION E_7_46a
            licence_fee = sum(j,IND,
             SL_FEE_VES(j) * (fee_vl(j) + x_fac("ves_lic",j))
            + SL_ROY_ABQ(j) * (royalty_ab(j) + x_fac("ab_quota",j))
            + SL_FEE_ABQ(j) * (fee_abq(j) + x_fac("ab_quota",j))
            + SL_FEE_ABD(j) * (fee_abd(j) + x_fac("ab_dive",j))
            + SL_FEE_RL(j) * (fee_rl(j) + x_fac("pot_lic",j))
            + SL_RENT_SAL(j) * (rent_sal(j) + x_fac("aq_sal",j))
            + SL_FEE_SAL(j) * (fee_sal(j) + x_fac("aq_sal",j))
            + SL_RENT_OYS(j) * (rent_oys(j) + x_fac("aq_oys",j))
            + SL_FEE_OYS(j) * (fee_oys(j) + x_fac("aq_oys",j))
            + SL_RENT_MUS(j) * (rent_mus(j) + x_fac("aq_mus",j))
            + SL_FEE_MUS(j) * (fee_mus(j) + x_fac("aq_mus",j)));


EQUATION E_7_46b
            (all,j,IND) royalty_ab(j) = H_ABROY(j) * p_basic("C1","A1")
            + f_royalty(j);

! 7_47: Gross incomes received by Tasmanian households !
EQUATION E_7_47
```

```
            gross_income = G_W * gross_wage + G_D * cap_income
            + G_L * lic_income + G_LAND * land_rent;

! 7_48: Total taxes, fees, rentals, etc paid by Tas households !
EQUATION E_7_48
            tot_tax = S_YTAX * income_tax + S_LFEE * licence_fee ;

! 7_49: Net disposable income of Tasmanian households !
EQUATION E_7_49
            net_income = NET1 * gross_income - NET2 * tot_tax;

! 7_50: Household aggregate expenditure !
EQUATION E_7_50
            c = f_apc + net_income;

! 7_51: Real Tasmanian household expenditure !
EQUATION E_7_51
            c_real = c - cpi;

! 7_52: Next period's capital stock !
EQUATION E_7_52
            (all,j,IND) k_1(j) = (1-G(j)) *  k_0(j)  +  G(j) * invest(j);

! 7_53: Equalisation of expected rates of return !
EQUATION E_7_53
            (all,j,IND) -BETA(j) * (k_1(j) - k_0(j)) + crates(j) = omega;

! 7_54: Aggregate Tasmanian Investment spending !
EQUATION E_7_54
            total_invest = sum(j,IND,S_INVEST(j) * (p_cap(j) + invest(j)));

! 7_555: Post tax rate of return on capital !
EQUATION E_7_555
            (all,j,IND) p_nine(j) = Q_S(j)  * (p_capital(j) - YTAX_P9(j)
            * t_kytax(j)  - RESL_TAX(j) * reslndtax(j));


! 7_55: Current rates of return !
EQUATION E_7_55
            (all,j,IND) crates(j) = Q(j) * (p_nine(j) - p_cap(j));


! 7_56: State government revenue !
EQUATION E_7_56
            gov_revenue = sum(j,IND, R_ABD(j) * ( fee_abd(j) + x_fac("ab_dive",j))
             + R_ABQ(j) * ( fee_abq(j) + x_fac("ab_quota",j))
            + R_FEE_MUS(j) * ( fee_mus(j) + x_fac("aq_mus",j))
            + R_FEE_OYS(j) * (fee_oys(j) + x_fac("aq_oys",j))
            + R_FEE_RL(j) * (fee_rl(j) + x_fac("pot_lic",j))
            + R_FEE_SAL(j) * ( fee_sal(j) + x_fac("aq_sal",j))
            + R_FEE_VL(j) * ( fee_vl(j) + x_fac("ves_lic",j))
             + R_RENT_MUS(j) * (rent_mus(j)  + x_fac("aq_mus",j))
            + R_RENT_OYS(j) * (rent_oys(j) + x_fac("aq_oys",j))
            + R_RENT_SAL(j) * (rent_sal(j) + x_fac("aq_sal",j))
            + R_ROY_AB(j) * (royalty_ab(j) + x_fac("ab_quota",j))
            + R_PAYROLL(j) * ( t_payroll(j) + x_fac("lab",j)))
            + sum(i,COM, sum(s,SOU,sum(j,IND,
            R_TAX11(i,s,j) * ( t1_tax_11(i,s,j) + x1isj(i,s,j))
            + R_TAX21(i,s,j) * (tax_21(i,s,j) +  x_inv_s(i,s,j))       )))
            + sum(i,COM,sum(s,SOU,
            R_TAX31(i,s)            *(tax_31(i,s) + x_hous_is(i,s))))
            + R_OTH_REV *  other_revenue
            + sum(j,IND, R_PTAX(j) *         (x_ptax(j) + p_ptax(j)))
             + sum(j,IND,R_RESLND(j) * (reslndtax(j) + x_fac("cap",j))) ;

! 7_57: State government expenditure !
EQUATION E_7_57
            gov_expend = sum(i,COM,sum(s,SOU,G_EXP(i,s) *
            (x_state(i,s) + p_basic(i,s)))) + S_OTHR_EXP * other_gov_exp;

! 7_57A: State government borrowing requirement !
EQUATION E_7_57A
            100 * delPSBR = GOV_EX *  gov_expend - GOV_REV *  gov_revenue;
```

APPENDIX G: TASFISH1.TAB

```
! Factor Prices Reported !

! Land !
VARIABLE p_land
          #user price of land#;
COEFFICIENT RENT_SH;
COEFFICIENT LND_TAX_SH;
FORMULA RENT_SH = sum(t,owners,sum(j,IND,LAN1(t,j)))
           / sum(k,owners,sum(h,IND,LAN1(k,h) + LAN2(k,h)));

FORMULA LND_TAX_SH =
           sum(t,owners,sum(j,IND,LAN2(t,j)))
           / sum(k,owners,sum(h,IND,LAN1(k,h) + LAN2(k,h)));

EQUATION E_p_landA
          (all,j,IND) p_land = p_fac("land",j);

EQUATION E_p_landB
          p_land =RENT_SH *  land_rent
          + LND_TAX_SH * land_tax;




EQUATION E_p_faclab
          (all,j,IND) f_wage = p_fac("lab",j);

EQUATION E_p_labour
          (all,j,IND) p_labour(j) = p_fac("lab",j);

EQUATION E_pCAP
          (all,j,IND) p_capital(j) = p_fac("cap",j);

EQUATION E_pfacVL
     (all,j,IND) f_p_ves_lic = p_fac("ves_lic",j);

EQUATION E_pveslic
          (all,j,IND) p_ves_lic(j) = p_fac("ves_lic",j);


EQUATION E_pfacabquota
     (all,j,IND) f_p_abquota = p_fac("ab_quota",j);

EQUATION E_pABQUOTA
          (all,j,IND) p_abquota(j) = p_fac("ab_quota",j);


EQUATION E_pfacabdiv
     (all,j,IND) f_p_abdive = p_fac("ab_dive",j);

EQUATION E_pABDIVE
          (all,j,IND) p_abdive(j) = p_fac("ab_dive",j);


EQUATION E_pfacpotlic
     (all,j,IND) f_p_potlic = p_fac("pot_lic",j) ;

EQUATION E_pPOTLIC
          (all,j,IND) p_potlic(j) = p_fac("pot_lic",j);


EQUATION E_facaqsal
     (all,j,IND) f_p_aqsalm = p_fac("aq_sal",j);

EQUATION E_AQSAL
          (all,j,IND) p_aqsalm(j) = p_fac("aq_sal",j);


EQUATION E_facaqmus
     (all,j,IND) f_p_aqmus = p_fac("aq_mus",j);

EQUATION E_AQMUS
          (all,j,IND) p_aqmus(j) = p_fac("aq_mus",j);
```

APPENDIX G: TASFISH1.TAB

```
EQUATION E_facaqoys
      (all,j,IND) f_p_aqoys = p_fac("aq_oys",j);

EQUATION E_AQOYS
            (all,j,IND) p_aqoys(j) = p_fac("aq_oys",j);


VARIABLE f_fish_lic;
EQUATION E_FIS
      (all,j,IND) f_fish_lic = p_fac("fis",j);

EQUATION E_FIS2
      (all,j,IND) p_fish_lic(j) = p_fac("fis",j);


! Licence Types Simplified !
 EQUATION E_l_ves_lic
            lic_supply("ves_lic") = l_ves_lic;

EQUATION E_l_ab_quota
            lic_supply("ab_quota") = l_ab_quota;

EQUATION E_l_ab_dive
            lic_supply("ab_dive") = l_ab_dive;

EQUATION E_l_pot_lic
            lic_supply("pot_lic") = l_pot_lic;

EQUATION E_l_aq_sal
            lic_supply("aq_sal") = l_aq_sal;

EQUATION E_l_aq_mus
            lic_supply("aq_mus") = l_aq_mus;

EQUATION E_l_aq_oys
      lic_supply("aq_oys") = l_aq_oys;

EQUATION E_l_fis
            lic_supply("fis") = l_fis;


! Indexing of some costs, particularly for homogeneity test !
VARIABLE (all,j,IND) fptax(j)
            #shifter on production tax units#;

VARIABLE (all,t,OWNERS) (all,j,IND) fpoc(t,j)
            #shifter on price of other cost tickets#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) ft1tax11(i,s,j)
            #Shifter on state gov sales tax on intermediate inputs#;

VARIABLE  (all,i,COM) (all,s,SOU) (all,j,IND) ft1tax31(i,s,j)
            #shifter on federal sales tax on intermediate inputs#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) ftax21(i,s,j)
            #shifter on state tax on use of (i,s,j) for capital formation#;

VARIABLE (all,i,COM) (all,s,SOU) (all,j,IND) ftax23(i,s,j)
            #shifter on fed tax on use of (i,s,j) for capital formation#;

VARIABLE (all,i,COM) (all,s,SOU) ftax31(i,s)
            #shifter on state tax on household consumption#;

VARIABLE (all,i,COM) (all,s,SOU) ftax33(i,s)
            #shifter on fed tax on household consumption#;

VARIABLE (all,i,COM) fptran6(i)
            #shifter on transport costs to mainland#;

VARIABLE  (all,i,COM) ft36(i)
            #shifter on fed sales tax on exports to mainland#;

VARIABLE  (all,i,EXP) fti7(i)
            #shifter on per-unit export tax on good i#;
```

APPENDIX G: TASFISH1.TAB

```
VARIABLE (all,i,COM) ftariff(i)
        #shifter on tariff#;

VARIABLE (all,i,COM) fpmainm(i)
        #shifter on price of imports from mainland#;

VARIABLE (all,j,IND) ftpayroll(j)
        #shifter on payroll tax rate#;

VARIABLE (all,j,ind) ffeevl(j)
        #shifter on vessel licence renewal fee#;

VARIABLE  (all,j,IND) ffeeabq(j)
        #shifter on abalone quota unit annual fee#;

VARIABLE (all,j,IND) ffeeabd(j)
        #abalone dive licence annual fee shifter#;

VARIABLE  (all,j,IND) ffeerl(j)
        #shifter on annual rock lobster pot licence fee#;

VARIABLE (all,j,IND) frentsal(j)
        # shifter on annual salmon lease area rental#;

VARIABLE (all,j,IND) ffeesal(j)
        #shifter on annual fee on salmon aquaculture licence#;

VARIABLE (all,j,IND) frentoys(j)
        #shifter on oyster lease area rental to state govt#;

VARIABLE (all,j,IND) ffeeoys(j)
        #shifter on annual fee oyster marine farm lease area#;

VARIABLE (all,j,IND) frentmus(j)
        #shifter on annual rent to govt on mussel lease area#;

VARIABLE (all,j,IND) ffeemus(j)
        #shifter annual fee on mussel aquaculture lease areas#;

VARIABLE (all,j,IND) freslndtax(j)
        #shiter residental land tax#;

VARIABLE fotherrevenue
        #shifter on State government other revenue#;

VARIABLE fothergovexp
        #shifter on other government expenditure#;

VARIABLE ffwage
        #shifter on Tasmanian nominal wage#;


COEFFICIENT (all,j,IND) INDEX1(j);
COEFFICIENT (all,t,OWNERS) (all,j,IND) INDEX2(t,j);
COEFFICIENT (all,i,COM) (all,s,SOU) (all,j,IND) INDEX3(i,s,j);
COEFFICIENT (all,i,COM) (all,s,SOU) INDEX4(i,s);
COEFFICIENT INDEX5;
COEFFICIENT INDEX6;


FORMULA (all,j,IND) INDEX1(j) = 1;
FORMULA  (all,t,OWNERS) (all,j,IND) INDEX2(t,j) = 1;
FORMULA (all,i,COM) (all,s,SOU) (all,j,IND) INDEX3(i,s,j) = 1;
FORMULA (all,i,COM) (all,s,SOU) INDEX4(i,s) = 1;
FORMULA INDEX5 = 1;
FORMULA INDEX6 = 1;

EQUATION EQ_INDEX1 (all,j,IND) p_ptax(j) = INDEX1(j) * cpi + fptax(j);
EQUATION EQ_INDEX2 (all,t,OWNERS) (all,j,IND) p_oc(t,j) = INDEX2(t,j) * cpi
        + fpoc(t,j);
EQUATION EQ_INDEX3  (all,i,COM) (all,s,SOU) (all,j,IND) t1_tax_11(i,s,j) =
        INDEX3(i,s,j) * cpi + ft1tax11(i,s,j);
EQUATION EQ_INDEX4 (all,i,COM) (all,s,SOU) (all,j,IND) t1_tax_31(i,s,j) =
        INDEX3(i,s,j) * cpi + ft1tax31(i,s,j);
```

APPENDIX G: TASFISH1.TAB

```
EQUATION EQ_INDEX5  (all,i,COM) (all,s,SOU) (all,j,IND) tax_21(i,s,j) =
            INDEX3(i,s,j) * cpi + ftax21(i,s,j);
EQUATION EQ_INDEX6  (all,i,COM) (all,s,SOU) (all,j,IND) tax_23(i,s,j) =
            INDEX3(i,s,j) * cpi + ftax23(i,s,j);
EQUATION EQ_INDEX7 (all,i,COM) (all,s,SOU) tax_31(i,s) = INDEX4(i,s) * cpi
            + ftax31(i,s);
EQUATION EQ_INDEX8 (all,i,COM) (all,s,SOU) tax_33(i,s) = INDEX4(i,s) * cpi
            + ftax33(i,s);
EQUATION EQ_INDEX9  (all,i,COM) p_tran6(i) = INDEX5 * cpi + fptran6(i);
EQUATION EQ_INDEX10 (all,i,COM) t_36(i) = INDEX6 * cpi + ft36(i);
EQUATION EQ_INDEX11 (all,i,EXP) ti7(i) = INDEX6 * cpi + fti7(i);
EQUATION EQ_INDEX12  (all,i,COM) tariff(i) = INDEX6 * cpi + ftariff(i);
EQUATION EQ_INDEX13
            (all,i,COM) p_main_m(i) = INDEX5 * cpi + fpmainm(i);

EQUATION EQ_INDEX14
            (all,j,IND) t_payroll(j) = INDEX6 * cpi + ftpayroll(j);

EQUATION EQ_INDEX15
            (all,j,ind) fee_vl(j) = INDEX6 * cpi + ffeevl(j);

EQUATION EQ_INDEX16
            (all,j,IND) fee_abq(j) = INDEX5 * cpi + ffeeabq(j);

EQUATION EQ_INDEX17
            (all,j,IND) fee_abd(j) = INDEX6 * cpi + ffeeabd(j);

EQUATION EQ_INDEX18
            (all,j,IND) fee_rl(j) = INDEX6 * cpi + ffeerl(j);

EQUATION EQ_INDEX19
           (all,j,IND) rent_sal(j) = INDEX6 * cpi + frentsal(j);

EQUATION EQ_INDEX20
            (all,j,IND) fee_sal(j) = INDEX6 * cpi + ffeesal(j);

EQUATION EQ_INDEX21
            (all,j,IND) rent_oys(j)  = INDEX6 * cpi + frentoys(j);

EQUATION EQ_INDEX22
             (all,j,IND) fee_oys(j) = INDEX6 * cpi + ffeeoys(j);

EQUATION EQ_INDEX23
             (all,j,IND) rent_mus(j) = INDEX6 * cpi + frentmus(j);

EQUATION EQ_INDEX24
            (all,j,IND) fee_mus(j) = INDEX6 * cpi + ffeemus(j);

EQUATION EQ_INDEX25
            (all,j,IND) reslndtax(j) = INDEX6 * cpi + freslndtax(j);

EQUATION EQ_INDEX26
            other_revenue = INDEX6 * cpi + fotherrevenue;

EQUATION EQ_INDEX27
            other_gov_exp = INDEX6 * cpi + fothergovexp;

EQUATION EQ_INDEX28
            f_wage = INDEX6 * cpi + ffwage;

EQUATION EQ_INDEX29
           land_tax = INDEX6 * cpi + ffland_tax;



! Check Zero Pure Profits Coefficients !

COEFFICIENT (all,j,IND) CHECK_PROFIT(j);
FORMULA (all,j,IND) CHECK_PROFIT(j) = sum(m,COM,H_SALES(j,m)) -
            sum(i,COM,sum(s,SOU, H_INT(i,s,j))) -
            sum(v,FAC,H_FAC(v,j)) -
            H_PT(j) - H_CTAX(j) -
            sum(t,OWNERS, H_OC(t,j));

! Check Demand = Supply Coefficients !
```

APPENDIX G: TASFISH1.TAB

```
COEFFICIENT (all,i,COM) CHECK_CLEAR(i);
FORMULA (all,i,COM) CHECK_CLEAR(i) =
            sum(j,IND, INT_SHR(i,j)) +
            sum(j,IND, INV_SHR(i,j)) +
            HOUS_SHR(i) +
            STATE_SHR(i)  +
            CW_SHR(i) +
            MEX_SHR(i) +
            OEX_SHR(i);


WRITE S_FAC to file CHKFISH;
WRITE LIC_SHR to file CHKFISH;
WRITE NET1 to file CHKFISH;
WRITE NET2 to file CHKFISH;
WRITE G_W to file CHKFISH;
WRITE G_D to file CHKFISH;
WRITE G_L to file CHKFISH;
WRITE G_LAND to file CHKFISH;
WRITE S_YTAX to file CHKFISH;
WRITE S_LFEE to file CHKFISH;
WRITE H_SALES to file CHKFISH;
WRITE H_INT to file CHKFISH;
WRITE H_FAC to file CHKFISH;
WRITE H_PT to file CHKFISH;
WRITE H_OC to file CHKFISH;
WRITE H_CTAX to file CHKFISH;
WRITE INT_SHR to file CHKFISH;
WRITE INV_SHR to file CHKFISH;
WRITE HOUS_SHR to file CHKFISH;
WRITE STATE_SHR to file CHKFISH;
WRITE CW_SHR to file CHKFISH;
WRITE MEX_SHR to file CHKFISH;
WRITE OEX_SHR to file CHKFISH;
WRITE CPI_SH to file CHKFISH;
WRITE Q_S to file CHKFISH;
WRITE CHECK_PROFIT to file CHKFISH;
WRITE CHECK_CLEAR to file CHKFISH;
```

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